Bureau of Justice Assistance
SMART Policing Initiative

Cincinnati Police Department Robbery Reduction Initiative

Year 2 Evaluation

Report submitted to: Captain Russ Neville
Cincinnati Police Department District 3

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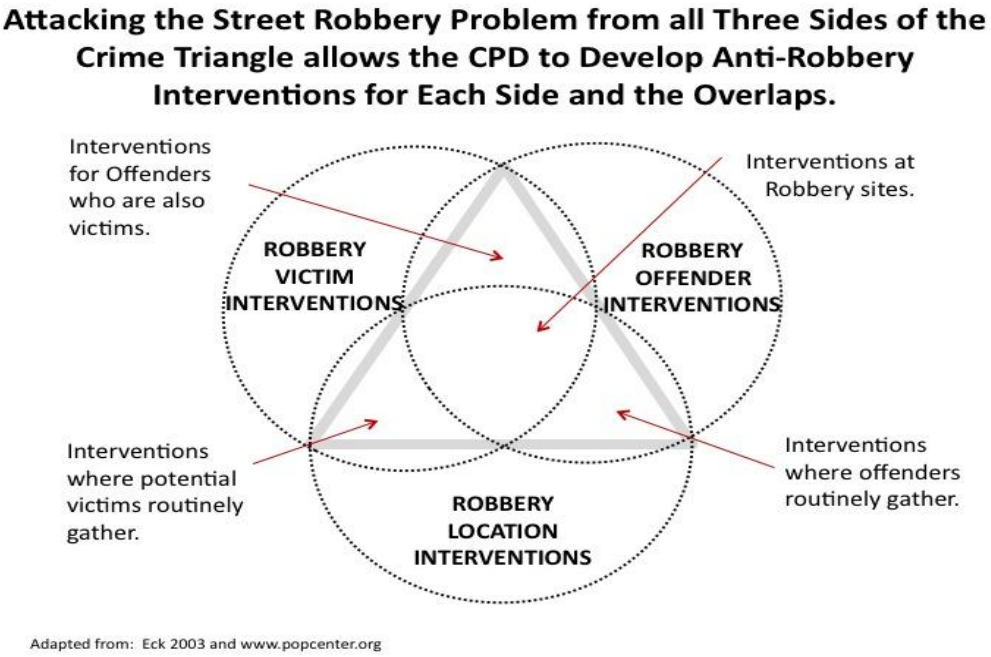
Abstract:
In October, 2010, the Cincinnati Police Department SMART Policing Initiative began a problem-solving project to reduce robberies along a 1.5 mile corridor in the City's District 3. Robbery rates in this section of the city had increased over the past decade and were resistant to previous interventions. For these reasons, it seemed ripe for an innovative problem-solving intervention process. Following a thorough scanning and analysis of the problem, the SPI team introduced a series of interventions focused on offenders, victims, and the places involved in robberies in the corridor. During 2011 there was a 15% drop in robberies in the target area compared to 2010, a positive, but not statistically significant figure. In 2012, however, the lower numbers could not be sustained and robberies returned to their 2010 levels. This report provides a three-pronged evaluation of the Cincinnati SPI project to address the process that was conducted, the impact that the project had, and whether or not displacement occurred due to the project. Further, this report will detail the lessons that were learned throughout the project, including recommendations for refocusing the project to better respond to the robbery problem in District 3 in the future.

BACKGROUND

In May, 2010, the Cincinnati Police Department's (CPD) Problem-Solving Unit and District 3 applied for a SMART Policing Initiative (SPI) grant from the U.S. Department of Justice, Bureau of Justice Assistance. The purpose of the grant was to develop a robbery reduction initiative for a corridor in Cincinnati's District 3 that had been particularly resistant to previous interventions. The initial target area for the project was a one-mile corridor along Warsaw and Glenway Avenues that accounted for approximately 28% of all robberies, but less than 4% of the total area, in District 3 in 2009. The project proposed to analyze robberies in the corridor in an innovative way that considered all sides of the problem triangle (victims, offenders, and places). It was believed that such a process was needed to finally identify effective interventions to reduce robberies in the corridor. The schematic in Figure 1 identifies the initial plan for the analysis and response processes.

Figure 1: Robbery intervention plan



EVALUATION

This evaluation is comprised of three parts: a process evaluation, an impact evaluation, and an assessment of whether displacement or diffusion of benefits occurred as a result of the project interventions. A brief summary of the project area and the distribution of robberies is provided here for reference throughout the evaluation. We also provide a concluding section with lessons learned and recommendations for further efforts to curtail street robberies.

Figure 2 identifies 1) the robbery reduction target area (outlined in red), 2) a .5 mile buffer area around the target area (outlined in blue), 3) Cincinnati Police Department District 3 (shaded in green), and 4) the streets of the City of Cincinnati (in black).

Figure 2:

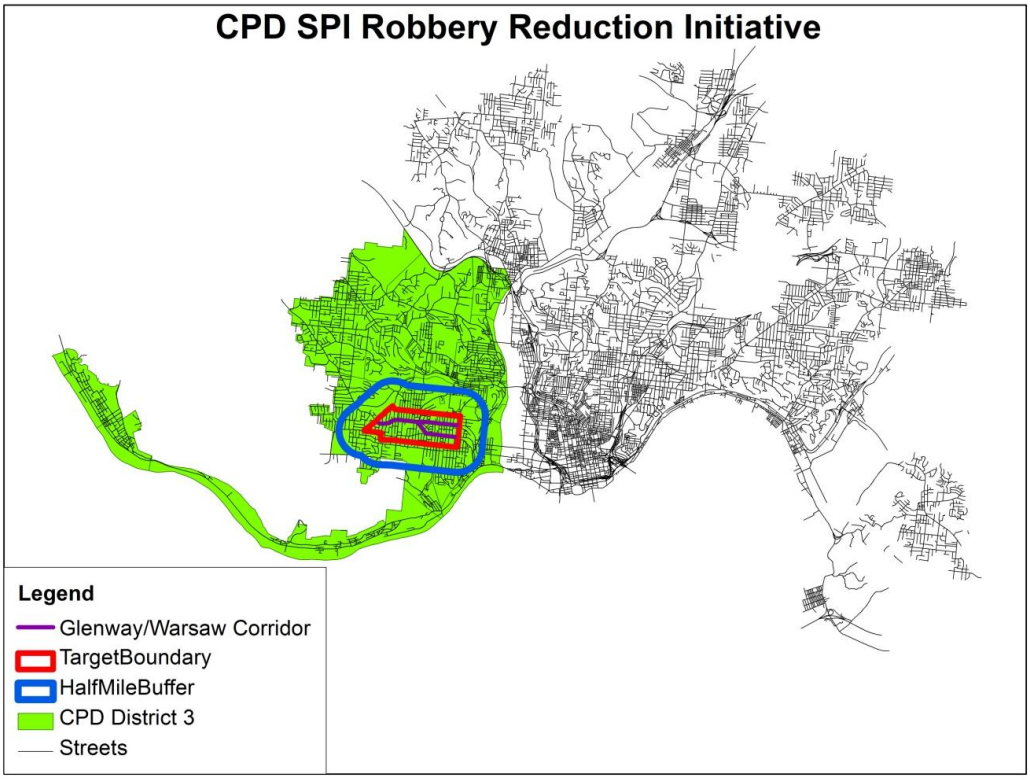
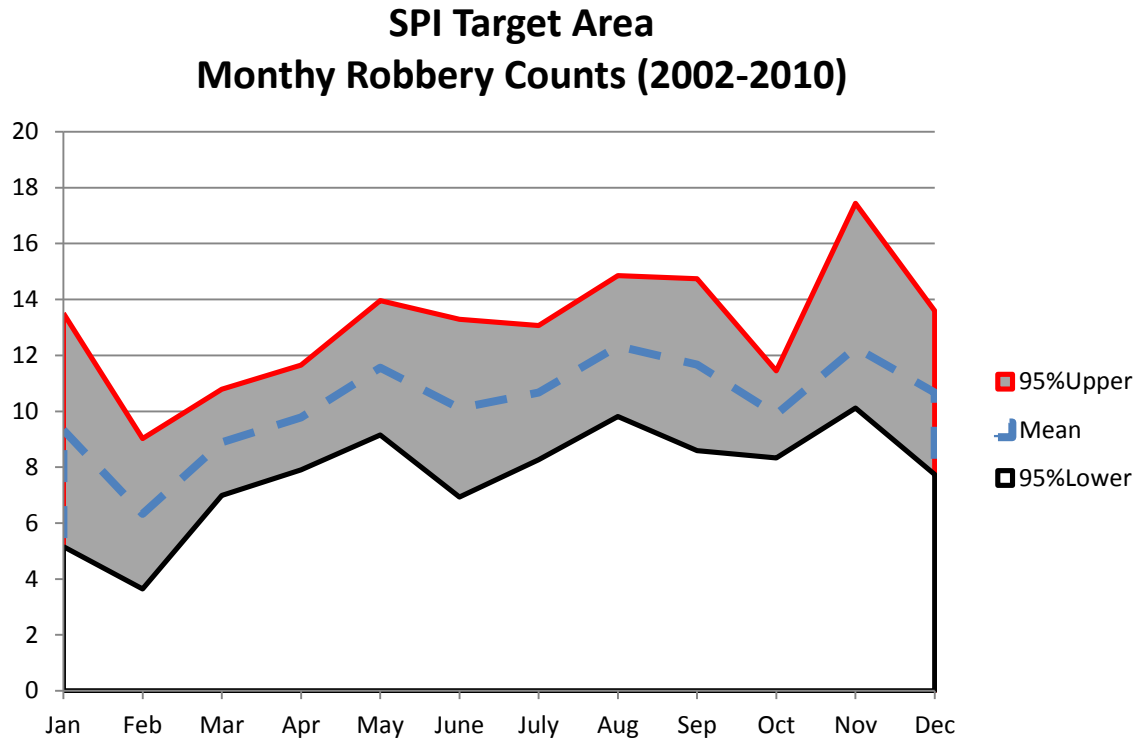


Figure 3 provides a visual summary of monthly robbery counts in the robbery reduction target area from 2002 through 2010. The dashed line represents the mean of monthly robbery counts while the shaded gray area is a 95% confidence interval for monthly counts. The confidence interval represents an area that, if the data is normally distributed, counts will fall within 95% of the time due to chance. In short, to claim a robbery reduction (whether from this project or for other reasons) the robbery count for a given month must fall outside and below this shaded region. Figure 3 demonstrates that there are seasonal changes in robberies in the target area with the lowest counts around February and higher robbery levels around the end of summer, with a second spike during the holidays.

Figure 3:



Process Evaluation

The process evaluation examines how interventions to reduce robberies in the target area were implemented. There are two separate features to the process evaluation. The first examines findings related to a series of questions about the occurrence of robberies in the target area. The second identifies what interventions were implemented, and when, in response to these findings.

How Robberies Occur

CPD's initial grant proposal presented nine questions about how robbery offenders and victims converged in space in time in the target area. These questions served as the initial point of departure for the project team's examination of the robbery problem in District 3. This section will identify the initial questions that were posed, the initial assumptions that the project team had about the questions, as well as the answers that were identified through an analysis of data. The project team consisted of members of the CPD Problem-Solving Unit, researchers from the University of Cincinnati (UC), and members of Cincinnati Police District 3, including the District Captain, a team of detectives, and the District Crime Analyst.

Offenders

Questions:

- Where do offenders live and where are their hunting territories?
- Are robbery offenders primarily under correctional supervision?
- What is the social network structure of robbery offenders?

Findings:

Knowledge of robbery offenders prior to the beginning of the grant was limited, but did suggest that the offenders in the target area had a mean age of 21 and were primarily black. Prior to analyzing the data, there was a general belief by police officers that the robbery offenders lived in other areas of the city and came to the target area for criminal activity. Further, the

project team believed that a number of the offenders might be under the supervision of the Probation and Parole Departments. Finally, there was an assumption that robbery offenders in the target area were organized in some fashion, either loosely associated or related to gangs operating in the area.

In-depth research conducted during the first nine months of the grant project identified more details about robbery offenders in the target area. The project team began analyzing data on individuals who were arrested for committing robberies in the target area from January 2009 through December 2010 (N = 78). New information on arrested robbery suspects was added to the analysis as it was made available during the project.

The 2009-2010 data showed that 66% of known robbery arrestees were black males and 26% were white males. Female robbery offenders only made up 8% of the sample. While the median age of known robbery suspects and arrestees was 17 years, the average age was 23 years old. The 2009 and 2010 data also showed that, contrary to the team's assumptions, the majority of robbery offenders lived either in or near the target area. Approximately 72% of the robbery arrestees in the target area lived in the target area or within .5 miles of the target area. Further, 81% of the target area robbery suspects and arrestees lived within CPD District 3, where the target area is located.

A social network analysis for target area robbery arrestees and victims was conducted during the spring and summer of 2011. This analysis included pulling data from the Field Interview Report (FIR) database, arrest reports, NIBRS forms, and Hamilton County bond forms to identify potential associates of victims and offenders in order to determine if there were connections between offenders or among offenders and victims. The analysis found that there was little documented connectivity among target area robbery suspects, arrestees, and victims.

The limited connections identified by the social network analysis confirmed links that had already been recognized by investigators on the project team, in the process of making arrests for robbery incidents. Both the social network analysis and the in-depth offender research also identified that the robbery suspects and arrestees were not robbery specialists, either in the target area or elsewhere in the city. However, during the analysis, a detective working on the project team noted that there was a small number of suspected robbery offenders who were also reported robbery victims, suggesting some victim-offender overlap.

Although the Probation and Parole Departments had agreed to work with the project team on the robbery reduction project, they were unable to share historical records. As a result, the team was unable to determine the number of robbery arrestees who were on parole or probation during the project period. As new target area suspects were identified, however, the project team did attempt to work with the Probation and Parole Departments to better identify the impact of being on probation or parole on robbery offending.

Summary:

• Where do offenders live and where are their hunting territories?	Majority of offenders live and offend in the target.
• Are robbery offenders primarily under correctional supervision?	Data not available.
• What is the social network structure of robbery offenders?	No apparent connectivity.

Places

Questions:

- Where are robbery hot spots along Warsaw Avenue and nearby?
- What are hot spot convergent settings?
- What is the role of place managers at hot spots and convergent settings? Are place managers actively managing their places for crime prevention?

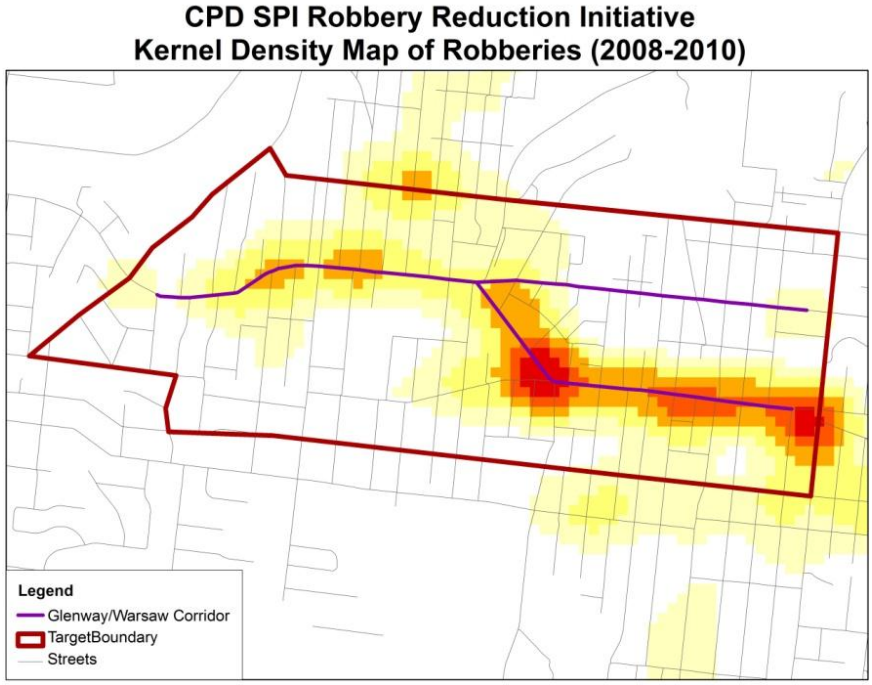
Findings:

The original grant application for the Cincinnati robbery reduction project aimed to target a one mile corridor along Warsaw and Glenway Avenues in Police District 3. An analysis of robberies in District 3 from 2000 through early 2009 suggested that this area was most resistant to previous interventions. However, little previous research had been conducted to identify what characteristics of this area contributed to the higher levels of robbery offending or the involvement of place managers. Analysis conducted immediately following the receipt of the grant suggested that the target area corridor should be extended .5 miles to the west, along Glenway Avenue, to account for a western expansion of robberies during late 2009 and early 2010. The new target area, a 1.5 mile long business corridor and surrounding residential area regularly, accounted for over 30% of robberies in District 3 from 2000 through 2010.

Kernel density maps for 2008 through 2010 show the extent of robbery offending throughout the target area (see Figure 4). The hottest area (shown in dark red), or the area with the most robbery incidents, is along one of the primary business corridors, Warsaw Avenue. The connecting business street, Glenway Avenue, is also more likely to attract robberies than the surrounding area. The eastern hot area, along Warsaw, is home to a number of vacant buildings, small businesses, and convenience stores. The two darkest areas are found at the far eastern border of the target area where there is a mix of apartment buildings and small stores and the center of the target area where a large grocery store and small businesses and restaurants are

found. The business corridors where the most robberies occur are also major thoroughfares for local traffic and public transportation.

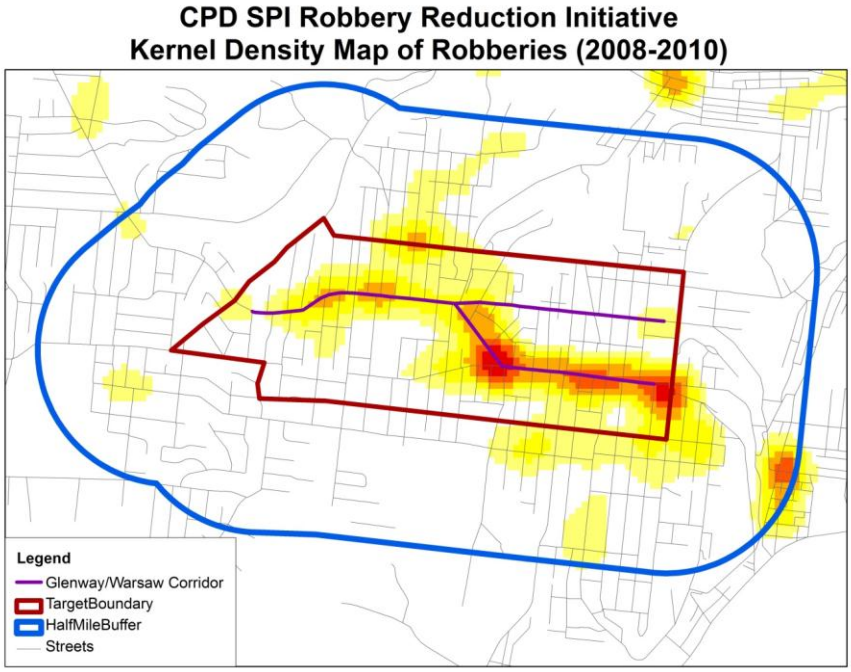
Figure 4:



(N=1691, Geocoding Rate = 100%)

The analysis of robberies in District 3 also included an assessment of a .5 mile buffer area around the SPI target area. The buffer area was used to monitor whether displacement or a diffusion of benefits occurred as a result of the robbery reduction project. Figure 5 identifies robbery locations and levels in and around the target area for 2008- 2010. The selected target area encompasses the majority of robbery offending in the area. There is a small hotspot on the eastern edge of the buffer zone. However, this area, while close in distance to the target area, is geographically disconnected from the primary target area (it is at the base of a hill while the target area is at the top of a hill).

Figure 5:



(N=1691, Geocoding Rate = 100%)

Throughout the grant, the project team worked to identify convergent settings for robbery offenders, places where robbers might have met or hung out together prior to or following a robbery. However, due to the nature of robbery offenders in the target area (criminal generalists with little to no connectivity among offenders), no identifiable convergent settings for robbers were identified. Two locations that did seem to contribute to the occurrence of robberies, though not strictly as convergent settings for robbers, were a large grocery store at the center of the target area and an apartment building at the eastern edge of the target. The project team also worked to identify locations in the project area that had large amounts of calls for service and were a general drain on police services.

Finally, the project team assessed the roles of place managers within the target area. It is generally recognized that partnerships between place managers and the police can help to reduce criminal activity at places. The target area is comprised of two primary business avenues that merge together, surrounded by residential properties, a large number of which are rental

properties. The mix of businesses, private residential, and rental properties results in a mix of property owners who range from active to passive place managers in the community. An environmental survey of the main business corridor in the target area conducted by the project team identified more passive place managers than active place managers. Owners of rental and owner-occupied properties in the residential portion of the target had varying levels of management.

Summary:

• Where are robbery hot spots along Warsaw Avenue and nearby?	Robbery hot spots are primarily found along Warsaw Ave.
• What are hot spot convergent settings?	No convergent settings identified.
• What is the role of place managers at hot spots and convergent settings?	Environmental survey suggests majority of place managers are passive.

Victims

Questions:

- Are robbery victims also offenders (for any crime type)?
- What are victims doing before their robbery victimization?
- Where are victims from? Are they residents of the neighborhood or from outside the neighborhood?

Findings:

The project team initially identified two types of robbery victims in the target area. The first type included victims who were involved in other forms of criminal activity that contributed to their being robbed. The second group of victims was perceived as more innocent, individuals who were not involved in other criminal activity at the time of their robbery. Little else was known about robbery victims in the target area prior to the start of the project.

Investigators involved in the robbery reduction project were tasked with interviewing both victims and offenders arrested for committing robberies in the target area during 2010 and

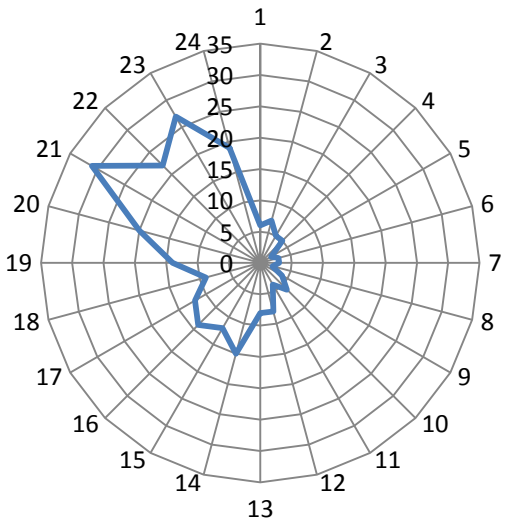
early 2011. These interviews attempted to get a better sense of the characteristics of robbery participants and what they were doing before robberies occurred. Tape recordings of the interviews were analyzed by qualitative researchers at UC. The interviews revealed that six of the eight offenders initially interviewed had previously been a victim of a robbery, although only a few robbery victims who were identified were also known to be offenders in the District. The small number of individuals found to be both victims and offenders were typically well known by police officers and detectives and were involved in a variety of criminal activities, including theft, assault, burglary, and robbery, as both victims and offenders. In contrast, the bulk of robbery victims were not known to be involved in criminal activities either previously or at the time of their attack. An analysis of 2009 and 2010 robbery incidents in the target area identified that almost half of the incidents involved predatory attacks where an offender identified a victim that appeared to be an easy robbery opportunity, including, but not limited to vulnerable victims, such as disabled, young, and non-English speaking individuals. Other robbery incidents involved acquaintance and family robbery incidents or group incidents. The typical items taken during robberies included money and cellular telephones, although jewelry and prescription medicines were also stolen on multiple occasions. Victim interviews (N=32) conducted by detectives on the project team also helped to reveal some of the common patterns of victims prior to being robbed. The interviews also identified some of the methods by which offenders approached victims. More than half of the victim interviews revealed that their robberies were committed on the way to or from home, school, work, or errands. At least seven of the incidents were conducted at or near public bus stops.

Data reported by the police department for robbery victims from 2009 and 2010 (N = 241) notes that 57% of victims lived in the target area and an additional 21% lived within .5

miles of the target area. Further, 71% of robbery victims in the target area were male. Approximately 51% of robbery victims were white and 35% were black. Prior to July, 2010, Cincinnati incident reports did not identify whether robbery victims were Hispanic. However, the victim and offender interviews suggested that Hispanics were a target of robberies in the target area.

In addition to examining who was targeted for robbery incidents, the project team also investigated the most common times and days when robbery incidents occurred. Figure 6 identifies the clock for robbery incidents in the target area for 2009 and 2010. The greatest number of robberies occurred between 9 pm and 11pm. There was not one night of the week that was significantly more popular for robberies than another. During 2009 and 2010, 18% of robberies occurred on a Monday, 17% occurred on Saturday, and 16% on Friday.

Figure 6: Robbery clock for target area, 2009-2010 (N=258)



Summary:

• Are robbery victims also offenders (for any crime type)?	There is a small amount of victim-offender overlap.
• What are victims doing before their robbery victimization?	Travelling to or from work or school.
• Where are victims from?	The majority of victims live in the target area.

Responses to Robberies

Based on the findings reported above, the project team then began to develop a series of interventions to attempt to reduce robberies in the SPI target area.

Offenders

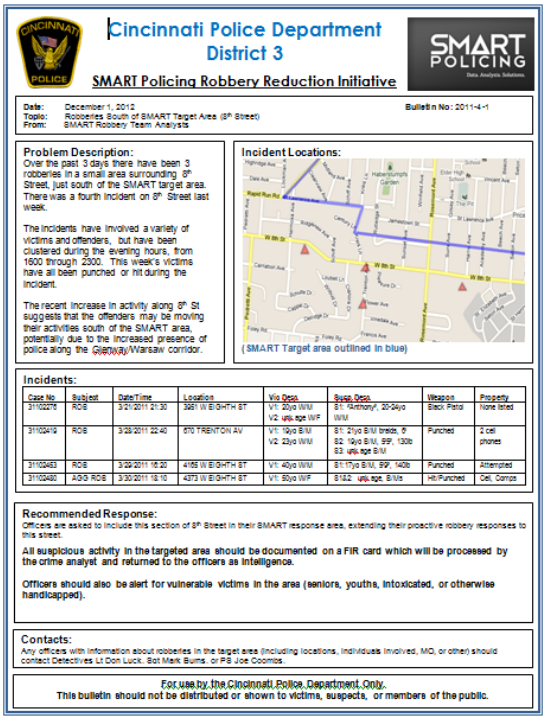
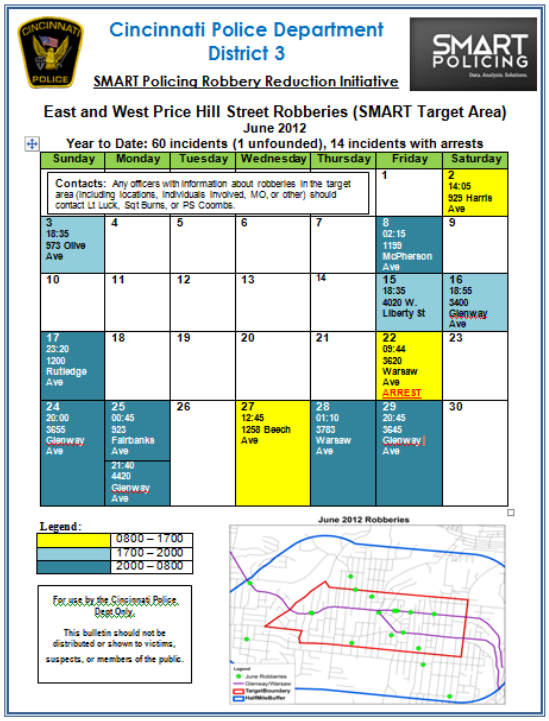
Offender interventions attempted to reduce repeat offending in the target area as well as deter potential future offenders from committing their first robbery. This goal was primarily achieved by increasing police officer presence in the target area in the places where and at the times when robberies most commonly occurred. Throughout the grant period the project team conducted a variety of patrols to increase officer presence in the robbery reduction target area. The patrol activities included short bursts of walking and driving patrols by uniformed police officers, walking patrols by plain-clothes detectives, hotspot led K-9 training patrols, and community/business liaison patrols. During patrols in the target area officers were instructed to interact with citizens and business owners and to collect Field Information Reports (FIR). Over 20 officers from District 3 were provided training about the SPI project and project-related activities in January 2011.

The patrol efforts were supplemented by the installation of video cameras along the main business corridors (Warsaw and Glenway Avenues) in the target area, as part of a greater CCTV program in the City. The video cameras were used to monitor pedestrian traffic on the main business corridors and attempt to identify suspects following robberies. During the last few months of the project period, GPS encoded digital cameras were also introduced into the target area so that officers could capture images of individuals in hotspots that could then be georeferenced onto maps.

In addition to deterring robbery activity through police presence, the project team also attempted to deter known robbery offenders from committing further crimes, particularly robberies. The investigative team conducted home visits with individuals who lived in the target area and had committed one or more robbery in the area. The investigative team also worked to intervene with known robbery offenders who were also robbery victims.

The project team also worked to better collect, analyze, and dispense information about robbery offenders and robbery incidents through changes in the investigation and crime analysis units. At the start of the project, the target area was assigned dedicated robbery investigators. During the course of the project three detectives were tasked with responding to and investigating robberies in the target area. Prior to the implementation of the project, detectives were not crime specialists in District 3, but responded to a variety of crimes during their daily work. This change in staffing allowed a set group of detectives to serve on the project team and to increase the overall knowledge of the project team about all aspects of robbery incidents. Further, the robbery investigators were tasked with conducting in-depth interviews with both robbery victims and arrestees in the target area to get a better sense of how robbery incidents occurred.

Finally, the project team worked to develop crime analysis bulletins that outlined robbery patterns and series in the target area and alerted patrol officers to hot spots and hot times for robberies (see Figure 7). Prior to the start of this project, CPD did not have a specific procedure regarding crime analysis bulletins, but, due to the efforts of the project team, a crime analysis bulletin procedure was added to the CPD procedures manual in 2012. The project team also kept a robbery calendar that provided a snapshot of the previous month's robbery incidents (see Figure 8).

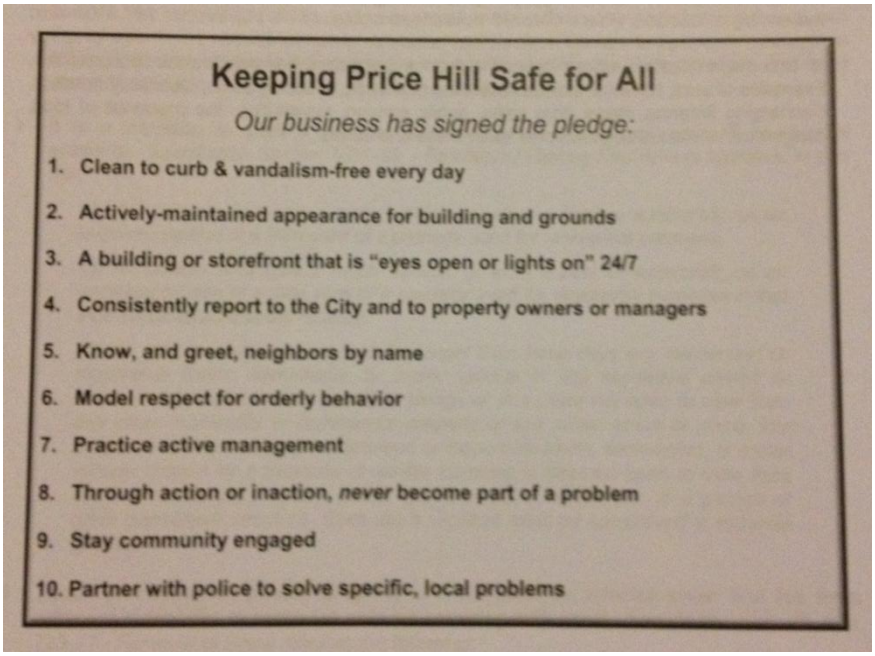
Figure 7: Crime analysis bulletin	Figure 8: Monthly robbery calendar
	

Places

Place-based interventions were divided into two different groups, one group addressing the business community in the target area and the second group focusing on residential interventions. John Campbell, a nationally recognized trainer on community problem solving, joined the project team to develop a business crime prevention program for the target area. The goal of the business program was to increase active place management by business owners and employees along the Warsaw and Glenway business corridors running through the middle of the target area. Campbell participated in an environmental survey of the target area with the project team and helped to assess the level of place management in the corridor. In addition to creating a crime prevention manual for business owners, Campbell also conducted two trainings in the community to encourage participation in the program. Over 50 people from the community attended at least one of the two trainings. Business owners were encouraged to sign a pledge to

support crime prevention activities in the community and conduct a few simple activities that could help make their businesses and their community safer (see a copy of the pledge at Figure 9). The project team had 159 direct contacts with the business community related to the robbery reduction project.

Figure 9: Business pledge for SPI target area



The second set of place-based interventions focused on residential properties in the target area. Although specific convergent settings for offenders could not be identified, the project team did identify several areas that were 1) associated with robbery victims, 2) the places where robberies occurred most often, or 3) associated with general high levels of crime and disorder in the community. As these properties and areas were identified, the project team developed specific interventions to reduce robberies or general offending. For example, in conjunction with identifying that there was an increasing number of Hispanic robbery victims, the project team also identified that the majority of these victims lived within a few blocks of each other and that many lived in the same apartment building at the eastern edge of the target area. Members of the

project team conducted robbery prevention activities at the apartment building and also worked with management to improve the general quality of life at the apartment building. The project team also hosted a landlord training program for landlords in the target area.

Victims

Victim interventions focused on making potential victims in the target area more aware of their surroundings and how to protect themselves. Officers conducting patrols were encouraged to engage with all citizens in the target area, but to make a special effort to talk to individuals who were at a higher risk for robberies, including those who were waiting for buses, individuals who were flashing money, expensive phones, or jewelry, and potentially vulnerable populations, such as the elderly, disabled, or non-English speaking groups. At the start of the second year of the project, the team conducted a robbery prevention educational campaign for Hispanics in the community. This project included distributing Spanish-language prevention brochures to local businesses, airing public service announcements on the radio, erecting a robbery prevention billboard in Spanish (see Figure 10), and meeting with leaders of the local Hispanic community to better reach potential robbery victims. The District also created an SOP for investigators responding to violent crimes with Hispanic and Latino victims.

Figure 10: Robbery awareness billboard posted in target area during March 2012

The timelines attached at Appendix A identify the major interventions that were implemented over the course of the project, along with the monthly robbery counts.

Impact on Robberies

Target Area Impact and Displacement

The impact evaluation identifies what effect the interventions had on robberies in the target area over the course of the project. An overall summary of robbery counts will be provided as will a description of changes in trends in robberies in the target area during the intervention period. Then, in the following section, the robbery trends in the SPI target area will be compared to robbery trends in 1) the .5 mile buffer area around the target area, 2) District 3, 3) the City of Cincinnati, and 4) a control area within the city for the years 2009 through 2012.[1] These comparisons will identify if changes in robbery counts have resulted in spatial displacement of robberies or a diffusion of benefits related to the project. Interventions directly related to the robbery reduction project were conducted from January 2011 through September 2012.

Figure 11 identifies monthly robbery counts for the target area. The solid lines represent counts for 2011 (purple) and 2012 (green). The dotted line (orange) represents the average monthly robbery values for 2002 through 2010, while the shaded area provides a 95% confidence interval around the monthly trend line. Due to the few months for the evaluation and the small number of robberies in any particular month it is difficult to conduct rigorous statistical analyses. However, the confidence interval provides a rough approximation for determining whether the 2011 or 2012 monthly counts are significantly different from the 2002 through 2010 counts.

[1] The control was selected at the start of the project as a similarly situated community in Cincinnati that was believed to be relatively insulated from any activities that might occur in the target area. The control area has a similar make-up as the target area, with both a business corridor and residential streets. For the years 2006 through 2009 the control had similar counts and trends in robberies as the target area. The location of the control area was kept secret from operational police officials in order to guard against such knowledge stimulating police activity in the control area. As we describe later, this precaution was inadequate.

Figure 11:

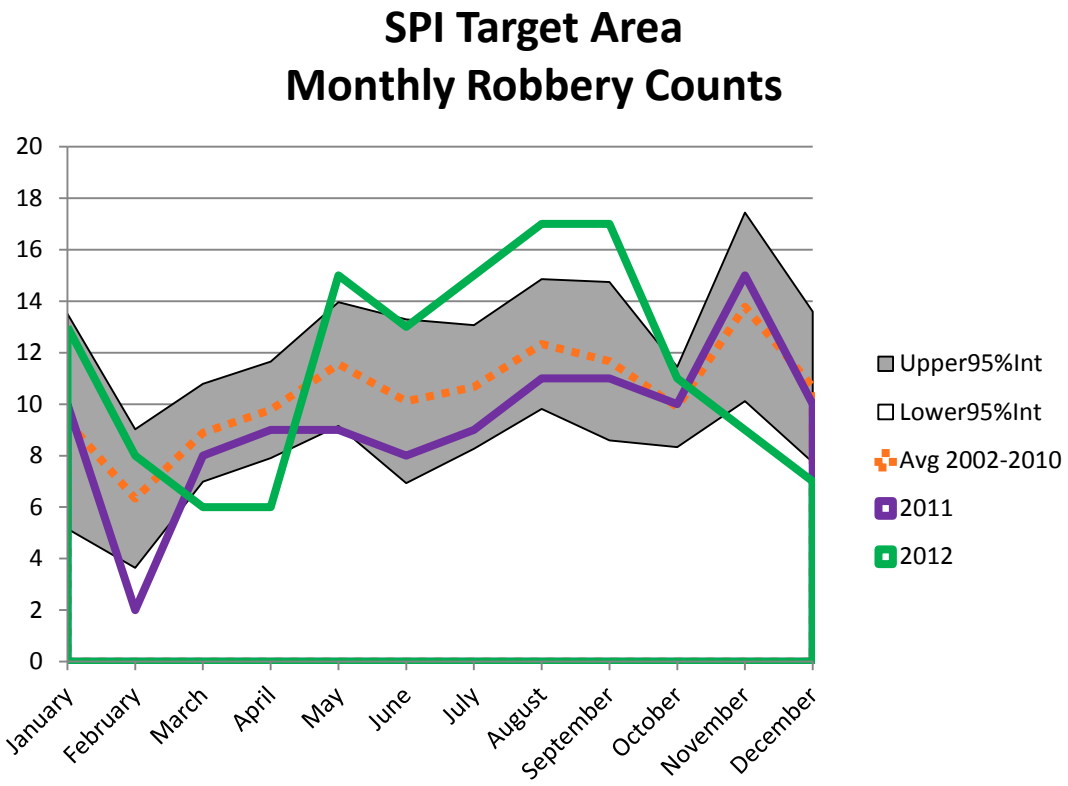
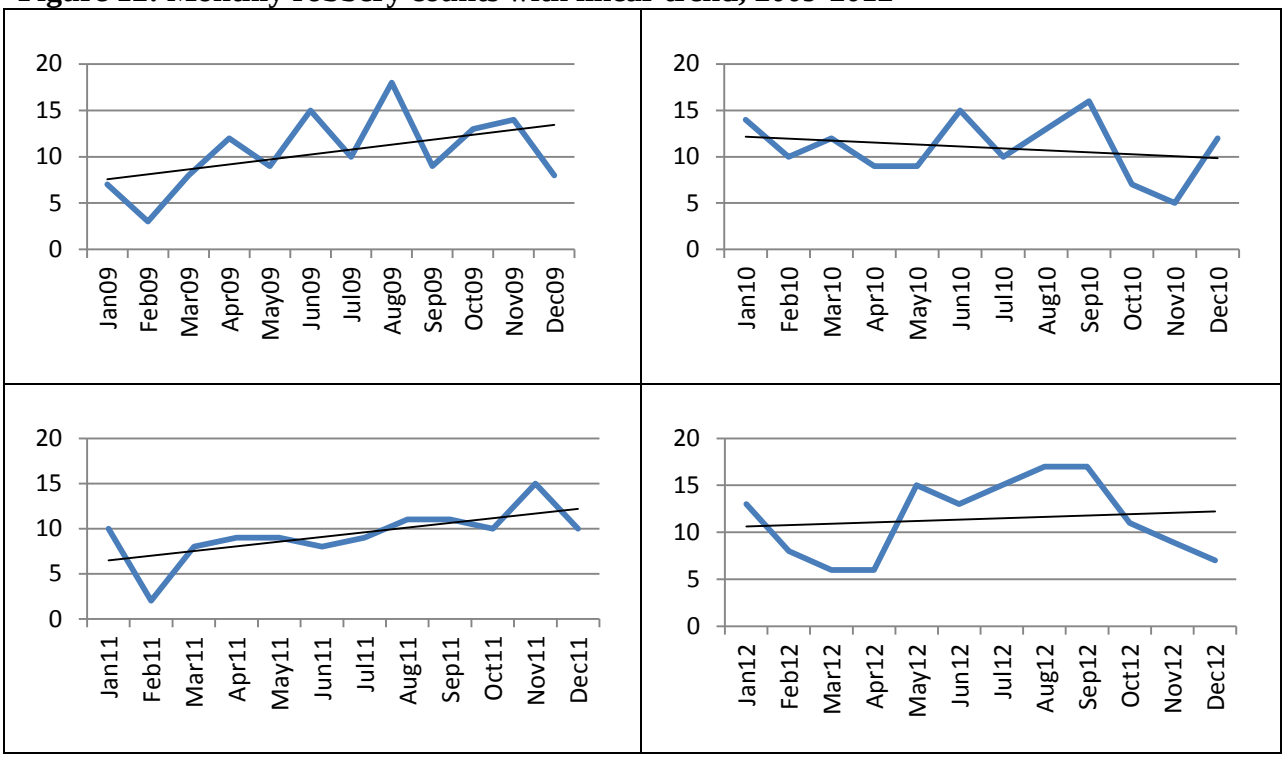


Figure 11 demonstrates that during 2011 the monthly robbery counts were largely within the 95% confidence interval, although the majority of the counts were below the monthly average values. In February the monthly count dropped below the confidence interval and appeared to be significantly different from the other ten robbery counts for February. The annual robbery total for 2011 was 112 robberies, 15% lower than the 2010 annual robbery count. This figure is also just outside the 95% confidence interval for annual counts from 2002 through 2010 (95% confidence interval: 112.75 – 137.69) (see also Figure 16 in the discussion of displacement below). In short, for any given month in 2011, we cannot eliminate the possibility that the changes in the number of robberies is due to chance alone. However, for the entire year there is only a five percent chance that the changes are due to chance.

In 2012, the monthly robbery counts were much more variable, with monthly counts significantly higher than average through most of the summer, but lower than average in March, April, November, and December. The target area had a total of 137 robberies during 2012. The annual count for 2012 is just within the 95% confidence region for 2002-2010 (the 95% confidence interval upper bound is 137.69 robberies). Consequently, we cannot say that the project had the desired impact on robberies in 2012.

To provide a different perspective of the monthly robbery count comparisons, Figure 12 shows the monthly robbery counts for 2009 through 2012 with a linear trend line superimposed over the trends. For 2009, 2011, and 2012 there is an upward linear trend in the data throughout the year. The value of the upward slope varies, but the magnitude of the slope is lowest in 2011. In contrast, in 2010 there is a downward sloping linear trend.

Figure 12: Monthly robbery counts with linear trend, 2009-2012

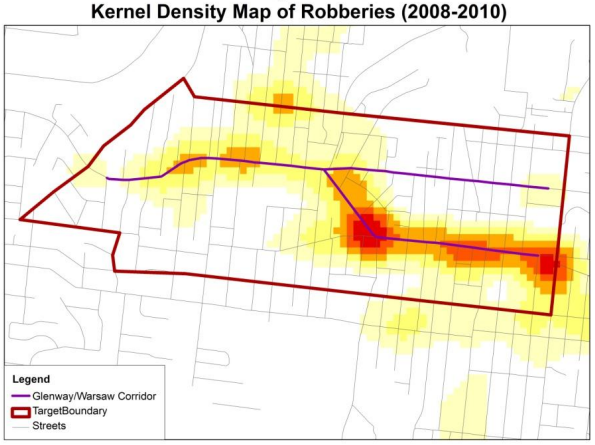
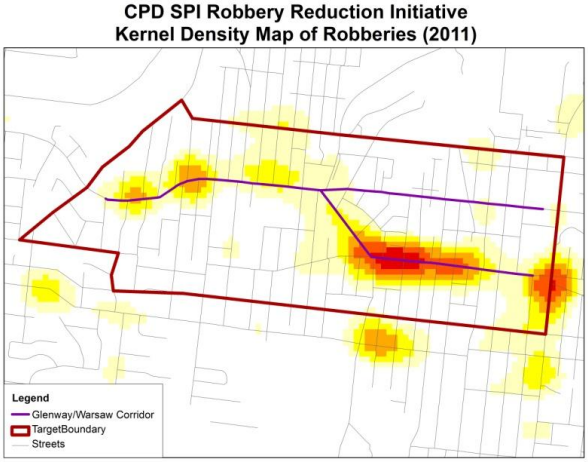
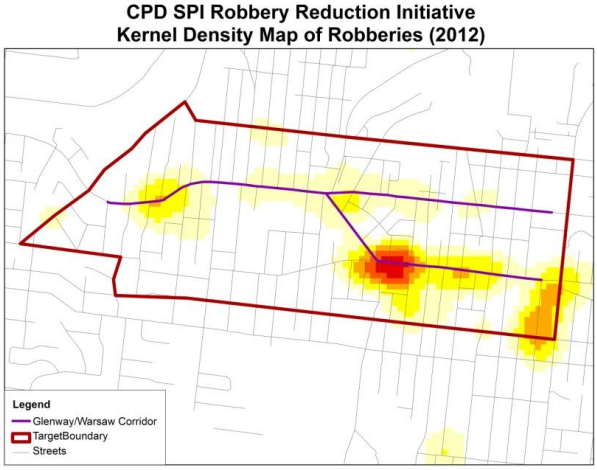


The examination of monthly robbery counts in the target area for 2009 through 2012 suggests that we should use caution when examining grouped data for the target area. For this reason, this analysis will continue to separate robbery findings for 2011 and 2012 to better identify if there are varying trends for the two years of the project. The two years will also be examined individually because there were differences in the types and levels of treatments that were applied in 2011 versus 2012. Figure 13 below provides a comparison of kernel density maps for 2008 through 2010 (from Figure 4), 2011, and 2012. These maps demonstrate that the location of robbery incidents in the target area is constantly evolving. The 2008 through 2010 map suggests that robbery incidents are occurring along both the Warsaw and Glenway business areas, with high concentrations of robberies in a few locations, but a general distribution throughout the target area. In contrast, the 2011 and the 2012 maps suggest that robberies are becoming more concentrated in just a few spots.

By 2012 it is evident that there are four locations in the target area that are attracting robbery incidents more so than others along the business corridors, two that could be considered hot spots and two that are warm spots for robberies. Robbery hot spots in 2012 are found at the center of the target area, where there is a large cluster of retail activity, and along the eastern edge of the target, an area where there is a park and several apartment buildings with a higher than normal population of Hispanic residents. There are also two locations with moderate robbery activity, also known as warm spots, one in the western portion of the target area, where there is another active convenience store and a school, and then another warm point between the two hottest spots on the map where there is a gas station, a fast food restaurant and a check cashing store that all attract disorder in the community. A comparison of the 2011 and 2012

maps to the 2008 through 2010 map suggests that there has been a definite shift in robbery activity from the western portion of the target area toward the east.

Figure 13: Kernel density maps of target area, 2008-2010, 2011, 2012

2008-2010 **(N=1691)** **Geocode** **Rate = 100%**	
2011 **(N=402)** **Geocode** **Rate = 99%**	
2012 **(N=486)** **Geocode** **Rate = 99%**	

A comparison of the robbery arrestee data from before and during the project suggests only slight changes in the types of individuals involved in robberies (see Figure 14). The average age of arrested offenders held between 21 and 23 years. Approximately 90% of the arrested robbery offenders were male, however, this value varied from year to year. The majority of individuals arrested for robberies in the target area were black, but the proportion of arrested offenders who were black also varied from 79% in 2011 to 71% in 2012. Approximately 75% of arrestees with known addresses from both 2011 and 2012 (N = 63) lived either within the target area or within .5 miles of the target area, up from 72% among the 2009-2010 arrestees. It should be noted, however, that the data analyzed did not include addresses for 30% of arrestees from 2011 and 2012. Additionally, there was a 13% increase in robbery arrestees from the two year 2009-2010 period to the 2011-2012 period.

Figure 14: Robbery arrestees, 2009-2010, 2011, 2012

	2009-2010 (N = 78)	2011 (N = 42)	2012 (N = 50)
Average Age	23	21	21
% Black	70	79	71
% Male	90	86	94
% Within .5 miles of target area	72	80	75

Figure 15 provides a comparison of data about victims reported in the 2009-2010 period versus 2011 and 2012. Data reported by the police department suggests that the majority of robbery victims in the target area continue to be male. While the majority of robbery offenders are black, more than half of robbery victims are white. The number of white robbery victims increased from 51% in 2009-2010 to approximately 60% in 2011 and 2012. Although CPD did not report the number of Hispanic victims, officers report that at least 15% of victims were Hispanic in 2011 and 2012. The average age of robbery victims was 29 in 2011 and 31 in 2012.

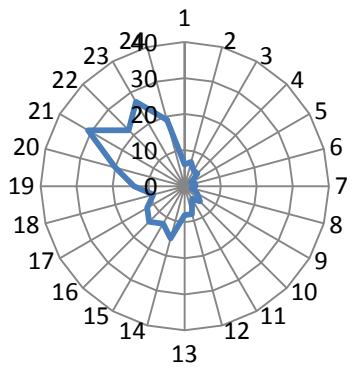
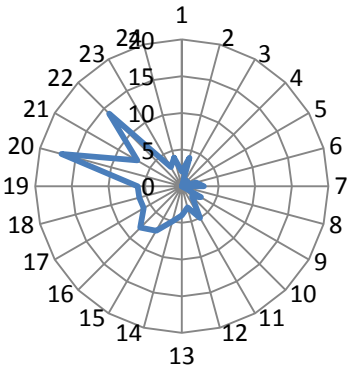
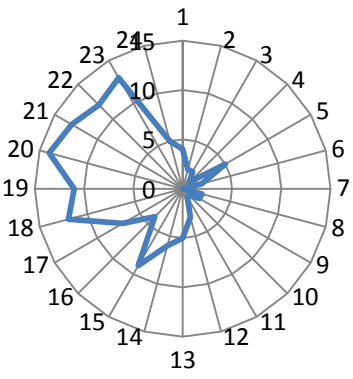
Figure 15: Robbery victims, 2009-2010, 2011, 2012

	2009-2010 (N=244)	2011 (N=101)	2012 (N=124)
Average Age	*	29	31
% White	51	61	58
% Male	71	73	76

*: Not available

Finally, data was collected on the times of day and days of the week that robberies occurred in 2011 and 2012. Figure 16 provides a comparison of time clocks for 2009-2010, 2011, and 2012. Robbery offending saw spikes around 8pm and 10pm in 2011 while there was an extended period of high offending from 6pm through 11pm during 2012. During 2009 and 2010, Monday and Saturday were the most popular days for committing robberies. In 2011, Saturday became the most popular robbery offending day with 19% of all incidents and Friday and Sunday followed, with 17% each. In 2012, Friday was the most popular day for robbery offending with 20% of incidents and Sunday was second most common with 18% of incidents. The least popular day of the week varied from year to year, but typically fell during the middle of the week.

Figure 16: SPI target area crime clock, 2009-2010, 2011, 2012

2009-2010 (N=258)	2011 (N=112)	2012 (N=137)
		

Spatial Displacement

In addition to monitoring the impact of the robbery reduction project interventions in the target area, the project team also watched for changes in the area surrounding the target, the greater police district that the target is located in, a non-related control area, and the City of Cincinnati as a whole. For this analysis the City wide counts for 2009 were collected from the F.B.I.'s Uniform Crime Report, while the 2010 through 2012 counts were collected from CPD crime statistics submitted to the Cincinnati City Council. Figure 17 provides a basic overview of annual robbery counts for the period of January 2009 through December 2012 and year to year changes.

Figure 17: Annual robbery percentage change

	2009	2010	2011	2012
Target Area	(126)	**4.76%** (132)	**-15.15%** (112)	**22.32%** (137)
Control	(103)	**-19.41%** (83)	**3.61%** (86)	**-29.07%** (61)
Buffer	(102)	**3.92%** (106)	**-35.84%** (68)	**11.76%** (74)
District 3	(569)	**-1.93%** (558)	**-28.85%** (397)	**24.18%** (493)
City*	(2272)	**-6.60%** (2122)	**-14.33%** (1818)	**-3.30%** (1758)

*2009 Citywide robbery figures collected from the FBI's Uniform Crime Report, while 2010 through 2012 figures were collected from CPD's crime statistic reports to Cincinnati City Council.

As noted previously, while the annual target area robbery count decreased by 15% from 2010 to 2011, the robbery count increased by 22% from 2011 to 2012, eliminating the achievements of 2011. However, it is also important to place this change in robbery offending in the target area in context, by comparing it to other segments of the community. In 2011, robberies in the target area dropped 15%, but during the same period there was a 16% city-wide reduction in robberies, a 27% reduction in robberies in District 3, and a 35% drop in robberies in

the .5 mile buffer area around the target area. While the target area robbery reduction in 2011 was strong in contrast to previous years, it was similar, although not as strong as reductions throughout District 3 and the City.

During 2012, the target area had a 22% increase in robberies compared to the annual counts for 2011, resulting in the greatest total of robberies in the target area since 2008. District 3 also saw an increase in robberies in 2012, compared to 2011 counts. Over one quarter of the current increase in District 3 robbery rates can be attributed to the target area. Interestingly, the .5 mile buffer area around the target area, a potential zone for displacement of robberies or diffusion of benefits from the project, did not have as great of an increase in robberies as either the target area or the district in 2012. In contrast, both the entire City of Cincinnati and the control area concluded 2012 below 2011 levels. While the City was only slightly below 2011 counts, the control area achieved its lowest annual robbery count for the past five years.

Figure 18 provides the 2011 and 2012 robbery counts for the comparison groups, as well as the 2002-2010 average annual robbery count and the 95% confidence intervals for the 2002 through 2010 data. Beside the 2011 and 2012 counts are arrows that indicate if it is outside of its respective confidence interval. In 2011, all areas except for the control were below their respective confidence region. In 2012, the control area and the city robbery counts are below the 95% confidence region, while the target area is barely within the 95% zone. This comparison of data suggests that while the target area and District 3 as a whole experienced a change in robberies similar to most of the rest of the city in 2011, the target and District 3 did not follow city-wide trends in 2012.

Figure 18: Annual robbery counts comparison

	2011	2012	Avg 2002-2010	95%Lower Conf. Bound	95%Upper Conf. Bound
Target	**112↓**	137	125.22	112.75	137.69
.5 Mile Buffer	**68↓**	76	83.56	68.82	98.29
District 3	**402↓**	493	499.44	456.21	542.68
Control	86	61↓	92.44	84.11	100.78
City	**1773↓**	1758↓	2269.67	2149.86	2389.47

A note should be made about the control area. Although the control area was selected as the most similar area to the target area within Cincinnati -- both were business districts surrounded by residential areas that had an increase in robberies during the years between 2006 and 2009 -- there is some question as to whether or not the control area is a valid comparison. Over the past four years, robbery levels dropped by 41% in the control area, while similar reductions were not achieved in other portions of the city. The results were achieved following several interventions to reduce both robberies and overall levels of crime, including efforts following a homicide in the area in 2011. Consequently, we cannot be confident that this area provides a valid comparison to the project area. Unfortunately, it was the only area that remotely qualified as a control.

The data is clear that there was an increase in robberies in the both the target area and District 3 in 2012 that was not experienced in other portions of the city. As a final test of the impact of this change, we calculated the weighted displacement quotient for average annual robbery figures. The analysis compared a five year average (2006-2010) for annual robbery counts in the target area, the buffer, and the control, to the average of the 2011 and 2012 robbery counts. The weighted displacement quotient attempts to identify if the interventions conducted in the target area resulted in positive or negative impacts in the buffer area and then how the two areas compared to the control area. The calculation found that while the 2011-2012 average

values were lower in the target and buffer areas than the five year trend values, the control area had a greater reduction in robberies between the two periods. As a result, the target area actually had a comparative increase of 25 robberies for the 2011 through 2012 period, over the area selected to be the control. This calculation should carry a warning, however, because it is calculated under the assumption that the control area did not receive any interventions. We know that this assumption was not met; The control did receive interventions, although in different forms and dosages than the target area. With this understanding, however, we can say that the changes in the selected control area between 2011 and 2012 resulted in an environment where 25 less robberies occurred than in the target area, where interventions were also occurring.

Lessons and Conclusions

The Cincinnati SPI robbery reduction initiative was conducted to attempt to reduce robberies in an area of the City that appeared to be particularly resistant to traditional policing interventions. The project was designed to analyze data related to the offenders, victims, and places involved in robbery incidents in the target area to identify innovative interventions that would alter the likelihood of robberies, and potentially other crime. Because traditional policing responses, such as saturation patrols and offender-focused strategies, did not appear to make a difference in robberies in the past, it was believed that an innovative approach, such as one focusing on all sides of the problem triangle, would be more successful for significantly reducing robberies in the target area. This led to an analysis of data related to offenders, victims, and places in the target area related to robbery offending. Following an analysis of the data the project team found that, contrary to previous assumptions, there was 1) not a strong network of robbery offenders and most robbery offenders were not robbery specialists, 2) the victim-

offender overlap was not as great as expected, and 3) because of the lack of connectivity and specialization among robbery offenders, there were no apparent convergent settings for robbery offenders.

For these reasons, the project team began conducting interventions that were based on recent improvements on traditional policing practices. Where saturation patrols in the target area had not seemed to impact robberies in the past, the project team adopted a strategy to conduct brief and directed hot spot patrols at particular street segments of the target area. Instead of conducting general robbery prevention campaigns in the community, the team worked to identify specific groups of potential victims, such as Hispanics, who could receive specialized messages about protecting themselves from robberies. Additionally, the project team worked with members of the business community to increase the levels of active place management, to help improve overall quality of life in the community.

Despite the thorough analysis of the problem and the variety of interventions conducted by the project team, the robbery intervention program did not have a significant impact on robberies in the target area. Although robberies did decrease in 2011, the reductions were in line with drops in robberies that occurred in most of the City. In 2012, robbery levels in both the target area and District 3 increased, compared to 2011 figures, and ended the year at the high end of the 2002-2010 average region for annual robbery counts.

While the robbery reduction initiative did not have the results desired, the project team did increase its knowledge about the robbery problem and problem solving, in general. Based on the findings outlined here, the following recommendations and lessons are offered as the project team continues to work toward reducing robberies in the target area:

1. **Differentiate between project management and problem management.**

    a. **Goals**

    The project team constantly struggled with whether the goal of the project was related to project management or problem management. Project management is related to meeting the requirements of the grant while problem management, in this case, is related to reducing robberies. At several points in the project the tasks related to managing the grant consumed more time than activities related to managing the problem. It should be understood by all members of the project team that the primary goal of the project is to reduce robberies. This difficulty may have been made worse by the fact that the impetus of this project was a problem-solving grant. The goals of the grant, to some extent, were external from CPD and pulled attention from the problem. If the idea of the project had been generated within the District then the ultimate goals might have been more clear to all involved. *The primary goal of a problem-solving project is to solve the problem.*

    b. **Leadership and team roles**

    This project brought together three distinct entities that were interested in reducing robberies in the target area: District 3 personnel, Problem-Solving Unit representatives, and researchers from the University of Cincinnati. Each entity owned a different portion of the project, but ownership for the entire project constantly shifted. Members of the Problem-Solving Unit were largely tasked with project management while District 3 members were tasked with problem management. The University of Cincinnati staff provided analytical support and

conducted the evaluation of the project. However, all three groups needed to work together to complete their goals. Due to the structure of the Cincinnati Police Department, District 3 personnel should be responsible for managing and implementing the project, with assistance from the Problem-Solving Unit and the University of Cincinnati. *In the future, a dedicated "champion" of the problem should lead the project.* Such a champion should be physically close to the problem and the operational personnel addressing the problem. The champion should be well versed in problem solving and analysis. This person should report directly to the district captain, and be held accountable for problem reduction. Finally, the champion should be able to call upon resources within the CPD and externally, as needs arise.

***Resources: support services and technology**

Technological applications in policing are advancing every day and there are a great number of new tools that are available to CPD officers. There is, however, a disconnect between the tools that are available and their use in regular investigations and problem-solving. A number of investigative tools, such as license-plate readers and CCTV, and analytical tools, such as i2 or ATAC, were not used as extensively as they could have been used. Further, there was both a physical and mental distance between technological support services and district staff. *The project champion is responsible for integrating technology into the problem analysis and response.*

c. Data

The collection of data for project management versus problem management presented a similar problem for this project. Data was seen as the source of all answers for project management, however, it did not fully describe a problem. Numerical data from police sources can only provide limited answers. It is necessary to actively explore the problem, in the local environment, to learn why it is occurring, including qualitative information, and intelligence. Some of the most useful information in this project came from interviews of victims and offenders. *Future robbery analysis should include more discussions with offenders and victims and more time spent in the physical target area discerning what factors contribute to the robbery problem.*

d. Project Drift

This project was initiated because of a robbery problem that had resisted standard law enforcement efforts in the past. Early in the project increased patrol emphasis and investigations were initiated as stop-gap measures to temporarily curtail the problem and provide information for a more sustained response. Unfortunately, this early decision was never revisited, though a number of efforts were made to understand the problem and develop alternatives. However, a standard enforcement response became the primary response for the project. In part, the availability of overtime money from the grant encouraged this. The lesson here is obvious: *If a strategy has not worked in the past, do not repeat it.*

2. Effectively use data.

a. Focus on the durable hotspots.

Historical maps of the target area identified that over the past decade there were two enduring hot spots, one near the center of the area where there is a grocery store and several small businesses and one at the eastern edge of the area where there is a park and several apartment buildings. For a short period there was a western expansion in robberies from the central hot spot, which resulted in the target area being expanded from the initially proposed one mile corridor to a 1.5 mile wide area. Based on the experiences of the past two years, however, it appears that the target area may have been too large. Appendix B explores some of the specific areas that could be the primary foci of the robbery reduction project. *Robbery reduction interventions might be more effective if the project only focused on the eastern half of the target area and primarily the two hot spot locations*.

b. Use mapping cautiously.

Kernel density maps, or hot spot maps, are very popular and increasingly common in problem-solving projects. However, there are a variety of parameters related to the crafting of these maps that may lead to imprecise results. For example, the search radii parameter can be set for high or low sensitivity that can result in very different findings and may produce results that distract a viewer from a real problem. Further, different results may be found if several years worth of data are aggregated together or if a series of maps are produced for each year being analyzed. The original maps that the project team used to identify the target area

were aggregated and had a high search radius value which resulted in a less precise definition of the immediate problem. The data provided in this report has attempted to identify annual changes in data while using a smaller search radius in the maps. The project team should continue to be aware of the potential for over-prediction in both mapping and statistical tools. *Analysts should not accept default or standard search radii settings when creating maps. Rather they should consider smaller search areas that provide clearer and more precise information on hot spots.*

c. Think about the big and small pictures.

During the first year of the project there was a preoccupation with monitoring reductions in robberies in the target area, with only a small consideration for overall trends in robberies throughout the District and the City of Cincinnati. This issue was particularly acute for the project members from UC who were just becoming familiar with target area data. Although there were reductions in the target area in 2011, these reductions were similar to reductions that were seen throughout the entire City. Had the project team been more conscious of these trends during the first year of the project it might have been possible to implement different interventions earlier in 2012. Continuing work on this project should consider how District and City trends relate to changes in the target area. *Though emphasis must be put on addressing the specific problem, teams working on problems must take into account the larger context in their districts and throughout the city.*

3. **Integrate patrol officers into problem-solving.**

   The project team was primarily composed of management staff and analysts. However, several of the interventions were carried out by patrol officers. For this reason it would be useful to integrate a small number of patrol officers and the District 3 community liaison into the project team, similar to the incorporation of robbery investigators into the project team. Although the project team was able to collect an extensive amount of data about the target area robbery problem, there was a general lack of understanding about what was happening on the streets on a weekly basis, from the perspective of officers. It would be useful to identify a few select officers who are responsible for patrolling the target area, for participation in the project team. Their insights as patrol officers and as individuals who participated in the targeted hot spot patrols in the target area could be very useful in crafting interventions. Incorporating the District's community liaison into the project team would also be useful as that individual is regularly in communication with community groups and business leaders throughout the target area. *Project teams should include both managers and line level staff.*

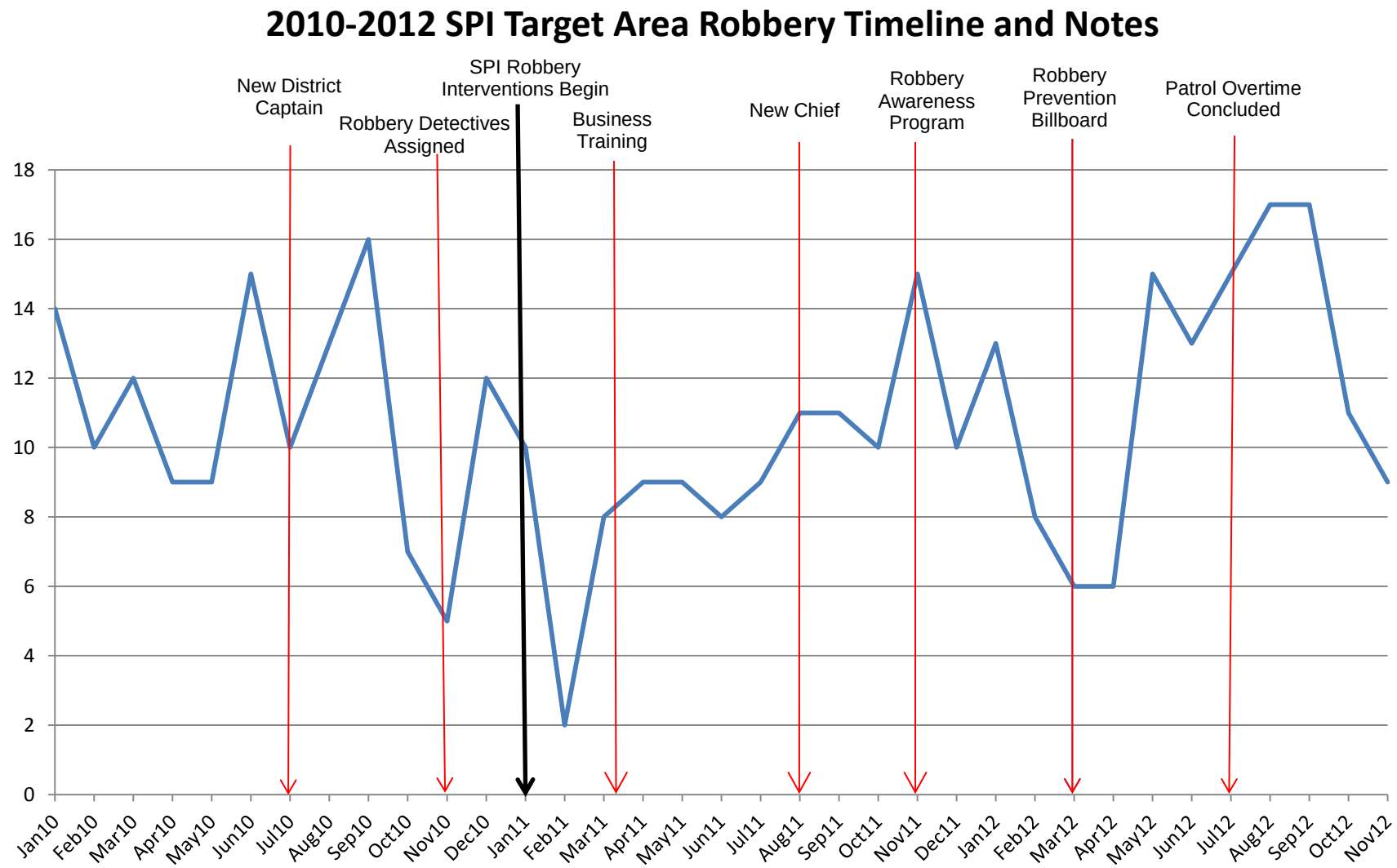
4. **Continue focused robbery prevention initiatives.**

   The project team should continue to focus on the robbery prevention initiatives introduced, such as the Business Leaders program and the Hispanic robbery prevention efforts, within the hot spots in the community. Although it is generally useful to improve the quality of life in the community, that is a long term effort. For the purposes of this project, it is important to focus these robbery prevention efforts

specifically on the two hot spots in the target area. *Interventions in any form should be focused specifically at problem locations to limit the wasting of resources.*

These lessons and recommendations are not exhaustive, but they provide a basic outline for continued work on the District 3 robbery reduction initiative. A great deal of information about robbery offending in the target area has been gathered during the course of this project which will contribute to on-going efforts to reduce robberies in District 3.

APPENDIX A:


2010-2012 SPI Target Area Robbery Timeline and Notes
New District Captain
Robbery Detectives Assigned
SPI Robbery Interventions Begin
Business Training
New Chief
Robbery Awareness Program
Robbery Prevention Billboard
Patrol Overtime Concluded
18
16
14
12
10
8
6
4
2
0
Jan10
Feb10
Mar10
Apr10
May10
Jun10
Jul10
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Sep10
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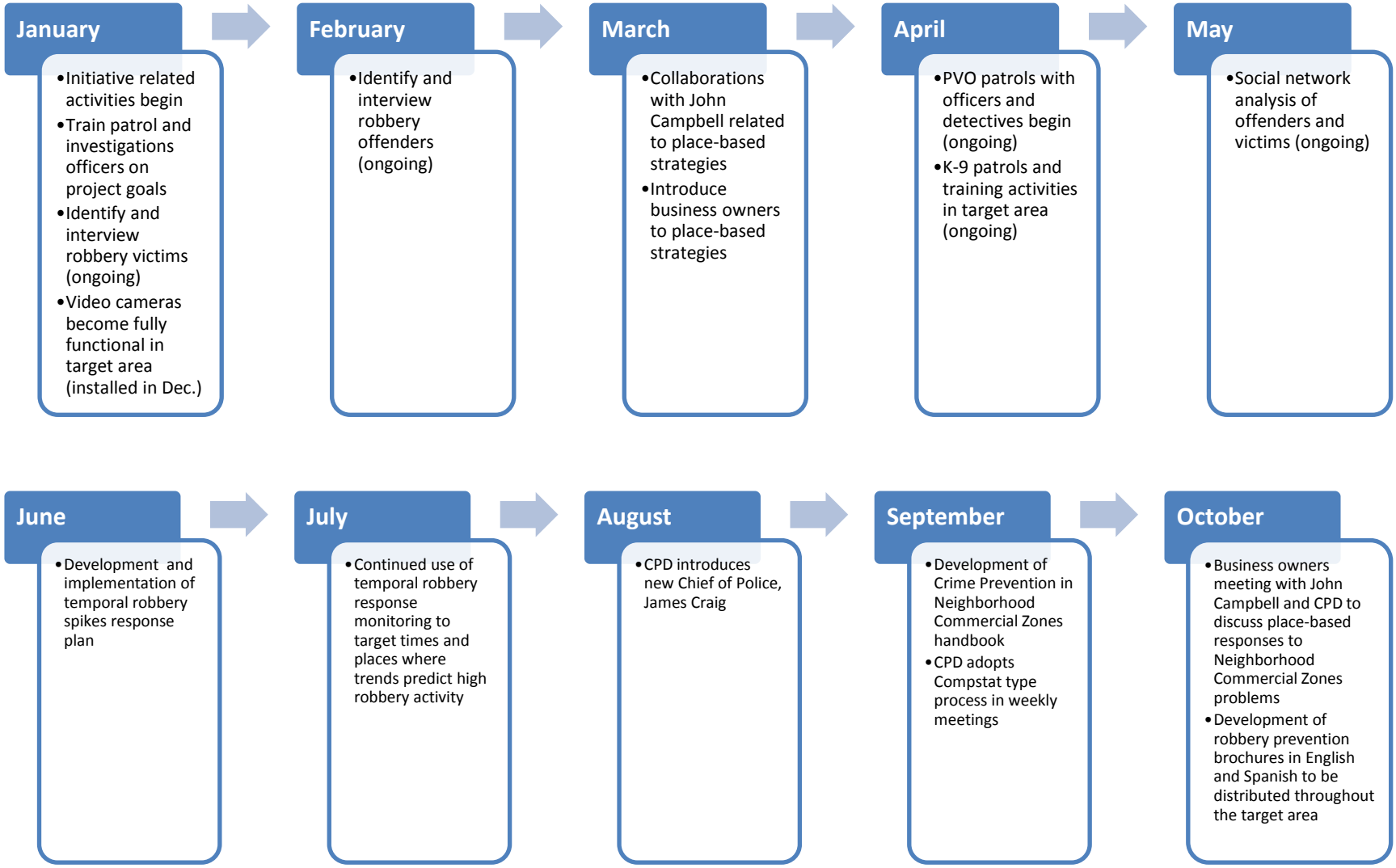
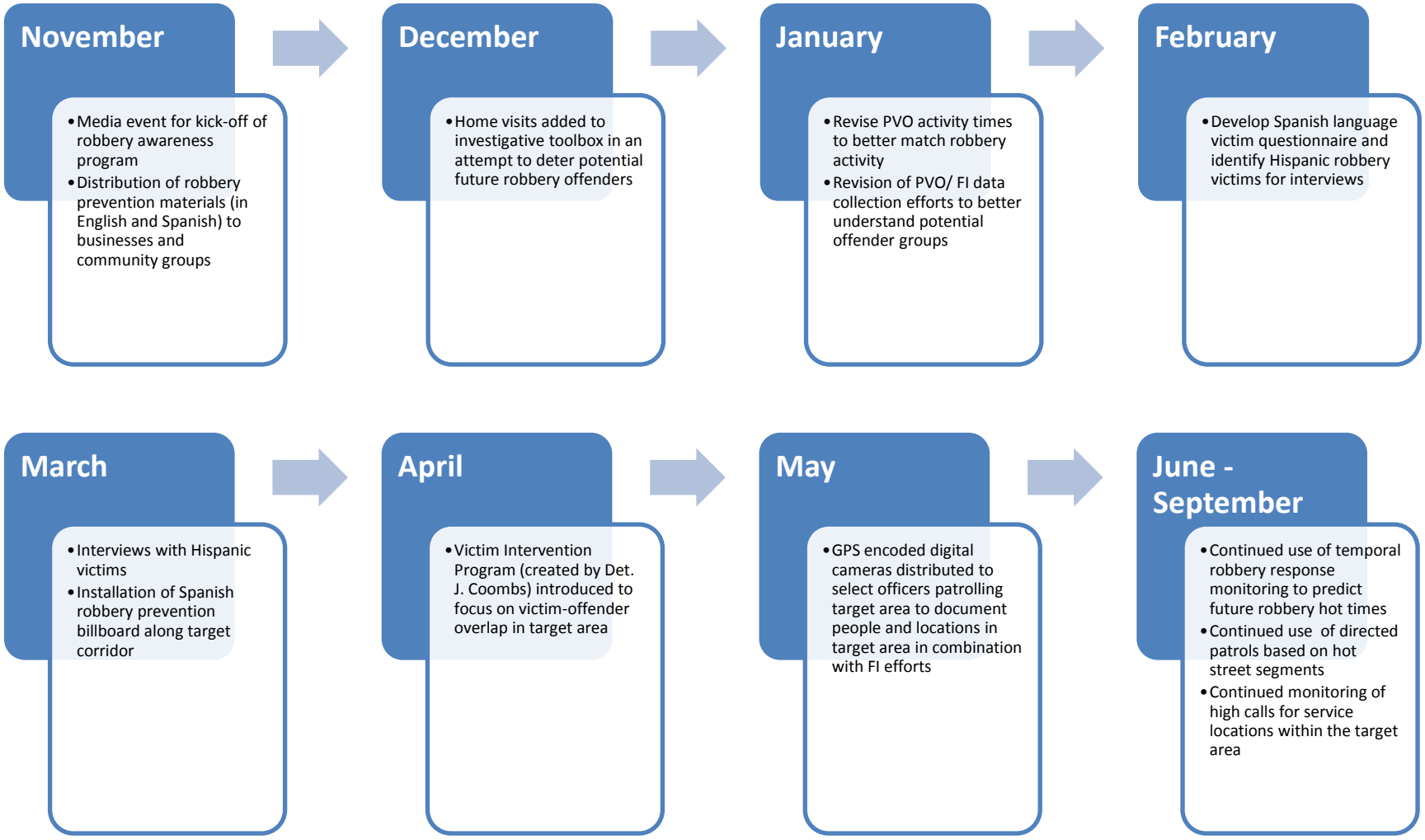
Timeline of Activities
Year 1: Initiation of Project-Related Activities (2011)



Year 2: Initiation of Project-Related Activities (2011- 2012)



APPENDIX B:
Alternative perspectives of the robbery problem

The following table and accompanying map, divide the project area into its component hot spots (in decreasing order of intensity) for the period of 2008 through 2010. Although it appears that one needs to address the entire area to impact all the robberies, this intuition is likely to misleading. First, one can always expand the size of a target area to draw in more robberies (note areas 6, 7 and 8), so there is no obvious upper bound for expansion. Second, as we have stated in the main part of this evaluation, the most reasonable conclusion is that the project had little or no impact on robberies in the revised target area. So reducing the target area size to the hottest spots is unlikely to produce less productive results. Instead, focusing on the worst two hotspots, for example would address over 10 percent of the robberies, assuming no displacement or diffusion of benefits. Simply focusing on the worst contiguous hot spots (1, 2, and 3) would address about 16 percent of the robberies. Concentrating resources on this much smaller area makes it easier to understand the problem and develop effective responses.

The counter argument is that there are many robberies outside of these hot spots that would go unaddressed. However, the backbone of the robbery pattern is Warsaw Avenue between hotspots 1 and 2. If robberies are substantially reduced in this stretch, it is quite likely that this would have positive impacts on the surrounding areas. Displacement, of course, is possible. But displacement cannot occur unless the intervention bites into robberies. Further, the opportunities for robberies outside hot spots 1 and 2 are limited, so displacement is likely to be limited.

Proportion of robberies at hot spots within buffer region, 2008-2010

Target Area:	% of total robberies (as proportion of all robberies within buffer region)	Cumulative % of robberies within buffer region
1. Warsaw/ St Lawrence hotspot	6.3	6.3
2. Grand Avenue hotspot	5.0	11.3
3. Marathon/ White Castle hotspot	4.7	16.0
4. Warsaw/ Glenway hotspot	3.6	19.6
5. West Glenway hotspot	3.2	22.8
6. Original target	44.3	
7. Revised target	55.3	
8. Buffer area minus target	44.7	

CPD SPI Robbery Reduction Initiative
Kernel Density Map of Robberies (2008-2010)
Revised Targets