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**Illinois Criminal Justice Information Authority**

# The Peoria Pulling Levers Drug Market Intervention: A Review of Program Process, Changes in Perception, and Crime Impact

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Submitted to the Illinois Criminal Justice Information Authority

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## Peoria DMI Evaluation Executive Summary

The Peoria Drug Market Intervention (DMI) program was intended to alleviate the disproportionately high crime rates found within a high-risk, disadvantaged, and chronically violent geographic area. Officials within the city decided to implement a focused deterrence strategy that relied upon the use of target identification, investigation, and arrest sweeps followed with an offender notification session that occurred within the target neighborhood.

At the core of the strategy was the enhanced prosecution of identified offenders combined with an attempt to bridge partnerships between local law enforcement and residents of the target area. Increased prosecution was designed to incapacitate chronic and violent offenders as well as to communicate a credible deterrent threat to potential replacement law violators. The public meeting (i.e., notification session) was used to publicize the increased risk of sanctions that potential replacement offenders would face if the drug markets re-emerged.

This study used a variety of methodological and analytical approaches to examine the following:

- The fidelity of program implementation through the use of a detailed process assessment.
- The change in officially reported violent, property, and drug related offenses as well as calls for police service trends by relying upon interrupted time series analyses.
- Peoria residents' perceptions of crime after the implementation of the strategy, awareness of the DMI program, and changes in police-community partnerships through the use of phone surveys that captured information from residents living in the target area, a control area, and the remainder of Peoria (for comparison purposes).
- The use of in-depth resident interviews to capture detailed information regarding the dynamics of neighborhood conditions, drug markets, and perceived police activity.

A synthesis of study results indicated that Peoria police and public officials were consistent with the fidelity of the focused deterrence framework throughout the duration of the initiative. Study results clearly indicated, however, that crime and calls for service within the target area remained relatively stable between pre- and post-intervention periods.

In addition, the vast majority of target area residents that were interviewed appeared somewhat unfamiliar with the tenets and purpose of the intervention program, indicating a shortfall in the intended police-community partnership. In-depth resident interviews suggested that residents were seriously concerned with replacement offending, displacement, retaliation, and neighborhood stigmatization if they cooperated with police.

We drew upon research from organizational and social disorganization theories to highlight the key themes, implications, and potential limitations of the Peoria focused deterrence strategy.

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# Introduction

## The Evolution and Design of the Focused Deterrence Police Strategy

One of the most pervasive and important questions in criminal justice policy research is whether law enforcement strategies can effectively impact crime. Studies testing this question have produced somewhat mixed results. Some scholars have argued that police strategies have little to no impact on crime (Bayley, 1994; Sherman, 1995), while others have found suggestive evidence that certain types of police strategies can impact specific types of crime, including robbery and homicide (MacDonald, 2002). Eck and Maguire (2000) illustrated the importance of more thorough and comprehensive research concerning both unsuccessful and successful policing strategies in order to make better sense of consistent patterns and themes.

A policing approach that seems to hold considerable promise is 'deterrence-based' policing. Sampson and Cohen (1988) illustrated that 'proactive policing' (i.e., law enforcement responses to disorderly offenses) appears to correspond with lower levels of robbery over time and Worrall (2006) found similar results with respect to assault and burglary. Kubrin et al. (2010) re-assessed the potential relationship between proactive policing and violent crime with a longitudinal study of large U.S. cities and similarly found support for a proactive policing effect, net of other important measures known to influences changes in city levels of violence. In addition to these cross-city studies, some deterrence-based initiatives have shown evidence of 'within city' violent crime changes.

Policing strategies that utilize focused deterrence and enhance the perceptions of risk to identified and high-risk offenders have also shown considerable promise as a means to reduce violent crime. For example, in response to the rise in citywide youth gun violence, Boston's

Operation Ceasefire program began in the mid 1990s and was intended to reduce the high levels of youth victimization throughout the city (Kennedy, Braga, and Piehl, 1996). Ceasefire was initiated by a multi-agency working group involving prosecutors, police officials, youth service officers, probation and parole officers, and social service providers. The Boston strategy was ultimately built upon the principles of "pulling levers" policing, which requires public officials to notify high-risk offenders of the enhanced sanctions that will be levied against them if they continue to participate in illicit and criminal activities (Kennedy, 1997). A detailed analysis of crime data indicated that local youth violence patterns were largely driven by a relatively small number of chronic offenders involved in known gang-related networks. The strategy that emerged was based upon a deterrence-driven model where the threat of federal prosecution was communicated directly to groups of known offenders identified in the problem analysis. Following crack-downs on several of the most violent groups and ongoing communication with probationers and parolees connected to these offending networks, youth violence in the city declined dramatically. After the initiative was fully implemented, the city of Boston experienced a decline in youth gun violence of over 63 percent (Braga et al., 2001).

Based on the promise of pulling levers policing efforts, including the Boston project, in the late 1990s, the Department of Justice (DOJ) developed the Strategic Approaches to Community Safety Initiative (SACSI). Federal support was provided to five initial cities (Indianapolis, IN, Memphis, TN, New Haven, CT, Portland, OR, and Winston-Salem, NC) and a second set of cities (Albuquerque, NM, Atlanta, GA, Detroit, MI, St. Louis, MO, and Rochester, NY). What became apparent was that many SACSI sites used strategic problem solving in order to craft unique initiatives tailored to local contexts. For example, a number of SACSI sites used systematic reviews of homicide incidents and gun assaults to unravel patterns of offenders,

victims, locations, and network connections, and then suggested specially tailored intervention strategies. Similar to Boston, many of the SACSI sites implemented offender notification meetings (i.e., pulling levers) in order to communicate the deterrence message and, as a way to supplement the deterrent effect by offering troubled youths some prosocial alternatives to delinquency and provide desisting offenders the opportunity for linkage to legitimate services. Roehl et al. (2004) found that violent crime rates in the SACSI cities declined more dramatically than those in comparable cities, suggesting that SACSI could have a suppressive effect on crime. The use of specially crafted and deterrence-based strategies (i.e., pulling levers) became the impetus for Project Safe Neighborhoods (PSN), a national initiative to reduce firearm and related violence.

The PSN model was an extension of the Boston framework, and was implemented across all 94 U.S. Federal districts as a response to firearms violence in each respective district. McGarrell et al. (2009) illustrated that an estimated 3 billion dollars was allocated from Fiscal Year (FY) 2001 through FY 2008 in order to: fund local and federal prosecutors; provide resources for law enforcement; support research and community outreach partners; fund a national media campaign; and provide training, technical assistance, and research functions for the initiative. PSN was built on what were viewed as successful approaches utilized in the Boston Ceasefire project, SACSI, and Richmond's Project Exile (a deterrence based initiative that relied on federal prosecution to increase the threat of enhanced sanctions to known gun traffickers in the city). It was designed as a collaborative problem solving initiative utilizing a strategic research-based model to reduce firearms violence through the use of enforcement, deterrence, and prevention (Dalton, 2002). Perhaps most importantly, this model of collaborative problem solving that relies upon an integration of different groups in the criminal

justice system can be used to address a variety of citywide crime problems (e.g., gang networks, gun offending, drug dealing), including offense patterns specifically linked to open-air drug markets.

## Illicit Street Drug Markets: Crime Problems and Policing Efforts

Open-air drug markets have been a major focus of criminal justice research since the mid-1980s when a sharp rise, followed later by a decline, in both crime and crack cocaine markets occurred across the country (Blumstein, 1995). Community-level theoretical explanations for the establishment and maintenance of illicit drug markets have mostly been grounded within the social disorganization framework; that is, communities characterized by extensive joblessness provide limited opportunities for legitimate employment (Wilson, 1987) resulting in a rise in street-corner drug dealing (Anderson, 1990; Currie, 1993) which inhibits neighborhood informal social control mechanisms (Sampson and Groves, 1989; Sampson, Raudenbush, and Earls, 1997) and leads to increased crime rates.

Indeed, there is overwhelming support in the literature to suggest that street drug markets both directly and indirectly facilitate property offenses (Rengert, 1996) and violent crime (Berg and Rengifo, 2009; Blumstein and Rosenfeld, 1998; Jacobs and Wright, 2006; Wright and Decker, 1997). In a study of street-level drug dealers who had been direct victims of robbery, Topalli, Wright, and Fornango (2002) found that dealer-victims were often unwilling and unable to rely on traditional legal justice responses (i.e., report victimization to police) and thus felt compelled to resort to retaliation as a way of redress. It should also be noted that research by Jacques and Wright (2008) demonstrated that cooperation and reciprocity are more commonly observed between users and dealers in illicit drug markets than is the use of violence. That said,

research demonstrates that additional forms of non-violent retaliation exist in street drug markets (Jacques, 2010), which can further diminish local residents' perceptions of public safety. Furthermore, this research highlights the importance that street drug dealers attribute to reputation maintenance, loss recovery, and vengeance as mechanisms of maintaining legitimacy in the illicit drug trade.

*The Integration of Pulling Levers and Drug Market Policing*

As noted earlier, pulling levers has been widely used as a strategy to reduce youth, gun, and gang violence. However, Kennedy (2006) contends that pulling levers is an adaptable strategy that can be applied to a variety of contexts. For example, problem identification and analysis in High Point, North Carolina indicated the city experienced high levels of violence and drug crime, but these incidents were primarily clustered in neighborhoods with illicit street level drug markets (Hipple et al., 2010; Kennedy and Wong, 2009). Law enforcement officials within the city developed strong partnerships with a number of criminal justice agencies (i.e., prosecution, probation, parole, and also social service providers) and communities throughout the district in order to address their local crime problems. The High Point Police Department (HPPD) also established a partnership with researchers from the University of North Carolina Greensboro, Winston-Salem State University, and a number of key community groups (e.g., local business organizations). Their initial focus was on reducing gun and gang-related violence, as part of their PSN strategies and objectives. After several years focusing on gun and gang violence, the HPPD decided to focus on illegal street level drug markets, which were a major cause of violence within the city. The initial intervention became known as High Point West End Initiative, which showed promise in terms of impact (Frabutt et al., 2006).

The High Point pulling levers model was replicated in Rockford, Illinois and Nashville, Tennessee, and study results for both sites revealed a statistically significant reduction in nonviolent offenses as well as drug-related crime in the target communities relative to non-treatment areas (Corsaro, Brunson, and McGarrell, 2009; 2010). In addition, in-depth interviews indicated that many local residents in both Nashville and Rockford perceived an improved quality of neighborhood life where the strategies were employed. Thus, given the promising results in High Point, Nashville, and Rockford, a number of other law enforcement jurisdictions have implemented this approach as part of the Bureau of Justice Assistance (BJA) drug market intervention (DMI) training program.[1] Peoria, Illinois was one such jurisdiction. In early 2009, Peoria officials committed to the implementation and evaluation of a pulling levers focused deterrence strategy designed to disrupt a local drug market.

In the following sections, we focus on the process of program implementation (i.e., fidelity to the 'logic' behind the model), perceived effectiveness of the strategy among Peoria residents (using both survey data as well as in-depth resident interviews), changes in crime and calls for service (relying on an interrupted time series research design), and directions and recommendations for both future sites interested in adopting the strategy as well as researchers committed to testing potential program effects.

[1] Among the cities that have implemented the High Point drug market intervention strategy are: Berlin, MD; Chicago, IL; Hempstead, NY; Middletown, OH; Milwaukee, WI; Ocala, FL; Providence, RI; Raleigh, NC; Seattle, WA; and Winston-Salem, NC (Hipple and McGarrell 2009). The Bureau of Justice Assistance continues to sponsor a training and technical assistance program that will increase the number of cities adopting the pulling levers strategy.

## The Peoria Drug Market Intervention: A Review of Process and Implementation

### Intervention Setting

The current strategic intervention and subsequent research evaluation was conducted in Peoria, Illinois during the spring and summer of 2010. Peoria is a mid-sized urban city located along the banks of the Illinois River and is situated between St. Louis, Missouri and Chicago, Illinois, approximately 170 miles from both metropolitan areas. Peoria is the county seat of Peoria County and is home to 113,546 residents across a total area of 46.6 square miles. With regard to demographics, Peoria as an overall city is comparable to national demographic and social trends with a population that is 47% male, 70% white, and has an 82% high school graduation rate. Also consistent with national trends, the population of Peoria has a median age of 34 years and a median annual household income of $36, 397 (U.S. Census Bureau, 2000).

Though very similar to the national average, the population of Peoria differs from the national average in two ways. First, according to the 2000 U.S. Census Bureau, the national average of individuals living below the poverty level is 12.4%, whereas the average percentage of individuals living below the poverty level in Peoria is 18.8%. Thus, Peoria has a greater concentration of poverty relative to other cities in the nation.

Secondly, Peoria's crime rate stands out on a national scale. During the mid-1990s, Peoria experienced significant reductions in violent and property crime. Recently, however, Peoria has experienced a surge in both violent and property crime rates. As of 2005, Peoria County placed in the highest quartile, or the top 25 percent, of all counties within the United States for index crime offenses. In other words, Peoria County has crime levels similar to those of larger metropolitan areas, but lacks the financial resources of bigger cities to combat crime.

As noted earlier, law enforcement officials decided to implement the drug market intervention (DMI), which relied upon the pulling levers (focused deterrence) framework as a mechanism to reduce crime in a particular geographic area within the city. Ultimately, the strategy was implemented in a high crime neighborhood (i.e., hotspot) that was identified and targeted for intervention through problem analyses conducted by a research analyst within the Peoria Police Department (PPD). It is important to note that the actual target zone was slightly smaller than the two census tracts that were situated within the area. The current evaluation controlled for the size discrepancies between the target area and the census tracts in both the survey and crime trend data analyses.

The demographic and social characteristics that provide context for the Peoria DMI target area were obtained from the U.S. Census Bureau. Table 1 provides the descriptive statistics for the two census tracts (i.e., 1430016 and 1430025) housed within the DMI target area, as well as similar social and demographic data for the overall city for comparison purposes. It was evident that the median family income was substantively lower in the target area (weighted average = $35,422) relative to the overall city ($59,926). In addition, residents in the area were younger (median age = 30 years) in the target area relative to the overall population of Peoria (median age = 39 years). Finally, the percentage of black inhabitants as well as people living in poverty was higher in the target area in comparison to the overall city.

*Table 1:* Demographic and Social Characteristics of DMI Target Area and the City of Peoria

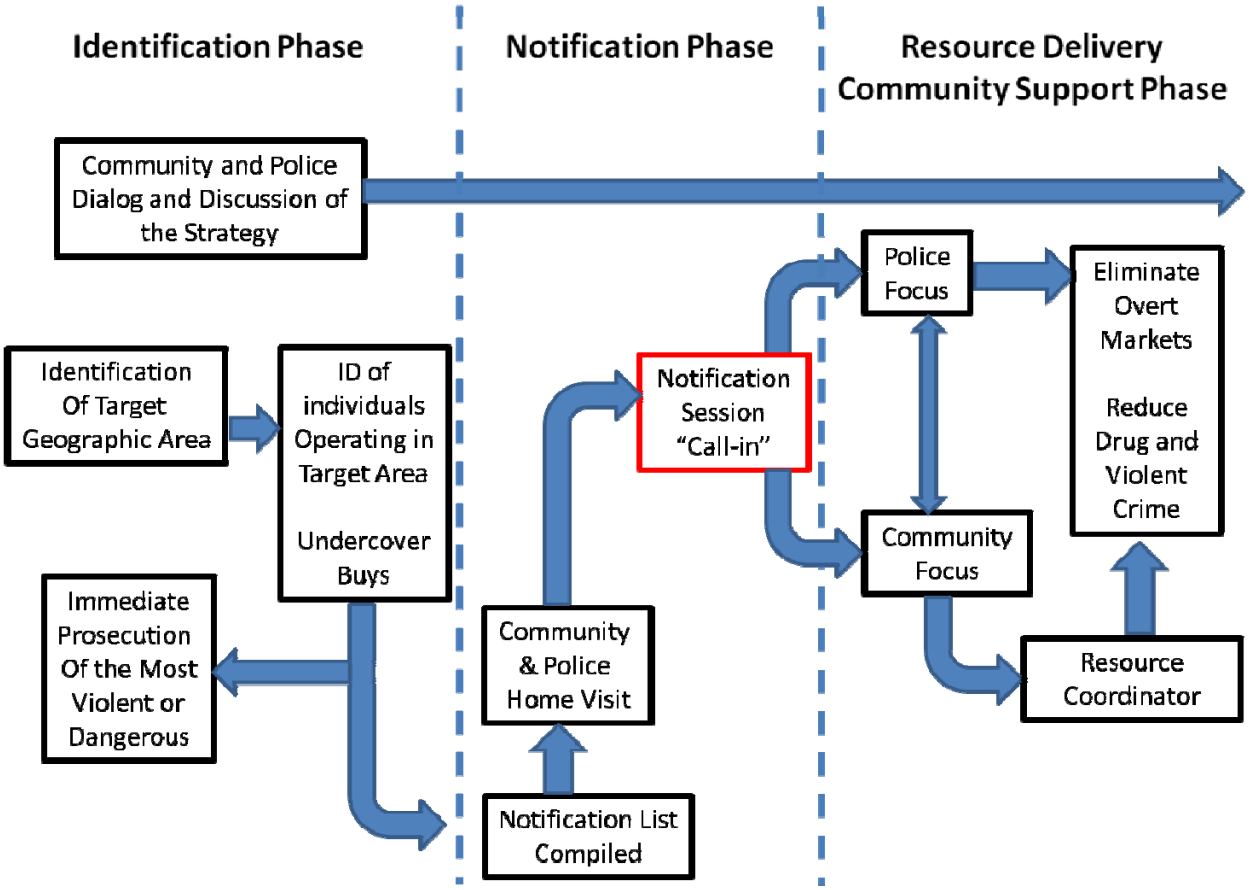
| **Characteristics** | **Tract 1430016** | **Tract 1430025** | **Overall City** |
|---|---|---|---|
| Population | 4,628 | 3,693 | 112,936 |
| Percent in Poverty | 50% | 21% | 18% |
| Percent Male | 46% | 47% | 47% |
| Percent Black | 41% | 38% | 24% |
| Median Age | 30 years | 30 years | 39 years |
| Median Family Income | $30,893 | $41,098 | $59,926 |

## The Intervention Strategy

Officials in the Peoria Police Department became aware of the pulling levers policing strategies used in other sites (i.e., High Point, NC; Nashville, TN; and Rockford, IL) as a mechanism to address high crime rates associated with open-air drug markets. As an initial step in the implementation of their unique program, in fall 2008 members from the PPD team that comprised the 'task force' responsible for coordination and implementation of the strategy traveled to Washington D.C., High Point, Nashville, and Milwaukee (WI) in order to attend training seminars that would outline the process and procedures of implementation used in other cities. Members of the Peoria team spent roughly one year in the training, planning, and pre-implementation phase in hope of establishing strong communication networks among police, prosecutors, probation/parole officers, social service providers, and community leaders in order to modify prior strategies in a manner that would be consistent with their specific crime problems (i.e., high rates of drug incidents, property offenses, and violent crime).

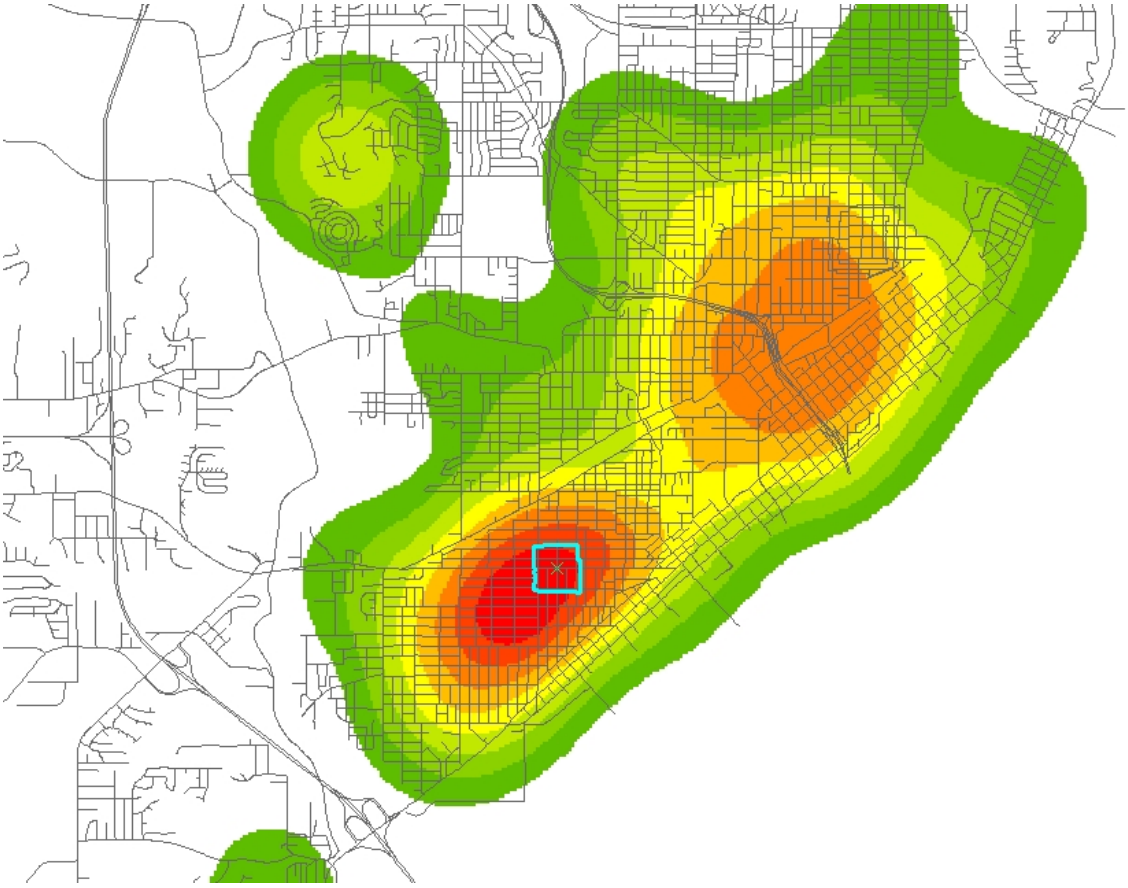
Consistent with the model used in High Point (see Frabutt et al., 2006), the drug market policing strategy implemented in Peoria relied on the use of problem identification (i.e., identifying a problematic geographic crime area and also the identification of chronic offenders responsible for a majority of the crime problems within this area), focused deterrence (through a directed and coordinated response relying on arrest [i.e., suppression] along with 'offender-notification' sessions) and resource delivery (i.e., social service provisions to aid desisting offenders, and community 'follow-up' to demonstrate a long-term commitment to the area). Figure 1 provides an outline of this strategy

*Figure 1*: The Drug Market Intervention Strategy (Adapted from Frabutt et al., 2006)




The *identification* phase was a key element in the strategic response to an illegal drug market in Peoria. In late 2008, researchers in PPD examined a composite measure of index offenses, narcotics arrests, and drug complaints for the entire city. Law enforcement officials ultimately decided to concentrate their efforts in a high-crime neighborhood, which comprised the two census tracts displayed previously in Table 1. The target area (known to members of PPD as the "DMI Target Zone") experienced persistent high crime rates and perceived strained police-community relations. The decision to focus their efforts in this area revolved heavily around their identification of a convenience store parking lot that was a central 'hotspot' of open-air drug activity. Figure 2 displays the geographic analyses of all UCR and drug related offenses for the year preceding the intervention.

*Figure 2*: The DMI Target Zone



Intelligence gathering took place in March and April 2009 when the PPD drug and narcotics task force established criminal cases against 29 suspects. Detectives made video- and audio-recorded controlled buys for evidentiary purposes (i.e., case building). PPD officers also relied on additional sources of data, including narcotics complaints and police surveillance, in order to strengthen evidence against repeat offenders.

From the onset, however, the program was forced to contend with a number of setbacks during identification and investigation. First, in early spring 2009, the target area experienced a spike in domestic violence-related homicides that appeared to be unrelated to illicit street drug

dealing. Narcotics officials within PPD stated the resulting rise in police presence during this period inadvertently caused a 'dispersion effect' among dealers within the heavily concentrated drug market area. Thus, narcotics investigators decided to wait several weeks (in an effort to allow the drug market to become re-established) before they continued their 'case building' against users and dealers.

Second, a serious accident occurred in April 2009 in the vicinity of the targeted community during the identification phase. A two-year old girl was struck and killed by a PPD van that was transporting inmates to the county correctional facility.[2] Officials responsible for the DMI initiative reported that neighborhood residents were understandably upset and believed that the PPD transport van may have been operated in a negligent manner, which had the potential to strain police-community relationships in the area. This strain was not alleviated when footage of the accident captured by cameras placed in the area (intended to gather evidence on the illicit drug trafficking) was shown to a select group of concerned community residents. The community's distress over the incident prompted officials from PPD to postpone the more extensive notification meeting and follow-up components of the strategy until tensions abated and the community had an opportunity to heal from the loss. Thus, the intervention (i.e., arrest and suppression of violent offenders combined with the 'notification session') was re-scheduled for the fall of 2009.

In addition to identifying the target site and offenders within that area, task force members also focused on network capacity-building (see Braga and Winship, 2006) across law enforcement and prosecution officials, social service providers, faith-based organizations, and community-based groups. Residents attending local community and police meetings in the

[2] The official 'Southeast Missourian' website (http://www.semissourian.com/story/1532150.html) provides more in-depth information regarding the accident that occurred in April 2009.

target area were receptive to the idea of replicating the High Point drug market intervention program in Peoria. It is also important to note that local religious leaders and social service providers were enlisted to inform neighborhood residents who did not attend police-community meetings of the impending implementation. They also served as liaisons between law enforcement and offenders' families in the hope of encouraging those eligible for the pulling levers strategy to participate.

After the investigation was complete, officials had to determine who would be 'called-in' to the public notification session and who would be subjected to traditional sanctions through the criminal justice system with enhanced prosecution. This determination was based on a multi-phase process. First, the case officer responsible for the investigation made a recommendation based on his/her experience with each dealer and that dealer's criminal history. Second, two police supervisors and a state's district attorney each made individual recommendations regarding which offenders were best suited for diversion. Finally, the four individuals met to discuss and decide how the identified offenders would be processed taking each recommendation into consideration.

Ultimately, 23 of the 29 individuals who were identified in the investigation phase were arrested and targeted for enhanced prosecution, while six suspected dealers were deemed eligible for the notification session due to their non-violent or less-extensive criminal histories. In late October and early November 2009, PPD law enforcement officials moved forward with a suppression-based component of the intervention and arrested the 23 offenders. It was predicted that those who were arrested and prosecuted would serve as examples of the threat of enhanced sanctions for non-compliance during the pulling levers notification meeting a week later.

The *notification* phase (i.e., advertisement of the deterrence-based intervention) occurred on November 4, 2009 as PPD officials facilitated the meeting in a community center located near the target area. The event attracted an audience of approximately 100. Researchers in attendance estimated that roughly 60% of the attendees were from law enforcement, social services, and prosecution, while 40% were community members and family members of notified offenders. The local media also provided information about the effort to Peoria residents both within and outside of the target community.[3]

Law enforcement, social service providers, the six notified offenders, and invited members from the offenders' families were all present during the call-in meeting. Local media were also present for the beginning of the conference, which involved a description of the deterrence, social service, and community reintegration components. The group of offenders was shown surveillance videos of their alleged drug-dealing activities and informed about the arrest and intended prosecution of the 23 others. As a symbolic gesture, 23 'empty' chairs with poster-size photos of those arrested within the past week were displayed beside the video screen.

The enforcement message emphasized that drug dealing in Peoria would not be tolerated and that re-offending would result in full prosecution of the existing drug-dealing charges. The local Sheriff also explained to the group that the county jurisdiction was equally invested in the program, thus extending the boundary of coverage. Also, the State's Attorney explained both the enhanced sanctions that were available to non-desisting offenders—this is the focused deterrence element of the 'pulling levers' initiative (Kennedy, 1997)—and the positive prosocial aspects of the program that would be used to aid in their rehabilitation should they opt for that path.

[3] A LexisNexis, EBSCO, and Web-Based search found eight news stories (five in the Journal Star – a local Peoria newspaper) that provided a description and outline of the program.

In terms of *resource delivery*, each of the notified individuals met separately with social service providers as part of a preliminary assessment panel during the initial call-in. Suspects' needs were assessed and specific strategies were designed to assist each person (i.e., drug treatment, education and skills training, job-interview skills, etc.). Local religious leaders also participated in the resource delivery component. Four of the six participants made a secondary appointment the next day for a more private and personalized needs assessment. This phase of the intervention was also meant to symbolize a long-term commitment to local Peoria residents and the surrounding community, again as a way to heighten neighborhood local informal social control mechanisms. In particular, officials hoped to convey to citizens that the focus on reducing open-air drug offending was more than a traditional arrest and prosecution strategy. Consequently, for several additional weeks, PPD committed additional patrol presence in the neighborhood and made calls-for-police-service originating from the target area a priority for police response. Patrol officers were encouraged to respond immediately to calls for service stemming from the DMI target area, at least for several weeks following the call in session. This was intended to communicate to residents that the police were committed to working with residents to prevent the re-emergence of the drug market.

## Program Implementation Summary

The program evaluation that relied heavily on narratives and interviews with law enforcement officials and social service providers indicated that officials in Peoria followed the tenets of the pulling levers policing framework with a fair degree of fidelity and consistency. In particular, our process analysis indicates that considerable care was taken to: a) *identify* a location and subsequent offenders within this location who were reportedly driving the drug

markets, b) *notify* high-risk individuals and local community members that illegal drug distribution will no longer be tolerated, c) supply substantial services (i.e., *resource delivery*) to desisting offenders and provide continued police presence in the target area after the notification session (i.e., *community support*).

In order to assess whether the Peoria pulling levers program exerted its intended effects, we move to a detailed assessment of program outcomes. We analyze three data sources for a comprehensive examination of program effects. First, we examine official sources of crime and calls for police service data using an interrupted time series design in an effort to isolate the potential effect of the strategy on crime-specific outcomes. Second, we examine the results of a community survey and assess the degree of familiarity people seemed to have with the intervention, as well as the changes in perceived crime levels (roughly 6 months after the notification session). Finally, we review in-depth interviews with local residents in an effort to discern local perceptions about the strategy and find out whether there was a substantive change in crime and community dynamics. Combined, these analytic techniques are designed to provide an understanding of the utility and effectiveness of the Peoria DMI.

## Time Series Design and Outcome Analysis

The primary goal of the Peoria DMI was to significantly reduce crime associated with illicit street drug markets in the DMI Target Zone. To ascertain the extent to which this goal was reached, an interrupted time series analysis employing official crime reports and calls-for-service data was used to compare patterns of pre- and post-intervention responses across the relevant outcomes (Cook and Campbell, 1979). In addition, the regression models used in the subsequent statistical analyses are also designed to control for the potential influences of fluctuating crime trends as well as seasonality in each time series (i.e., the changes in crime trends that are associated with specific months during the calendar year).

### Data

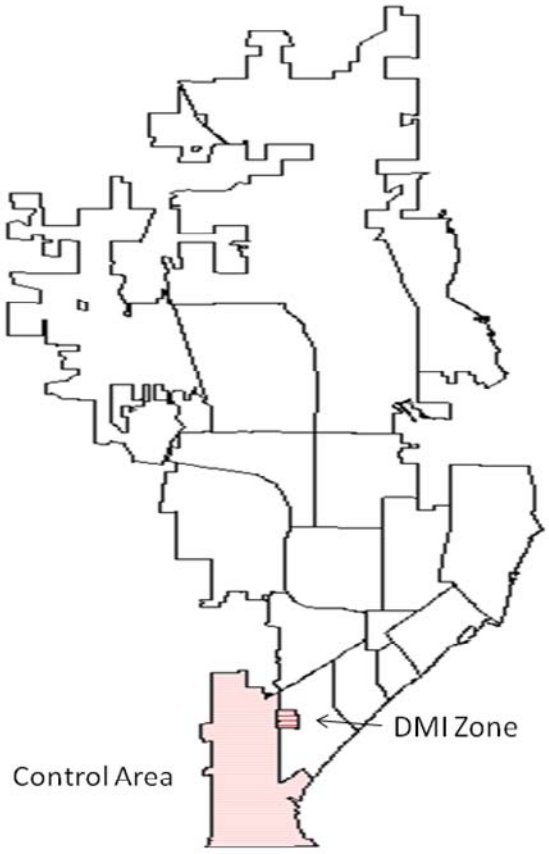
The trend data used here include several types of criminal offenses and calls for police service over a five-year period. Offense data were aggregated into a monthly format beginning January 1, 2005 and extending through October 31, 2010, which equates to over 4 years of pre-intervention and 1 year of post-intervention data ultimately centering on the November 2009 intervention date (i.e., the arrests and call-in session in the target community). Each month's crime measure was operationalized as a composite variable, running from its first through its last day, of all offenses occurring over this period.

### Geographic Boundaries

Simply examining changes in crime and calls for service trends within the target area alone would not rule out the possibility of a more 'global' effect that could have influenced local crime patterns (Cook and Campbell, 1979). As a way to control for the potential influence of

citywide fluctuating crime trends, we utilized three different units of analysis (see Figure 2). More specifically, all offense and calls for service trend data were aggregated to different geographic units (i.e., target area, police districts, and the overall city) for general comparison purposes. Thus, as a first step, we examined local crime trend patterns specifically within the DMI target zone before and after the November 2009 DMI strategy occurred. Comparatively, we estimated the changes in the same crime and calls for service outcomes for a control site (Peoria Police District #4) as well as the remainder of the overall city of Peoria in order to better 'isolate' the potential program effects of the strategy that occurred within the DMI target zone.

*Figure 2*: Map of Various Peoria Geographic Boundaries



We chose Police District #4 as an appropriate comparison site for two main reasons. First, of the 17 police districts within the city, District #4 had the highest level of drug, narcotics and violent crime incidents (relying on baseline data from 2008).[4] Second, it was roughly 10 times larger than the DMI target area in terms of both geographic size and total population. Thus, the control site served as a high-crime comparison area that was unlikely to be influenced by either offense displacement or diffusion of crime-control benefits (see Green, 1995).

## Variables

Four specific outcome variables were modeled in the current analytic framework. *Violent crimes* were operationalized as the total number of robberies (which constituted 33.6% of all violent crimes committed), aggravated assaults (65.1%), and homicides (1.3%).[5][6] *Property crimes* were a summed index of burglaries and larcenies (95.4%) as well as motor vehicle thefts (4.6%). A third outcome measure was measured as *drug and disorder crimes*, which captured levels of possession of cannabis (18.7%) and other controlled substances (19.0%), disorderly conduct incidents (53.5%), and drug paraphernalia and equipment charges (8.6%).[7] Finally, we measured (dispatched) calls for police service given the susceptibility that official crime data may have to police presence and patrolling approaches (Warner and Pierce, 1993). Thus, the

[4] The DMI target area was actually located within Police District #3 (i.e., an adjacent police district to the control site), though it only comprised roughly ¼ of the geographic area within the district. Thus, as a comparison we chose a high-crime police district (#4) that was geographically proximate but still independent of the target area.
[5] Since sexual assault and rape incidents were not included in the target area identification process, we did not include them as a component in our violent crime outcome measures.
[6] All percentage distributions of the aggregated crimes that make up the various dependent variables used in the statistical analyses are based off of the total citywide crime data.
[7] We also independently examined drug and disorder offenses as separate outcomes, where results were similar in terms of direction, magnitude, and statistical significance thresholds. Given the Peoria strategy was designed to reduce drug crimes as well as public nuisance and disorder offenses associated with illicit street drug markets (see Rengert, 1996), we combined these distinct offense measures into a single composite outcome.

*calls for service* outcome was also used to triangulate and ultimately cross-validate the potential changes in specific offense outcomes over time.

We also incorporated an independent variable defined as the *post-intervention* period, which we operationalized as November 2009 thereafter. This measure was a dummy variable wherein the months from January 2005 to October 2009 were defined as the pre-intervention period (i.e., value = 0). Subsequently, November 2009 and all subsequent months through October 2010 were operationalized as the post-intervention period (i.e., value = 1) because November 2009 was when the above-described DMI offender notification session occurred.[8]

In order to account for potential global trend influences, we added both a simple linear *trend* variable (to account for linear trends) and a *trend-squared* variable (to account for curvilinear trends), which were apparent in the bivariate graphs displayed in the results section.[9] Similarly, we included *monthly dummy variables,* using December as the reference month, to account for seasonal effects (i.e., seasonal shocks) that occurred during specific periods of the year (mostly in the late spring and early summer), which are also seen in the bivariate trend graphs.

## Bivariate Analyses

As an initial step, we examined the average monthly percentage changes in the various crime and calls for service outcome measures across the three distinct geographic zones. Table 2 shows that many of the crime and calls for service outcomes manifested somewhat inconsistent

[8] In a detailed review of prior pulling levers strategies, Kennedy (2006) illustrated that pulling levers interventions often experience a 'light switch' deterrent-effect, which is an immediate and abrupt reduction in crime associated with the strategy (see also Piehl et al., 2003). Thus, we selected the month of the notification session as the light-switch intervention date.

[9] The trend variable was created as a sequential time measure from the start to the end of the time series data (i.e., our data ran from January 2005 (1) to October 2010 (71). The trend-squared variable was simply the trend variable squared (trend variable * trend variable) to account for potential quadratic changes in a given time series.

changes between the pre- and post-intervention periods for the target, control, and city groups. For example, within the DMI target area, the average number of violent crimes increased from 2.2 per month to 3.9 per month. Drug and disorder offenses within the target area, however, declined by nearly 2 incidents per month (from 7.0 to 5.0 monthly offenses). Comparatively, violent crime seemed to be on the rise in all three sites during this period. Similarly, drug and disorder offenses declined in all geographic sites across the city, though the reduction in drug and disorder offenses seemed to be higher in the target area relative to the rest of the city. The pattern in calls for police service seemed to suggest a decline in the target area (roughly 5%) between pre- and post-intervention periods, relative to the remainder of the city (1% increase). However, there was an even larger observed decline (roughly 18%) in the control site, again indicating that crime and calls for service trends fluctuated considerably across the city over the period of interest here.

*Table 2*: Pre- and Post-Intervention Changes in the Outcome Measures

| Offense Type | Number of Offenses Per Month (Pre-Intervention) | Number of Offenses Per Month (Post-Intervention) |
|---|---|---|
| **DMI Target Area** | | |
| Violent crime | 2.27 | 3.91 |
| Property crime | 2.41 | 2.66 |
| Drug & disorder | 7.09 | 5.08 |
| Calls for service | 89.98 | 85.25 |
| **Control Area** | | |
| Violent crime | 16.51 | 17.00 |
| Property crime | 34.05 | 41.83 |
| Drug & disorder | 47.13 | 43.58 |
| Calls for service | 1,160.8 | 940.3 |
| **Remainder of Peoria** | | |
| Violent crime | 78.22 | 86.50 |
| Property crime | 196.55 | 245.75 |
| Drug & disorder | 257.56 | 237.16 |
| Calls for service | 7,436.5 | 7,468.8 |

We next move to more conventional bivariate trend graphs in order to visually assess the longitudinal impact of the program in the target community on selected crime outcomes. Figure 3 indicates that violent crime within the target area followed a rising trajectory from 2009 and 2010. The vertical bar indicates the point of the intervention (November 2009), which did not appear to correspond with any substantive change with violent crime offenses.

*Figure 3*: DMI Target Area Violent Crime Trends

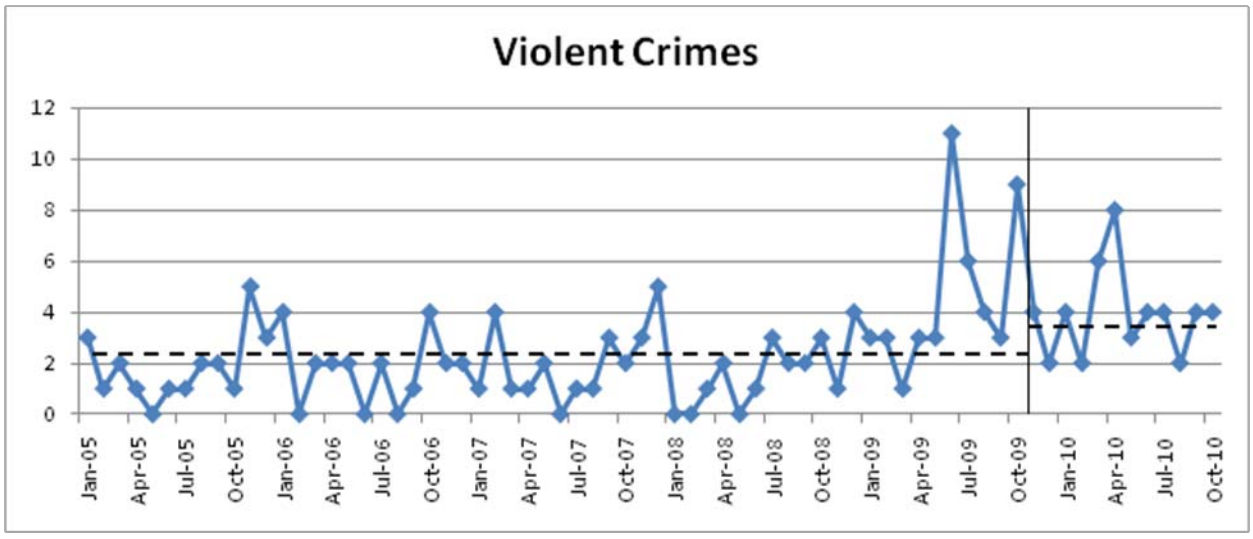
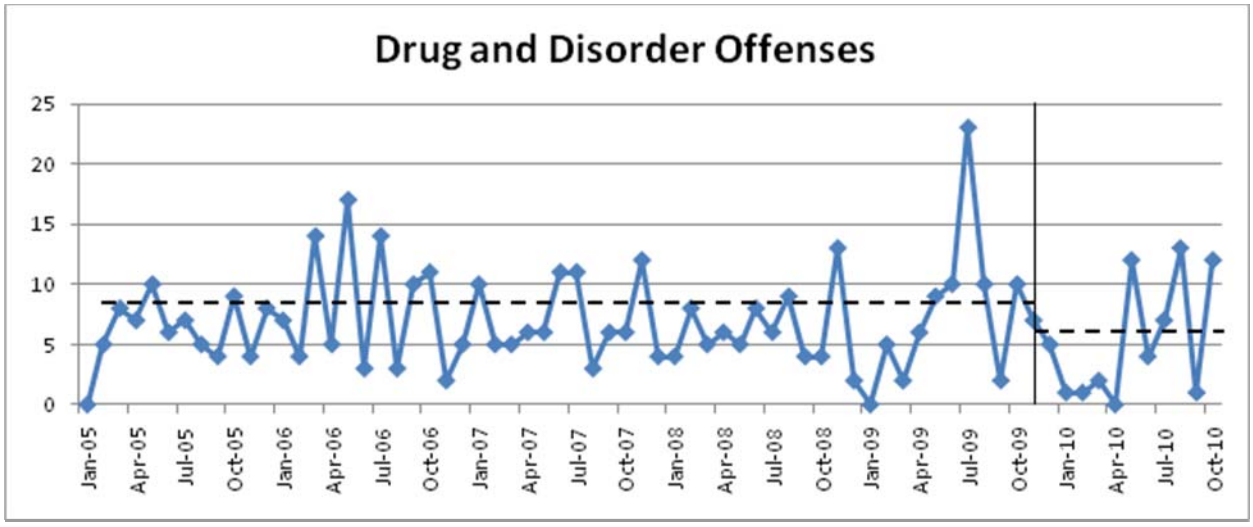


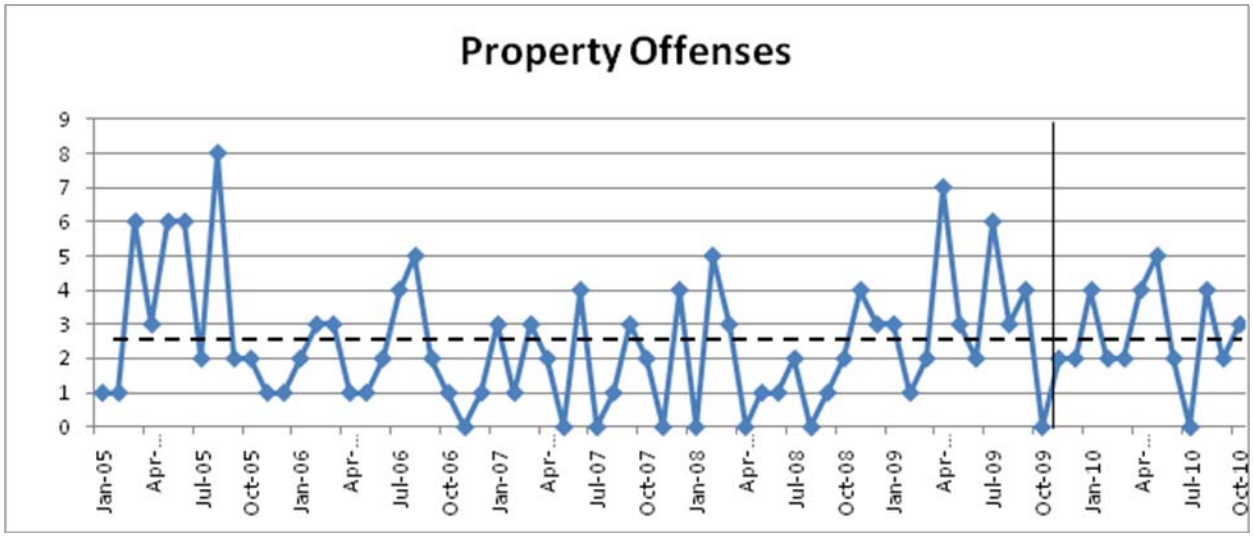

Figure 4 displays the changes in drug and disorder offenses within the target zone before and after the November 2009 intervention. There appears to be a significant drop in this specific offense type within the target community at the time of the DMI strategy, at least between October 2009 and May 2010.

*Figure 4*: DMI Target Area Drug and Disorder Offenses




We next move to a visual examination of property offenses in the target zone, which remained stable across the pre- and post-intervention time periods (2.4 to 2.6 per month). Thus, these bivariate results seemed to strongly suggest that the DMI strategy did not have a substantive influence on local property offenses within the target area.

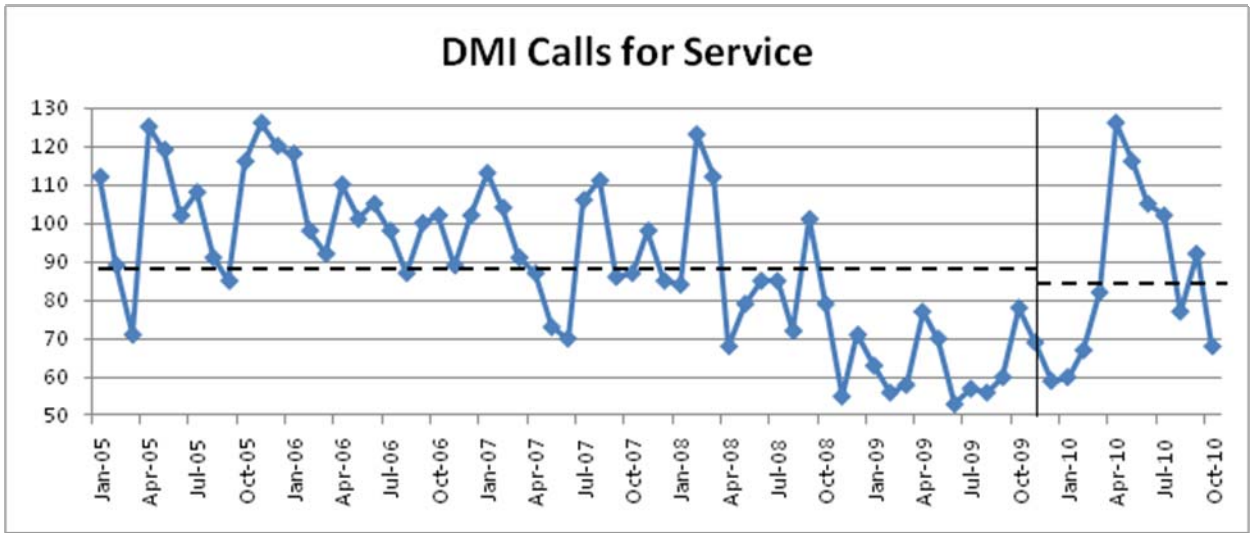
*Figure 5*: DMI Target Area Property Offenses




Finally, when we examine the calls for service trends (see Figure 6) between 2005 and 2010, the bivariate mean differences between pre- and post-intervention indicates that overall

calls for service declined from roughly 89 to 85 per month over this period. A more detailed visual inspection of the trend data, however, indicates that the observed decline for this specific outcome occurred in roughly 2008, which equates to almost an entire year before the Peoria DMI session. Thus, we do not see evidence suggesting that the mean difference in calls for service likely corresponded with the November 2009 DMI intervention.

*Figure 6*: DMI Target Area Calls for Service Trends




Next, we move to the more sophisticated multivariate time series regression models in order to account for seasonal disturbances in crime data in order to better isolate the potential program impact in the DMI target area relative to other areas of the city.

## Multivariate Analyses

The bivariate percentage changes that have been displayed to this point represent simple pre- and post-intervention reductions and thus do not control for prior trends in the data, seasonality, and other confounding influences that are likely to create a regression toward the mean in the relevant crime outcomes. As noted earlier, one of the most widely adopted statistical procedures in econometrics and criminal justice used to determine the impact of programs and

public policies is time series analysis. As McCleary and Hay (1980, p. 141) note, "the widest use of the time series design has clearly been in the area of legal impact assessment."

We utilized Generalized Linear Modeling count regression analysis to estimate the impact of the Peoria DMI program (see Long, 1997). Ordinal Least Squares (OLS) regression models are inappropriate for analyzing count outcomes because count data do not approximate a normal distribution and thus analysis from these models would lead to biased and inconsistent estimates (King, 1988). Each outcome examined was estimated using a log-linear Poisson distribution, and in each estimated model presented here the sample variance was significantly greater than the sample mean (i.e., an overdispersed distribution), and thus we relied upon the negative binomial regression model given its additional parameter to account for the distribution of the variance independent from the mean (Long, 1997; Long & Freese, 2003).[10] Parameter estimates for each regression model were subsequently expressed as incidence rate ratios (i.e., the change in the rate of an outcome based on a unit change in an independent variable), which are simply calculated as the exponentiated coefficients given the use of logarithmic transformation in Generalized Maximum Likelihood (Long & Freese, 2003).

As noted earlier, each regression model presented herein accounts for linear (i.e., trend) and quadratic (i.e., trend squared) changes in the time series data as well as monthly dummy variables to control for seasonal changes in each offense type. Table 3 displays the time series results of the violent crime models for the DMI target area, the control area, and the remainder of Peoria. The regression models indicate that violent crimes in the target area experienced a statistically significant *increase* of over 71% between pre- and post-intervention periods,

[10] We examined the goodness-of-fit statistics for each full regression and chose, where appropriate, negative binomial regression models in place of Poisson models when the Chi-Square p-value statistics were statistically significant ($p < .05$), which indicates statistically significant evidence of overdispersion (Long and Freese, 2003: 270). This type of statistical model was specifically used when firearm related incidents were examined.

controlling for influential forces in the time series data.[11] In terms of a relative comparison, violent crimes also experienced a statistically significant increase in the remainder of the city by roughly 26.4%. Interestingly, violent crimes in the control area experienced a very slight decline, though not to any level of statistical significance. In sum, violent crimes appeared to be on the rise in Peoria between pre- and post-intervention periods and this continued in the target zone despite the implementation of the DMI.

*Table 3*: Maximum Likelihood Regression Models of Violent Crime Trends

| | **DMI** | | | **Control** | | | **Remaining Peoria** | | |
|---|---|---|---|---|---|---|---|---|---|
| Measure | Coeff. | St. Error | p | Coeff. | St. Error | p | Coeff. | St. Error | p |
| Intercept | 1.210 | 0.401 | < 0.01 | 2.476 | 0.186 | < 0.01 | 4.26 | 0.074 | < 0.01 |
| **Post-Intervention** | **0.542** | **0.021** | **0.01** | **-0.045** | **0.173** | **0.79** | **0.235** | **0.072** | **< 0.01** |
| Controls | | | | | | | | | |
| Trend | -0.039 | 0.020 | 0.05 | -0.001 | 0.008 | 0.85 | -0.005 | 0.003 | 0.12 |
| Trend Squared | 0.000 | 0.000 | <0.01 | 0.000 | 0.000 | 0.74 | 0.000 | 0.000 | 0.73 |
| January | -0.281 | 0.362 | 0.43 | 0.040 | 0.188 | 0.83 | 0.082 | 0.074 | 0.27 |
| February | -0.715 | 0.405 | 0.07 | -0.406 | 0.207 | 0.05 | -0.203 | 0.080 | 0.01 |
| March | -0.486 | 0.377 | 0.19 | 0.274 | 0.180 | 0.12 | 0.079 | 0.075 | 0.29 |
| April | -0.252 | 0.352 | 0.47 | 0.399 | 0.177 | 0.02 | 0.313 | 0.071 | < 0.01 |
| May | -0.824 | 0.407 | 0.04 | 0.569 | 0.173 | < 0.01 | 0.244 | 0.072 | < 0.01 |
| June | -0.337 | 0.355 | 0.34 | 0.406 | 0.177 | 0.02 | 0.329 | 0.071 | < 0.01 |
| July | -0.384 | 0.355 | 0.28 | 0.581 | 0.173 | < 0.01 | 0.343 | 0.072 | < 0.01 |
| August | -0.869 | 0.402 | 0.03 | 0.541 | 0.174 | < 0.01 | 0.361 | 0.072 | < 0.01 |
| September | -0.613 | 0.375 | 0.10 | 0.497 | 0.176 | < 0.01 | 0.405 | 0.072 | < 0.01 |
| October | -0.242 | 0.349 | 0.48 | 0.064 | 0.189 | 0.73 | 0.352 | 0.073 | < 0.01 |
| November | -0.028 | 0.359 | 0.93 | 0.361 | 0.184 | 0.05 | 0.217 | 0.075 | < 0.01 |
| Model Statistics | | | | | | | | | |
| Log Likelihood | 34.73 | | | 48.18 | | | 86.93 | | |
| LR Chi-Square Test (df) | 0.001 | | | 0.000 | | | 0.000 | | |

Table 4 shows the property crime time series regression results for all three geographic areas of interest. Consistent with the pattern in violent crime (displayed above), property offenses in the remaining areas of Peoria also experienced a statistically significant increase (B = .305, p < .01). In addition, the target area experienced a non-statistically significant (B = 0.09, p = .66) rise in property offenses during this same period, while the control area went through a

[11] All percentage estimates are based on exponentiated coefficients (i.e., exp(.542) = 1.71 – 1.00).

non-significant (B = -0.104, p = .43) decline. Thus, there was no statistically significant change in UCR property offenses in the target area between pre- and post-intervention periods, although the remainder of Peoria did experience a significant rise in this specific type of offense during the same period.

*Table 4*: Maximum Likelihood Regression Models of Property Crime Trends

| | **DMI** | | | **Control** | | | **Remaining Peoria** | | |
|---|---|---|---|---|---|---|---|---|---|
| Measure | Coeff. | St. Error | p | Coeff. | St. Error | p | Coeff. | St. Error | p |
| Intercept | 1.390 | 0.416 | < 0.01 | 3.62 | 0.141 | < 0.01 | 5.44 | 0.08 | < 0.01 |
| **Post-Intervention** | **0.099** | **0.229** | **0.66** | **-0.104** | **0.135** | **0.43** | **0.305** | **0.079** | **< 0.01** |
| Controls | | | | | | | | | |
| Trend | -0.047 | 0.019 | 0.02 | -0.023 | 0.006 | < 0.01 | -0.017 | 0.078 | < 0.01 |
| Trend Squared | 0.000 | 0.000 | 0.02 | 0.000 | 0.000 | < 0.01 | 0.000 | 0.080 | < 0.01 |
| January | -0.133 | 0.431 | 0.75 | -0.056 | 0.141 | 0.69 | -0.067 | 0.078 | < 0.01 |
| February | -0.127 | 0.430 | 0.76 | -0.400 | 0.149 | < 0.01 | -0.389 | 0.077 | < 0.01 |
| March | 0.242 | 0.401 | 0.54 | 0.062 | 0.138 | 0.65 | -0.082 | 0.077 | < 0.01 |
| April | 0.128 | 0.408 | 0.75 | 0.265 | 0.135 | 0.05 | 0.115 | 0.077 | < 0.01 |
| May | 0.058 | 0.414 | 0.88 | 0.108 | 0.138 | 0.43 | 0.208 | 0.077 | < 0.01 |
| June | 0.122 | 0.409 | 0.76 | 0.259 | 0.135 | 0.05 | 0.175 | 0.076 | < 0.01 |
| July | -0.079 | 0.425 | 0.85 | 0.363 | 0.134 | < 0.01 | 0.361 | 0.076 | < 0.01 |
| August | 0.310 | 0.397 | 0.43 | 0.333 | 0.135 | < 0.01 | 0.376 | 0.076 | < 0.01 |
| September | -0.102 | 0.428 | 0.81 | 0.246 | 0.137 | 0.07 | 0.226 | 0.077 | < 0.01 |
| October | -0.454 | 0.462 | 0.32 | 0.214 | 0.138 | 0.12 | 0.226 | 0.078 | < 0.01 |
| November | -0.450 | 0.498 | 0.36 | 0.269 | 0.140 | 0.05 | 0.155 | 0.080 | < 0.01 |
| Model Statistics | | | | | | | | | |
| Log Likelihood | 12.85 | | | 54.15 | | | 107.8 | | |
| LR Chi-Square Test (df) | 0.538 | | | 0.000 | | | 0.000 | | |

Table 5 shows the estimated changes in drug and disorder offenses, where results indicate that the target area experienced the largest decline in drug and disorder offenses before and after the DMI program. More specifically, net of other traditional factors that often influence time series data, the target area experienced a 39.8% decrease in this specific offense type, though the change did not reach the threshold of statistical significance (B = -0.508, p = .13). Comparatively, the control area also experienced a more moderate decrease of 7.5%, though not to any level of statistical significance (B = -0.078, p = .41). Also, the remainder of Peoria saw a

statistically significant increase of 36.3% in this same offense type (B = 0.031, p < .01), which is consistent with the patterns of offenses seen above (i.e., the rest of the city went through substantive and significant increase in crime that was not seen in the target or the control areas).

*Table 5*: Maximum Likelihood Regression Models of Drug and Disorder Crime Trends

| | **DMI** | | | **Control** | | | **Remaining Peoria** | | |
|---|---|---|---|---|---|---|---|---|---|
| Measure | Coeff. | St. Error | p | Coeff. | St. Error | p | Coeff. | St. Error | p |
| Intercept | 1.694 | 0.346 | < 0.01 | 3.9 | 0.114 | < 0.01 | 5.31 | 0.06 | < 0.01 |
| **Post-Intervention** | **-0.508** | **0.339** | **0.13** | **-0.078** | **0.094** | **0.41** | **0.31** | **0.060** | **< 0.01** |
| Controls | | | | | | | | | |
| Trend | -0.011 | 0.015 | 0.46 | 0.014 | 0.005 | < 0.01 | 0.000 | 0.002 | 0.77 |
| Trend Squared | 0.000 | 0.000 | 0.49 | 0.000 | 0.000 | 0.55 | 0.000 | 0.000 | 0.01 |
| January | 0.023 | 0.355 | 0.95 | 0.095 | 0.117 | 0.41 | 0.203 | 0.060 | < 0.01 |
| February | 0.271 | 0.344 | 0.43 | 0.112 | 0.117 | 0.33 | 0.256 | 0.060 | < 0.01 |
| March | 0.085 | 0.352 | 0.80 | 0.380 | 0.112 | < 0.01 | 0.429 | 0.059 | < 0.01 |
| April | 0.795 | 0.328 | 0.01 | 0.320 | 0.113 | < 0.01 | 0.430 | 0.059 | < 0.01 |
| May | 0.439 | 0.338 | 0.19 | 0.363 | 0.113 | < 0.01 | 0.467 | 0.059 | < 0.01 |
| June | 0.915 | 0.326 | 0.00 | 0.272 | 0.115 | 0.01 | 0.426 | 0.059 | < 0.01 |
| July | 0.489 | 0.341 | 0.15 | 0.351 | 0.114 | < 0.01 | 0.495 | 0.060 | < 0.01 |
| August | -0.009 | 0.357 | 0.98 | 0.372 | 0.114 | < 0.01 | 0.563 | 0.060 | < 0.01 |
| September | 0.665 | 0.335 | 0.04 | 0.628 | 0.111 | < 0.01 | 0.513 | 0.060 | < 0.01 |
| October | 0.407 | 0.343 | 0.23 | 0.318 | 0.116 | < 0.01 | 0.467 | 0.062 | < 0.01 |
| November | 0.107 | 0.367 | 0.77 | 0.026 | 0.123 | 0.82 | 0.211 | 0.060 | < 0.01 |
| Model Statistics | | | | | | | | | |
| Log Likelihood | 25.47 | | | 67.21 | | | 108.8 | | |
| LR Chi-Square Test (df) | 0.03 | | | 0.000 | | | 0.000 | | |

Finally, we triangulated the trend patterns in the different type of criminal offense data with calls for service trends in order to better assess whether people in the target community requested police assistance differently before and after the DMI program, and again used the control site as well as the remainder of Peoria for comparisons. We found that calls for police assistance declined by roughly 5.2% in the post-intervention period relative to the pre-DMI period, though again this change in the trend pattern was not statistically significant (B = -0.054, p = .46). The control area also experienced a non-significant decrease in calls for service, while the remainder of Peoria saw a significant rise in calls for service by 29.1% (B = 0.256, p < .01).

*Table 6*: Maximum Likelihood Regression Models of Calls for Service Crime Trends

| | DMI | | | Control | | | Remaining Peoria | | |
|---|---|---|---|---|---|---|---|---|---|
| Measure | Coeff. | St. Error | p | Coeff. | St. Error | p | Coeff. | St. Error | p |
| Intercept | 4.610 | 0.108 | < 0.01 | 7.05 | 0.069 | < 0.01 | 8.91 | 0.048 | < 0.01 |
| **Post-Intervention** | **-0.054** | **0.073** | **0.46** | **-0.015** | **0.051** | **0.76** | **0.256** | **0.050** | **< 0.01** |
| Controls | | | | | | | | | |
| Trend | 0.001 | 0.005 | 0.82 | 0.007 | 0.003 | 0.02 | 0.003 | 0.002 | 0.19 |
| Trend Squared | 0.000 | 0.000 | 0.04 | 0.000 | 0.000 | < 0.01 | 0.000 | 0.000 | < 0.01 |
| January | 0.027 | 0.106 | 0.79 | -0.014 | 0.063 | 0.82 | -0.003 | 0.047 | 0.93 |
| February | 0.021 | 0.106 | 0.84 | -0.043 | 0.063 | 0.49 | -0.010 | 0.047 | < 0.01 |
| March | -0.023 | 0.107 | 0.82 | -0.005 | 0.063 | 0.92 | -0.003 | 0.047 | < 0.01 |
| April | 0.138 | 0.106 | 0.19 | 0.037 | 0.064 | 0.55 | 0.018 | 0.047 | < 0.01 |
| May | 0.090 | 0.107 | 0.40 | 0.052 | 0.063 | 0.40 | 0.063 | 0.048 | < 0.01 |
| June | 0.027 | 0.107 | 0.79 | 0.067 | 0.063 | 0.28 | 0.071 | 0.047 | < 0.01 |
| July | 0.105 | 0.108 | 0.32 | 0.072 | 0.064 | 0.25 | 0.091 | 0.047 | < 0.01 |
| August | -0.001 | 0.108 | 0.99 | 0.038 | 0.064 | 0.55 | 0.071 | 0.047 | < 0.01 |
| September | 0.079 | 0.108 | 0.46 | 0.097 | 0.064 | 0.12 | 0.091 | 0.047 | < 0.01 |
| October | 0.097 | 0.109 | 0.37 | 0.044 | 0.064 | 0.48 | 0.040 | 0.048 | < 0.01 |
| November | -0.015 | 0.111 | 0.89 | 0.000 | 0.065 | 0.99 | -0.014 | 0.048 | < 0.01 |
| Model Statistics | | | | | | | | | |
| Log Likelihood | 39.89 | | | 64.71 | | | 41.58 | | |
| LR Chi-Square Test (df) | 0.000 | | | 0.000 | | | 0.000 | | |

## Time Series Summary

The time series regression results that were designed to test the DMI program impact indicated several patterns in the various types of crime and calls for service data we utilized in this evaluation. First, the city of Peoria went through significant increases in overall crime and calls for service between the pre- and post-intervention periods as evidenced by the statistically significant rise in violent, property, drug and disorder offenses as well as calls for police service after November 2009. Second, the DMI target area experienced inconsistent crime pattern changes over this same period. Serious forms of UCR crime (i.e., violent and property) increased, and drug and disorder offenses along with calls for service decreased, though again (except in the case of violent crime) the changes were not statistically significant. Finally, the control site did not have any significant changes in crime or calls for service during the pre- and

post-intervention periods. The time series results indicate the target area experienced no major rise or decline in the major offense rates or calls for police service trends between the pre- and post-DMI intervention periods. Thus, while the rest of the city was experiencing an increase in all types of crime, rates of criminal offending remained relatively stable in the DMI target and control areas during this same period.

Crime rates and calls for service tell only part of the story, though—the potential effectiveness of a crime reduction strategy such as the Peoria DMI may extend beyond official sources of data to encompass citizens' perceptions of police activities and of possible changes in neighborhood conditions as a result of the program. In the next two sections, we rely upon citizen surveys and in-depth resident interviews in order to capture detailed information about these important community dynamics.

## Peoria Resident Survey Results

The data presented in this section were gathered from a telephone survey conducted in May and June 2010 by the Survey Research Center at the University of Illinois – Springfield. A total of 1,416 randomly selected Peoria adults were contacted, with up to four additional follow-up requests to non-responders in order to improve the overall response rate. Individuals were classified into three unique geographic areas, which were incorporated into the sampling strategy: the target area (which accounted for 14.1% of the total number of respondents), the control area (42.6% of respondents), and the remainder of Peoria (43.3% of respondents). A total of 652 adults of the 1,416 contacted agreed to participate in the survey, and of those that began, over 98.6% (N = 643 out of 652) completed the entire interview.

This sampling strategy resulted in an overall response rate of 45.4%. The target area's response rate was 45.3%, the control area's was 43.0%, and for the remainder of Peoria, 48.0%. As can be seen in Table 7, the final survey sample was predominately older (mean age = 56.6 years) and female (66.8%), and White (59.8%). In terms of financial information (not displayed in Table 7), there was substantial variability in reported annual household income. The breakdown was as follows: less than $20,000 (25.5%), $20,001 to $34,999 (26.5%), $35,000 to $49,999 (17.9%), $50,000 to $69,999 (10.3%), greater than $70,000 (19.8%).[12]

[12] While all demographic percentage distributions are based on the valid percent of cases (i.e., valid percents for each item), the measure for annual household income only resulted in a 75.3% valid response rate among the overall sample (i.e., 24.7% of the sample did not provide an answer). Thus, caution should be employed when considering the influence of annual home income on the various outcome measures among study participants.

*Table 7*: Final Sample Characteristics

| **Demographic Characteristics** | **(N = 643)** |
|---|---|
| Mean Age (In Years) | 56.6 |
| Percent Female | 66.8 |
| Percent Black | 34.9 |
| Percent White | 59.8 |
| Percent Hispanic/Latino | 1.8 |
| Percent Homeowners | 68.9 |
| Percent High School Graduates | 88.7 |
| Percent College Graduates (Bachelors Degree) | 14.2 |
| Percent Currently Married | 44.3 |

## Perceived Changes in Crime

One of the goals of the study was to determine whether the Peoria DMI affected people's perceptions of crime in their neighborhoods, and a section of the survey was devoted to questions intended to determine whether respondents believed that certain types of crime and disorder had increased, decreased, or stayed the same over the past six months. Each variable was measured on a 1 – 5 scale where 1 = much less of a problem; 2 = somewhat less of a problem; 3 = about the same; 4 = somewhat more of a problem; and 5 = much more of a problem.

There were also two items designed to capture respondents' perceptions about possible recent changes in informal social control. One desirable result of any police-led intervention is for citizens to become involved in the process of asserting control over the local area and to eventually establish informal mechanisms of regulation that complement the formal mechanisms provided by police. Two survey items assessed whether respondents had experienced a change in informal control over the past six months. One item asked whether citizen participation in local neighborhood associations or groups had increased and the other asked about potential changes in neighbors' willingness to take action to solve local problems. Both were measured on a 1 – 3 scale where 1 = increased; 2 = stayed the same; and 3 = decreased. Table 8 shows descriptive statistics for the crime and disorder variables and Table 9 contains descriptive statistics for the two informal control items.

*Table 8*: Descriptive Statistics for the Change over Time Variables: Crime and Disorder

| | | Drug Sales | Public Drug Use | Public Drinking | Noise at Night | Traffic Law Violations | Loitering | Crime |
|---|---|---|---|---|---|---|---|---|
| **Target** | **N** | 79 | 72 | 74 | 76 | 72 | 77 | 81 |
| | $\bar{x}$ | 2.962 | 2.833 | 2.989 | 3.013 | 3.028 | 2.922 | 3.111 |
| | **s** | 1.115 | .934 | 1.027 | 1.077 | 1.034 | 1.167 | 1.313 |
| **Control** | **N** | 222 | 189 | 194 | 210 | 217 | 204 | 230 |
| | $\bar{x}$ | 2.932 | 2.868 | 2.964 | 3.081 | 3.129 | 3.186 | 3.248 |
| | **s** | 1.105 | 1.110 | 1.010 | 1.110 | .992 | 1.142 | 1.080 |
| **General** | **N** | 143 | 124 | 139 | 166 | 190 | 150 | 179 |
| | $\bar{x}$ | 2.769 | 2.702 | 2.791 | 2.795 | 2.979 | 2.760 | 2.899 |
| | **s** | .837 | .836 | .803 | .820 | .816 | .865 | .868 |

The means for each group on the crime and disorder items suggest that respondents generally thought that things had not changed much over the past six months. The means on the crime and disorder items, all hover around 3, which was the number associated with "no difference" on the crime scale; similarly, the majority of respondents reported not perceiving any change in the level of neighborhood participation or action over the past six months.

The next step was to test for statistically significant differences between the groups to

*Table 9*: Descriptive Statistics for the Change over Time Variables: Informal Control

| | ***Neighborhood Participation*** | | | | ***Neighbors taking Action*** | | | |
|---|---|---|---|---|---|---|---|---|
| | **Increased** | **Same** | **Decreased** | Total | **Increased** | **Same** | **Decreased** | Total |
| **Target** | 21 | 46 | 14 | 81 | 23 | 53 | 8 | 84 |
| | 25.926% | 56.790% | 17.284% | 100.000% | 27.381% | 63.095% | 9.524% | 100% |
| **Control** | 46 | 153 | 39 | 238 | 47 | 161 | 39 | 247 |
| | 19.328% | 64.286% | 16.387% | 100.001% | 19.028% | 65.182% | 15.789% | 100% |
| **General** | 26 | 189 | 22 | 237 | 37 | 200 | 14 | 251 |
| | 10.970% | 79.747% | 9.283% | 100.000% | 14.741% | 79.681% | 5.578% | 100% |
| Total | 93 | 388 | 75 | 556 | 107 | 414 | 61 | 582 |
| | 16.727% | 69.784% | 13.489% | 100.000% | 18.385% | 71.134% | 10.481% | 100% |

determine if the target area stood out from the control and general areas on any of the key assessment items. Analysis of variance (ANOVA) was the most appropriate statistical technique for the crime variables and chi-square ($\chi^2$) for the informal control variables. All of the crime variables violated ANOVA's assumption of normality, though, and several of them also violated the assumption of equal variances. Combined with the inequality of the group sample sizes,

these violations warranted use of Welch's F[13] rather than the traditional ANOVA F-statistic. Table 10 shows the results.

Significant differences between means emerged for three of the variables: Noise at night, loitering, and crime. Games-Howell post hoc tests were employed to explore these findings and

*Table 10*: Welch's F Tests for Changes in Perceived Crime and Disorder

| | Drug Sales | Public Drug Use | Public Drinking | Noise at Night | Traffic Law Violations | Loitering | Crime |
|---|---|---|---|---|---|---|---|
| **F** | 1.643 | 1.229 | 1.889 | 4.390* | 1.405 | 7.972*** | 6.580** |

* $p < .05$ ** $p < .01$ *** $p < .001$

determine the location of the differences between the groups. These tests revealed that all three significant Welch's F-statistics were the product of differences between the control group and the general group; the target group did not differ significantly from either of the other two. The effects, though, were quite weak ($\eta^2_{noise} = .017$, $\eta^2_{loitering} = .033$, $\eta^2_{crime} = .022$), so the differences—though statistically significant—were likely not substantively meaningful.

Table 11 contains the chi-square results for the informal social control variables. Both tests revealed statistically significant differences between groups; however, like those for the F-

*Table 11*: Chi-Square Tests for Changes in Perceived Informal Social Control

| | Neighborhood Participation | Neighbors taking Action |
|---|---|---|
| $\chi^2$ | 21.572* | 22.609* |

* $p < .001$

test, the effect sizes were miniscule (Cramer's $V_{participation} = .139$, $p < .001$, Cramer's $V_{action} = .139$, $p < .001$). Respondents in all groups overwhelmingly reported believing that participation and action had stayed the same over the past six months.

[13] Other options such as the Brown-Forsythe and the Kruskal-Wallis tests were also explored and yielded the same results as those presented here.

## Awareness and Beliefs Regarding DMI Impact

The visibility of a police intervention is integral to both its deterrent impact on offenders and its ability to affect local residents' perceptions of crime, disorder, and the police. It is thus worth considering whether and to what extent people in the target, control, and general groups were informed about the DMI and its purposes. A series of chi-square analyses was used to examine the prevalence of information about the DMI and whether this prevalence varied across groups.

The first question in the "awareness of DMI" section asked respondents whether or not they had "heard or seen anything about the Peoria Drug Market Intervention (or DMI) that started last November 2009?" Table 12 contains the number of respondents in each group who reported that they had been exposed to information about the Peoria DMI, had not been exposed, or were unsure about whether or not they had heard of the initiative. Table 12 also contains row percents showing the percent of respondents in each group who fell into each of the awareness categories. A chi-square test of the data in Table 12 was not statistically significant ($\chi^2 = 7.872$, $p = .096$), indicating that there were no meaningful differences between the groups in terms of their awareness of the DMI prior to the telephone survey. As can be seen from the table above, the majority of respondents in all three groups were unaware of the DMI; in fact, citizens in the target area were the *least* aware of this program's existence.

*Table 12*: Awareness of the DMI by Group

| | ***Heard of the DMI?*** | | | |
|---|---|---|---|---|
| | **Yes** | **No** | **Maybe** | Total |
| **Target** | 29 | 51 | 5 | 85 |
| | 34.118% | 60.000% | 5.882% | 100% |
| **Control** | 55 | 197 | 11 | 263 |
| | 20.913% | 74.905% | 4.183% | 100% |
| **General** | 69 | 189 | 17 | 275 |
| | 25.091% | 68.727% | 6.182% | 100% |
| Total | 153 | 437 | 33 | 623 |
| | 24.559% | 70.144% | 5.297% | 100% |

The next question with regard to awareness of the program concerns the source of exposure among those respondents who had encountered information about the DMI. A survey item asked respondents "How did you first become aware of the Peoria DMI program?" Table 13

*Table 13*: Information Sources among those who had heard of the DMI

| | ***Information Source*** | | | | |
|---|---|---|---|---|---|
| | **Formal Community Meeting** | **Informally from Neighbors** | **Local Media Outlet** | **Other** | Total |
| **Target** | 3 | 3 | 17 | 8 | 31 |
| | 9.677% | 9.677% | 54.839% | 25.806% | 100% |
| **Control** | 5 | 2 | 37 | 5 | 49 |
| | 10.204% | 4.082% | 75.510% | 10.204% | 100% |
| **General** | 1 | 5 | 52 | 7 | 65 |
| | 1.538% | 7.692% | 80.000% | 10.769% | 100% |
| Total | 9 | 10 | 106 | 20 | 145 |
| | 6.207% | 6.897% | 73.103% | 13.793% | 100% |

contains the responses provided by those participants who said that they had heard of the DMI (a total of 145 of the 652 respondents). Local media outlets (e.g., television, radio, newspapers) were by far the most common source of information about the DMI. Very few respondents learned about the program through formal community meetings or informal neighborhood networks. It is not possible to say whether the lack of information dissemination at community meetings is due to an overall paucity of such meetings or whether these meetings took place but were poorly-attended. The chi-square statistic was not significant ($\chi^2 = 13.602$, $p = .093$), indicating that all three groups received information from similar sources. The overarching conclusion from this analysis is that local media outlets are likely the most effective vehicles for dissemination information about police department activities.

Respondents' beliefs about the efficacy of the DMI were also assessed. Even interventions that show no reductions in crime may have merit if local citizens perceive the

police more positively afterward and/or perceive that crime and disorder have been quelled. Table 14 contains the breakdown by group regarding respondents' attitudes toward the program. Roughly half of respondents in all three groups reported that they thought the DMI had either a minor or major positive impact. Approximately one-fourth to one-third expressed the belief that

*Table 14*: Beliefs about the DMI's Impact

| | ***Belief about Impact*** | | | | | |
|---|---|---|---|---|---|---|
| | **Major Positive Difference** | **Minor Positive Difference** | **No Impact** | **Minor Negative Difference** | **Major Negative Difference** | Total |
| **Target** | 11 | 16 | 12 | 5 | 0 | 44 |
| | 25.000% | 36.364% | 27.273% | 11.364% | 0.000% | 100% |
| **Control** | 20 | 24 | 31 | 2 | 1 | 78 |
| | 25.641% | 30.769% | 39.744% | 2.564% | 1.282% | 100% |
| **General** | 10 | 30 | 26 | 3 | 1 | 70 |
| | 14.286% | 42.857% | 37.143% | 4.286% | 1.429% | 100% |
| Total | 41 | 70 | 69 | 10 | 2 | 192 |
| | 21.354% | 36.458% | 35.938% | 5.208% | 1.042% | 100% |

the program had no impact. A few people said that the program had had either a minor or major negative effect. There were no significant differences across the groups ($\chi^2 = 10.288$, $p = .245$). Citizens appear to have been, overall, somewhat positive or neutral about the program.

Given that a substantial portion of respondents reported having not been exposed to information about the DMI, it was worth considering the possibility of a relationship between

*Table 15*: Beliefs about the DMI's Impact by Exposure to Information

| | ***Belief about Impact*** | | | | | |
|---|---|---|---|---|---|---|
| **Aware** | **Major Positive Difference** | **Minor Positive Difference** | **No Impact** | **Minor Negative Difference** | **Major Negative Difference** | Total |
| **Yes** | 21 | 45 | 31 | 7 | 1 | 105 |
| | 20.000% | 42.857% | 29.524% | 6.667% | .952% | 100% |
| **No** | 14 | 23 | 34 | 1 | 1 | 73 |
| | 19.178% | 31.507% | 46.575% | 1.370% | 1.370% | 100% |
| **Maybe** | 6 | 1 | 3 | 2 | 0 | 12 |
| | 50.000% | 8.333% | 25.000% | 16.667% | 0.000% | 100% |
| Total | 41 | 69 | 68 | 10 | 2 | 190 |
| | 21.579% | 36.316% | 35.789% | 5.263% | 1.053% | 100% |

awareness of it and beliefs about its effectiveness. Table 15 shows beliefs broken down by awareness.

The chi-square test yielded significant results ($\chi^2 = 18.679$, $p < .05$), which indicated that there was a relationship between respondents' exposure to information and their attitudes about the program. This relationship was not very strong (Cramer's $V = .222$, $p < .05$), so it is important to be cautious about this finding; nevertheless, it can be seen from Table 15 that people who reported having heard of the DMI prior to the interview were likely to report that it had a minor or even a major positive impact. Less than one-third of study participants said that it had not had an impact. This pattern shifts somewhat for the people who had not seen or heard anything about it before the survey; this group was more likely to report that the intervention had exerted no impact and less likely than the "yes" group to say that it had made a minor positive difference. It is not clear why the people with little or no prior information about the DMI expressed relatively negative sentiments about it; however, one conclusion that seems clear from this analysis is that one way to help ensure that citizens think positively about a police program is to publicize that program effectively. There may be a tendency among citizens to think that if they have not even heard of a particular program, then that program must not have been very useful.

### Peoria Survey Results Summary

The Peoria survey results indicate several consistent findings across each geographic group of respondents studied (i.e., those living in the target area, the control area, and the remainder of the city). First, regarding perceived changes in crime and disorder, the item-specific analyses suggest that respondents generally thought that things had not changed much

over the past six months. The fact that a majority of respondents in each area reported "no difference" on the various crime change scales for drug sales, public drug use, public drinking, noise at night, traffic law violations, loitering, and overall crime within the past six months suggests that the majority of respondents reported not perceiving any change in the level of crime and disorder within their communities. This was particularly true among target area respondents relative to the other two groups of participants. In addition, regarding neighborhood participation and action (i.e., neighborhood informal social control mechanisms), respondents in all groups overwhelmingly reported that participation and community action had stayed the same in the past six months.

In essence, target area respondents' perceptions of changes in crime and disorder mirrored those of the residents in non-DMI areas of Peoria. In addition, DMI target area residents were, on average, no more aware of the strategy than were the remaining city residents. The group of people who lived closest to the DMI intervention setting also perceived no change in neighborhood participation or in local citizens taking action to impact crime within the target community. Thus, regardless of where people lived, there was not an overwhelming feeling that the DMI corresponded with a substantive change in crime within the target area. Further, we did not find evidence that citizens within the target community became more invested in social behaviors intended to reduce local problems, nor were they any more aware of the DMI relative to their counterparts residing in other areas of the city. These findings suggest that there was inconsistency between police crime control efforts and target area residents' perceptions of neighborhood conditions.

## In-Depth Resident Interviews

### Sample and Data

As indicated by the quantitative results presented above, the DMI was not associated with a consistent reduction in either officially-measured or resident-perceived levels of crime in the target zone. One downfall of survey data like that summarized in the previous section, though, is that it captures relatively cursory information about citizens' perceptions of crime, disorder, social conditions, and police activities in their neighborhoods. In recognition of this shortcoming, we attempted to complement our measurement of potential programmatic impact with face-to-face interviews with 71 Peoria residents (49 females and 22 males). Study participants ranged in age from 19 to 93, with a mean of 41.[14] Forty-five percent of respondents were White, 51% Black and, 4% Hispanic/Latino.

We purposefully targeted two groups of residents in our sampling strategy: individuals that we considered heavily involved in police-community relations and persons who, in our view, were less involved. Ultimately, the goal was to interview persons with considerable knowledge about both the target area and Peoria as a whole. We hoped to obtain a comprehensive assessment of study participants' experiences with and perceptions of crime and disorder. The research team conducted resident interviews in June and July of 2010. Participation in the study was voluntary, and respondents were paid $25 (with a retail gift card) and assured confidentiality.[15]

[14] Several respondents identified themselves as long-time Peoria residents.
[15] We use pseudonyms herein to further mask respondents' identities. The interviews were semi-structured and consisted of open-ended questions that allowed for considerable probing.

## Results

We sought study participants' perceptions regarding a wide range of crimes and neighborhood conditions. Consistent with the survey results, the in-depth interviews revealed that the majority of respondents perceived no or minimal improvement in crime and disorder in the target neighborhood. We limit our discussion here to open air-drug dealing as that was the primary focus of DMI.

The in-depth interviews provided us with a detailed, nuanced understanding of the nature and extent of drug dealing in the target area. When asked specifically about perceived changes in the level of drug activity, the vast majority of respondents indicated that it was just as much a problem currently than was the case pre-intervention. Several residents reported that police were seemingly responsive to citizen complaints about street-level drug activity but believed that officers' efforts merely resulted in displacement and strategic changes in dealers' behaviors rather than effective, long term solutions. For example, Karen noted, "[Police efforts] changes where [drug dealers] conduct [their activities]. They just move somewhere else. [They might tell customers], 'let's go around the corner,' they just rotate." Similarly, Ruth stated, "[The drug activity] has died down some [in a particular location]… but [the dealers] have taken it from that area and then moved it right across the street." Finally, Roberta remarked, "There was a convenience store [where the drug dealers] used to hang out. You don't see [open-air drug dealing] so much there anymore so, once you stop seeing it in one area, it goes to another…"

A number of study participants also mentioned drug sellers' innovations beyond simply changing locations. While respondents remarked that the most blatant forms of open-air drug dealing had dissipated in the target area, they noted that many remaining dealers had simply adapted to enforcement efforts and now sold drugs more covertly (i.e., by staying mobile).

Maureen reported, "…[the drug dealers have been] riding up on bikes and doing [drug transactions] real quick, you don't have time to call the police, and they're gone, then they might come back… they're not standing in one spot for any length of time." Likewise, Wilma said, "[The drug dealers] got their bikes, they're doing their deals and then taking off on their bikes instead of just staying in one area…" Eunice remarked:

> Now they've gotten this new deal where they don't just loiter around behind [buildings] and sell drugs. They have a moving thing where they pop in on a bike or a car and they sell the drugs and then they take off, so it doesn't do us any good to call the police because by the time the police get there, they're gone.

Further, several citizens identified one of the most highly touted police resources, the armadillo,[16] as being unwittingly responsible for dealers becoming more mobile and displacing crime. For example, Ruth reported, "…they have the armadillo trucks parked out there now, but [the dealers] have [gone] from [selling] in the front [of houses] to the alley." In agreement, Harriett commented, "I think maybe [the armadillo is a deterrent], especially if it's parked in front of a drug house, a gang-house, but [the activities] not goin' away, it's just deterrin' it to somewhere else."

Residents also shared a belief that a sustainable crime prevention effort would require not just a commitment from police but also greater levels of community involvement.[17] Adam reported, "[There's] strength in numbers, that's the only way this [crime reduction effort] is gonna work, because [the police] can sweep up as many [dealers] as they want, if nobody comes and stands up and says, 'I'm taking my block back. You're not comin' back in here.' They'll flood the place again." And Kevin noted, "It's like when you spray for bugs, they go next door,

[16] The armadillo is a fortified former Brink's truck, turned police vehicle, fully equipped with surveillance equipment. The Peoria Police Department deploys the vehicle on public streets in front of nuisance properties where drug dealing and other criminal activities are suspected (see Porter, 2009). The department previously used an unmanned, marked police vehicle but returned to find that it had been vandalized.

[17] Low-levels of community engagement were well documented in the citizen survey results.

so obviously if you're chasing [the dealers] out of one area, they're gonna go into another area, but what could happen is these other neighborhoods can prepare themselves and already have…"

Several studies have documented that illicit street drug markets have a propensity toward violence where dealers engage in violent forms of retaliation that include beatings, fights, killings, and other forms of physical attack to address perceived grievances (Jacobs and Wright, 2006; Kubrin and Weitzer, 2003). In addition, Jacques (2010) recently developed a framework that outlined non-violent forms of retaliation used by dealers such as stealth and fraudulent forms of retaliation, where dealers or buyers commit property offenses as a way of redressing perceived harm. Study participants consistently reported that they and their neighbors were reluctant to call the police to report crime.[18] The vast majority of residents cited fear of retaliation from suspects as the primary reason fellow citizens were unwilling to assist the police. It is beyond the scope of this report to examine if these fears were real or perceived.[19] Irrespective of actual levels of retaliatory crimes, however, the sharing of accounts of retaliation among neighborhood residents seemingly reduced the willingness of individuals to report crime or become actively involved in neighborhood stabilization efforts. For example, Darlene said**,** "I think [concern about retaliation is] widespread, I don't know if I've run across anybody or heard from anybody that doesn't feel that way." In agreement, Wilma noted**,** "[People] were afraid to be retaliated [against], and I just tell them that they don't have to leave their name or address, and just leave their phone number if they want [the police] to talk to 'em." Likewise, Brett said, "[When calling the police, people] just don't wanna use their name[s]." Further, Cynthia remarked,

[18] Recall that calls for service within the target area remained relatively stable between the pre- and post-intervention periods.

[19] A handful of respondents offered acts of vandalism and other property crimes as evidence of their being retaliated against by local dealers for having called the police. For example, Clint noted, "I know people that have called [the police] and they'll come out maybe the next day and their car windows are broken, or [their car has] been spray painted or keyed..."

"[Residents] are afraid that if someone finds out they're the one that called the police that somebody will retaliate on them, on their house or their family, 'cause Peoria's a small place and everybody knows somebody that knows somebody, so a lotta people are just afraid to talk." And, Carla said**,** "I really don't believe [neighborhood residents] will [call the police] because they don't want their names used, they don't want their addresses used, I think they're frightened of retribution." Finally, Michael observed, "[For minor problems] I'll call, and I don't care, [the police can tell the suspect that] I said their name, but if there was someone that was actually [threatening], like a big drug dealer, I wouldn't call."

Finally, in addition to being dissatisfied with neighborhood conditions, the vast majority of residents were concerned with the wellbeing of neighborhood youth and were frustrated by the lack of prosocial activities available to them. They consistently reported that the streets of the target area were often besieged by scores of unsupervised youth, especially after nightfall. Respondents associated idle youths with neighborhood crime and disorder. For instance, Jenny said, "I think they need to do more with the youth and it would probably steer them away from the violence and whatever, if they had more things to go on for them." Trent observed, "You have all these young mothers, who let these kids out, early in the morning, say about seven o'clock, and they're out all day and half the night, till bout 11." Harriett noted, "[It would be better] if [the youth] had somewhere to go, had somewhere to focus their attention…" "Matthew reported, "[I have seen] kids walkin' up and down the street late at night…" Greta said, "A lot of the kids down here feel that they don't have a chance, it's like they look at things and [are a] product of their environment. They feel they don't have anywhere to go other than out on the stoop or the corner…"

## Evaluation Summary and Discussion

### Traditional Law Enforcement Strategies

Bayley (1994) contends that traditional law enforcement practices have little impact on local crime rates. For example, research indicates that the number of law enforcement officers available to police departments does not correlate with increased levels of crime and violence across different cities (Eck and Maguire, 2000; Greenberg, Kessler, and Loftin, 1983). In addition, Rosenbaum and Lurigio (1994) found that randomized patrols, rapid response strategies, and routine criminal investigations have exhibited minimal crime reduction impact. Thus, there is little reason to believe that suppression approaches or crackdowns will reduce specific types of crime in a meaningful way.

Concerning the specific focus on open-air drug markets, Sherman (1990) illustrated long ago that police crackdowns (i.e., sudden changes in police activity resulting in crime suppression or geographic saturation) directed at street drug markets are generally unsuccessful. He noted that "the [drug] market in some areas appears to be so strong that street dealing reappears almost as soon as police efforts are reduced" (Sherman, 1990: 25). Related to this issue of offender replacement and short-term effects, Skogan and Hartnett (1997) noted that law enforcement officials cannot monitor neighborhoods with the same intensity as local community members. This is particularly true as time progresses after a strategic initiative is implemented in a high-crime area. As a result, many police departments have focused their efforts on collaborative and dynamic approaches that are designed to alter the structural environments where drug crimes are more likely to occur.

## The Necessary Conditions for Social Change

In a seminal theoretical framework that attempted to identify the various processes that facilitate social change within target populations, Mayer (1972) posited that three major nodes are needed: (1) change the combination of persons who participate in the system; (2) change the roles people play in the system; and (3) change the statuses of the persons in that system. Thus, an integrative and dynamic framework may provide the best opportunity to create social change. From a macro-social perspective, Bursik and Grasmick (1993) illustrated that neighborhoods themselves are complex systems where residents, public officials, and offending populations intersect. Disconnected and fragmented neighborhood social systems are at higher risk for illicit activity, such as illegal drug use and street-level distribution.

Drawing from Carr's (2003) definition, parochial informal social control is where diminished private forms of social control may be enhanced by a combination of public and private informal social control (i.e., non-intimates working with public sectors in order to improve neighborhood social control mechanisms). Sites seemingly need to have (or generate) enhanced police-community partnerships in order to sustain any gains in crime reduction efforts after the police utilize the resources available to them. Consistent with Mayer's (1972) second tenet, the roles of actors in a neighborhood system must change in order for police interventions to have meaningful and lasting impact. The pulling levers framework is an intervention intended to alter the dynamics of the neighborhood wherein open-air drug markets flourish.

The pulling levers policing framework, which was at the core of the Peoria Drug Market Intervention (DMI), is based on the notion that perceived risk of enhanced sanctions will deter groups of high-risk individuals from re-offending. Kennedy (1997) contends that a successful pulling levers strategy and response to targeted crime and violence must be advertised (i.e.,

signaled) and communicated to current and potential replacement offenders. The direct communication message in the call-in meetings is intended to influence the perceptions among high-risk and persistent offenders of the increased certainty of a criminal justice response for continued illicit behavior (Nagin, 1998). Based on a systematic review of the deterrence literature, Kennedy (2009) posits that the pulling levers strategy has the capacity to change perceptions among chronic offenders because the threat of directed arrests and prosecutions would be perceived as a change in the way that the criminal justice system typically handles drug offenders.

In addition, the pulling levers approach draws upon the problem-oriented policing model that relies upon target identification, strategic approaches to specific crime problems, and a detailed impact evaluation of strategies employed (Goldstein, 1990). Mazerolle, Soole, and Rombouts (2007) conducted a meta-analysis of evaluations of police-led anti-drug efforts and found that problem-oriented policing strategies (i.e., proactive patrols, geographic focus, community and police partnerships, arrest referrals, and diversion) appeared to be the most effective approaches when dealing with drug crime and associated disorder and incivilities. The authors concluded that initiatives relying on a variety of specifically-crafted tactics rather than those that used more traditional and singular approaches (e.g., general patrols) appeared to hold the most promise for producing significant results and long-term impact (Mazerolle et al., 2007: 137).

In order to change the perceived risk of criminal justice sanctions among high-risk offenders in specific geographic contexts, as well as potential 'replacement' offenders within illicit street drug markets, a risk-communication strategy must be strongly advertised and the message must be received by the target audience (Kennedy, 2009). In addition, where policing

strategies have shown promise in the drug market context, there is evidence that key residents within the target community became increasingly involved in network capacity building (i.e., community activism), and that parochial forms of informal social control were likely enhanced (see Carr, 2005).

## The Peoria Findings

Our survey results indicated that target area residents were *no more aware* of the local DMI intervention than were residents across the entire city and that there was no real substantive change in neighborhood cohesion or in community members' proclivity to work together to solve local crime problems (i.e., there was no increase in informal social control mechanisms). It would appear the Peoria DMI strategy did not reach its intended audience, resonate with local citizens, or alter perceptions among target community members in terms of addressing the crime problems associated with the local drug market.

The in-depth resident interviews suggested that target area residents were concerned with the potential for retaliation for cooperating with police officials. This is important because residents did not seem to share a collective identity and belief that the community could combat illicit drug trafficking. Indeed, the vast majority of respondents seemed to believe it was best to 'mind one's own business and avoid potential entanglement with drug-buyers, -dealers, or suspicious neighbors. A clear nexus and collaboration between law enforcement and among residents did not emerge from the analysis of the interviews. The fear of a retaliatory response against specific individuals appeared to be a significant mediating influence that weakened the creation or strengthening of informal social control networks in the community. Combined with the fact that many residents stated that drug offenders simply altered their distribution styles (e.g., dealers later started to ride their bicycles to different locations and dispersed after a 'quick-

sale'), it would appear that many residents felt a sense of helplessness in terms of combating the illegal distribution of drugs in their neighborhood.

The results from the interrupted time series models estimating the changes in violent crime, property crime, drug offenses, and disorder as well as calls for police service showed no major significant changes between the pre- and post-intervention periods across the various outcomes for up to one-year after the strategy. As Bursik and Grasmick (1993) illustrated, it is very difficult to disentangle the causal relationship between neighborhood commitment and participation with strategic policing strategies and crime reduction. It may be that police can reduce crime and thereby facilitate neighborhood involvement, or it could be that neighborhood involvement encourages police to commit resources to the community and reduce crime. In the case of the Peoria DMI, however, our results indicate that none of these important mechanisms occurred. There was no significant change in crime outcomes, nor was there a substantive change in target area residents' perceptions of enhanced informal social control mechanisms, police effectiveness, or crime reduction. The strategy never seemed to gain momentum and this inhibited long-term crime reduction benefits.

While the time series results do not indicate a significant 'displacement effect' to the adjoining control site (i.e., Police District #4), respondents who participated in the qualitative component of the study seemingly perceived this to be the case. In particular, respondents illustrated the changes in tactics that dealers employed to continue to distribute drugs illegally in the area, and they noted that different areas in the community appeared to become more attractive as drug crime hotspots. These findings may explain why the time series results did not reveal a meaningful or substantive reduction in drug crime within the target area after the Peoria intervention.

## Implications and Conclusion

Risk identification is one of the most important phases in any strategic criminal justice intervention that is designed to reduce crime, recidivism, and risk among offending populations or high-crime areas (see Lowenkamp, Latessa, and Holsinger, 2006). We propose a series of recommendations for stakeholders who are considering different approaches that might be employed to disrupt illicit street level drug markets. The review of the policing literature combined with this study illustrate that it is important to understand, identify, and implement the core elements that need to exist for a strategic policing strategy to have a substantive impact.

The first recommendation revolves around the possibility that the null effects of the Peoria DMI stemmed, in part, from strained relationships between local police and target area residents. Selection bias often plagues initial strategic criminal justice interventions; specifically, the sites that have shown a significant crime reduction impact may have had strong inter-agency as well as police-community partnerships before the initiatives actually unfolded (e.g., High Point, Nashville, Rockford). Unfortunately, innovative police strategies are well-received in the areas that need them the least. Stable police-community relationships are what allow strategies like the DMI to take hold and render an effect, but these relationships are generally at their worst in the most crime-stricken neighborhoods. The findings from Peoria illustrate that the initiative itself likely does not serve as a catalyst to draw these necessary elements together when they do not predate the strategy. When information networks between key stakeholders and police are absent, the risk of failure may be relatively high until such communication structures are intact. The network capacity building that occurred between the local prosecutor's office and the PPD drug narcotics task force could perhaps have been improved by strengthening the collaboration with local community groups (see Skogan and

Hartnett, 1997). Relying heavily on the model from Community Oriented Policing Services (COPS) may hold significant promise in such contexts before transcending to a strategic intervention designed to have longer-term success. The creation of strong partnerships before any intervention is enacted seems to be a necessary condition for successful community interventions.

Second, it is advisable that future police interventions contain a stronger media and outreach component specifically designed to enhance the target community's awareness of the initiative in order to promote focused deterrence for high-risk individuals and to increase residents' knowledge of related police activity. While there was some local media coverage the night of the call-in session, there did not appear to be widespread awareness of the program in either the target areas or anywhere else within the city. Most of the stories we found through on-line access (eight news articles in total) described the specifics of the notification session, but did not include a follow-up regarding potential changes within the community itself. Knowledge that the police are cracking down on a certain type of crime and that they are soliciting community input and assistance could prompt residents to get involved.

Finally, Jacques and Wright (2008) illustrated that drug markets are known to cause elevated rates of violence in high-risk communities; however, the reverse is also true in that areas that are already socially disorganized and crime-ridden are prime contexts for markets to be established and to flourish. One of the keys to implementation is to link rates of violent, drug, and property crime with the network of actors involved in the markets within these contexts. The use of social network analysis and the identification of the various communication structures between high-risk offenders within the drug market may be a vital step when deciding where to implement a given strategy (see Hunt et al., 2008).

The current evaluation contributes to the growing body of literature showing somewhat mixed results in terms of a substantive crime reduction impact when police rely upon deterrent based approaches to combat street crimes within urban contexts. As additional sites consider alternative programs to disrupt open-air drug markets, we strongly suggest that police officials develop a clear understanding of police-community relations beforehand. It appears that local neighborhood involvement among community stakeholders is a major key toward achieving a substantive impact and long-term crime reduction effect. The Peoria initiative clearly demonstrates that the law enforcement component alone does not produce long-term crime reduction impact absent other key components of neighborhood integration, recognition, and local support of the multi-faceted pulling levers framework.

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## Appendix A: Peoria Resident Survey

**Introduction**

*I want to begin by asking some questions about your neighborhood. By neighborhood, we mean the area around where you live and around your house. It may include places you shop, religious or public institutions, or a local business district. It is the general area around your house where you might perform routine tasks, such as shopping, going to the park, or visiting with neighbors.*

*I am going to read to you some statements about your neighborhood—and for each of them, please tell me how much you agree or disagree with the statement that describes your neighborhood.*

1) People in your neighborhood are willing to help their neighbors.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

2) You live in a close-knit neighborhood. (*If needed*, *would you say you*:___)
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

3) People in your neighborhood share similar values.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

4) People in your neighborhood can be trusted.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

5) People in your neighborhood are likely to call the police to report an accident.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

6) People in your neighborhood are likely to call the police to report a crime.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

7) People in your neighborhood are likely to call the police to report suspicious activity.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

8) People in your neighborhood are likely to provide information to police to help find a suspected criminal.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree

<5> strongly disagree

<8> don't know
<9> refused to answer

*Next, we are going to ask you about some issues that are problems in some neighborhoods. We are interested in asking you your perception of your neighborhood* ***over the past two years****, or for as long as you've lived in your current neighborhood (if it's shorter than two years).*

9) *Illegal drug sales* have been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem

<8> don't know
<9> refused to answer

10) *People using drugs in public* have been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem

<8> don't know
<9> refused to answer

11) *People drinking in public* have been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem

<8> don't know
<9> refused to answer

12) *Noise at night* has been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem

<8> don't know
<9> refused to answer

13) People *violating local traffic laws* have been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem

<8> don't know
<9> refused to answer

14) *Loitering* (i.e., groups of people 'hanging out') have been (would you say):
<1> a major problem
<3> a minor problem
<5> not a problem [if 5, skip question 15 and go to Question 16]

<8> don't know
<9> refused to answer

15) Groups of people hanging out have mostly been:
<1> mainly adults
<3> mainly juveniles (say kids if probed)
<5> a mixture of adults and juveniles

<9> refused to answer

*I would next like to ask you some questions regarding certain behaviors in your neighborhood—and, I would like you to tell me the likelihood (ranging from very likely to very unlikely) of neighborhood behavior for each question.*

16) How likely is it that a person *selling drugs* in your neighborhood will be arrested? Would you say:
<1> very likely
<2> likely
<3> neither likely nor unlikely
<4> unlikely
<5> very unlikely

<8> don't know (includes not applicable; not a problem)
<9> refused to answer

17) How likely is it that a person *arrested* for selling drugs in your neighborhood will be *prosecuted and imprisoned*? Would you say:
<1> very likely
<2> likely
<3> neither likely nor unlikely
<4> unlikely
<5> very unlikely

<8> don't know (includes not applicable; not a problem)
<9> refused to answer

18) How likely do you think it is that someone will assault you in your neighborhood? Would you say:
<1> very likely
<2> likely
<3> neither likely nor unlikely
<4> unlikely
<5> very unlikely

<8> don't know
<9> refused to answer

19) How likely do you think it is that someone will break into your house while you are home? Would you say:
<1> very likely
<2> likely
<3> neither likely nor unlikely
<4> unlikely
<5> very unlikely

<8> don't know
<9> refused to answer

20) How likely do you think it is that someone with a gun or a knife will try to rob you in your neighborhood? Would you say:
<1> very likely
<2> likely
<3> neither likely nor unlikely
<4> unlikely
<5> very unlikely

<8> don't know
<9> refused to answer

*Regarding the potential for being the victim of a crime, I'm going to ask you how concerned/fearful you are for each incident type:*

21) How fearful are you that someone will *assault you in your neighborhood*?
<1> very fearful
<2> somewhat fearful
<3> not at all fearful

<8> don't know
<9> refused to answer

22) How fearful are you that someone to *break into your house while you are home*?

<1> very fearful
<2> somewhat fearful
<3> not at all fearful

<8> don't know
<9> refused to answer

23) How fearful are you that someone who has a gun or knife will try to rob you in your neighborhood? Would you say:
<1> very fearful
<2> somewhat fearful
<3> not at all fearful

<8> don't know
<9> refused to answer

*Thinking about your neighborhood conditions **today** relative to **six months ago**, would you say:*

**Changes in Neighborhood Dynamics**

24) *Illegal drug sales* have been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

25) *People using drugs in public* have been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

26) *People drinking in public* have been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem

<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

27) *Noise at night* has been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

28) *People violating local traffic laws* have been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

29) *Loitering* (i.e., groups of people 'hanging out') has been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

30) *Crime in general* has been:
<1> much less of a problem
<2> somewhat less of a problem
<3> about the same (note; code here if they say it was never a problem)
<4> somewhat more of a problem
<5> much more of a problem

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

*Regarding social changes in your neighborhood, would you say:*

31) Participation and involvement among local residents in neighborhood associations/organization/community groups has:
<1> improved over the past six months
<2> stayed about the same over the past six months
<3> decreased over the past six months

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

32) Neighbors taking action to solve local problems has:
<1> improved over the past six months
<2> stayed about the same over the past six months
<3> decreased over the past six months

<8> don't know (note: code 8 if didn't live in neighborhood 6 months ago—n/a)
<9> refused to answer

**DMI**
*We are next going to ask you some questions about a local policing strategy that was implemented in Peoria in late 2009.*

33) Have you heard or seen anything about the Peoria Drug Market Intervention – that started last November 2009? It has also been called the "DMI strategy".
<1> yes
<2> no
<3> maybe; kind of; might have

<9> refused to answer

*In November 2009, the Peoria Police Department engaged in a Drug Market Intervention (DMI) that resulted in the arrest and prosecution of suspected drug dealers who had violent criminal histories. In addition, PPD held a notification meeting in the community where drug dealing occurred to warn non-violent dealers that continued drug offending would result in harsh criminal justice sentences; conversely, non-violent dealers who quit selling drugs were given access to social service opportunities (e.g., drug-treatment and counseling). Regarding your perceptions of that program:*

34) Now, would you say that you had heard or seen anything about the Peoria Drug Market Intervention—or DMI—before our survey?
<1> yes
<2> maybe; may have; sort of
<3> no (<u>skip to question 38)</u>

<9> refused to answer

35) Before the description I just read to you, how familiar would you say you were with the Peoria Drug Market Intervention, or DMI?

<1> very familiar with it
<2> somewhat familiar with it
<3> not familiar with it

36) How did you first become aware of the Peoria DMI program?

<1> formal community meeting
<2> personal communication with neighbors and/or friends
<3> local media (e.g., radio, television, newspaper)
<4> other
<5> none of the above/was never made aware of Peoria DMI program (until now)

<8> don't know
<9> refused to answer

37) Regarding the overall impact of the DMI, do you believe?

<1> it made a major positive difference
<2> it made a minor positive difference
<3> it made no impact one way or the other
<4> it made a minor negative difference
<5> it made a major negative difference

<8> don't know
<9> refused to answer

*We next will ask you about your perception of Peoria police officers (in general):*

38) Police in your neighborhood treat people with dignity and respect.

<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

39) The police in your neighborhood treat people fairly.

<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

40) The police in your neighborhood take time to listen to people.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

41) The police in your neighborhood explain their decisions to people they deal with.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

42) People's basic rights are well protected by the police in your neighborhood.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

43) The police can be trusted to make decisions that are right for your neighborhood.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

44) Most police officers in your neighborhood do their jobs well.
<1> strongly agree

<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

45) The police in your neighborhood provide better services to wealthier citizens.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

46) The police in your neighborhood give minorities less help because of their race.
<1> strongly agree
<2> somewhat agree
<3> neither agree nor disagree
<4> somewhat disagree
<5> strongly disagree

<8> don't know
<9> refused to answer

**Demographics**

47) What is your age (in years)?
<1> _____

1) How long have you lived in your current neighborhood?
<1> ____ Years
<2> ____ Months

48) Do you generally consider yourself:
<1> White
<2> Black/African-American
<3> Hispanic or Latino
<4> Asian or from the Pacific Islands
<5> Or something that I haven't mentioned (includes multi-racial)

<8> don't know

<9> refused to answer

49) Which of the following describes your current marital status?
<1> single-never married
<2> married
<3> having a partner you live with
<4> widowed
<5> separated
<6> divorced

<8> don't know
<9> refused to answer

50) Do you rent or own your home?
<1> rent
<2> own

<8> don't know
<9> refused to answer

51) What is the highest level of education that you have completed?
<1> Less than 9th grade
<2> Less than 12th grade
<3> High school graduate/GED
<4> Some college
<5> Associates degree
<6> Bachelor's degree
<7> Graduate degree

<8> don't know
<9> refused to answer

52) What is your current employment status?
<1> Unemployed
<2> Part-time employed (less than 40 hours per week)
<3> Full-time employed
<4> Stay at home parent
<5> Retired
<6> Other

<8> don't know
<9> refused to answer

53) Solely for the purpose of analyzing results, we'd like to get a sense of your household's income last year before taxes. I'm going to read you some broad income categories and you can just tell me to stop when I get to the one that includes your household's income.

<1> Less than $20,000
<2> $20,001 - $35,000
<3> $35,001 - $50,000
<4> 50,001 – 70,000
<4> Greater than $70,000

54) What is your gender (the supervisor makes me ask)?
<1> male
<2> female