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Embedded Criminologists in Police Departments

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Introduction

Past partnerships between academics and police practitioners have sometimes been characterized by role conflicts, such as researchers reporting the "bad news" that an evaluated program was not effective in preventing crime (Weisburd 1994). For academic researchers, success or failure mattered less than commitment to the development of knowledge on what does or does not work in preventing crime. For the police, this news could be interpreted as their personal failure, and the skepticism of academics may be viewed as irritating. In recent years, partnerships between police and academics have become much more collaborative and focused on working together in addressing crime (IACP 2004; Rojek et al. 2012). Academics have much to offer to police departments. In addition to providing training in analytic methods and concepts and developing a body of police science literature, academics can conduct problem analyses and high-quality research evaluations in partnership with police departments. Police departments should position themselves to

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support research initiatives with well-functioning internal crime analysis and research units, as collaborations with outside researchers can be quite potent and should be encouraged.

In this essay, I describe my experiences working as an "embedded criminologist" (a term coined by Petersilia 2008) in the Boston Police Department (BPD) between 2007 and 2013. In contrast to more traditional academic-practitioner research partnerships, becoming embedded within a police department involved taking the step from external partner to internal resource. Embedded criminologists maintain their scientific objectivity and independence in carrying out scientific inquires within police departments. However, embedded criminologists also function as an important part of the police organization by collaborating on the development of programs, through problem analysis and evaluation research and by interjecting scientific evidence into policy conversations to guide police executive decision making. My experiences with the BPD suggest that embedding criminologists in police departments is highly beneficial to police and academics alike. In summary:

- Embedded criminologists enhance the capacity of police departments to understand the nature of recurring crime problems through their knowledge of research and high-powered analytical models and methods.
- Embedded criminologists assist police departments in determining whether implemented programs are generating the desired impacts through their training in rigorous program evaluation methods.
- Through their participation in internal strategy meetings and ad-hoc research projects, embedded criminologists provide scientific evidence germane to problems, policies, and programs that can be considered by police executives as they decide how to address pressing matters.
- By working as an internal researcher, criminologists can make strong contributions to research and policy by gaining access to rich data and powerful insights on the nature of crime problems and the strategies pursued by the police departments.
- When they leave the ivory tower and work with practitioners, embedded criminologists reap the considerable personal rewards of making a difference in the real world.

Academic-Police Practitioner Research Partnerships

There is a long history of working relationships between law enforcement agencies and academic researchers in the United States. Indeed, modern police practitioner-academic researcher partnerships were set in motion by August Vollmer, who was a criminologist and reform-minded chief in Berkeley, California from 1905 to 1932. As part of his efforts to professionalize the police, Vollmer developed educational relationships with faculty at the University of California, Berkeley to educate police officers on an assortment of subjects such as public administration, sociology, and criminology (Vollmer and Schneider 1917). Over the course of the next several decades, these educational relationships evolved into research collaborations. As Rojek et al. (2012) describe, police executives began to open their doors to academics during the 1950s, gave them access to department records, and allowed them to interview, survey, and ride with police officers. The resulting research became the foundational literature in the study of policing.

As American police departments became more invested in the idea of community and problem-solving policing over the course of the 1980s and 1990s, they started to embrace working partnerships with community members and a wide range of other governmental and non-governmental actors. Police departments slowly began to engage academic researchers as important partners in their efforts to be more effective in addressing community concerns. Federal

funding initiatives, such as the U.S. Department of Justice's Project Safe Neighborhoods and the Bureau of Justice Assistance's Smart Policing Initiative, provided support for police practitioner-academic partnerships that could both raise the quality of police crime prevention projects and improve the existing knowledge base on effective crime prevention practices. While not yet common features of modern police departments, these partnerships have certainly become more prevalent. A recent national survey of police departments found that nearly one third of responding agencies had participated in a research partnership in the past five years (Rojek et al. 2012).

Police departments have strong needs for research on a wide variety of complex organizational and operational challenges. For the purposes of providing a concise framework, I will simplify these needs into two broad categories of research activities that are relevant to the work I have performed for the Boston Police Department as a research partner and then as an embedded criminologist. Police departments need solid scientific evidence to (1) understand the nature of the crime and disorder problems they seek to address and (2) establish a knowledge base on effective police crime prevention and control practices. In layman's terms, police executives need to understand "what is going wrong?" and "what should we be doing about it?" Police departments are called upon to handle a broad array of societal issues. Indeed, the police are the most visible face of government in many neighborhoods, offering services 24 hours a day and seven days a week, and encouraging citizens to "call the cops" when problems arise. To be effective in controlling crime and disorder, research suggests that police responses need to be focused and tailored to specific problems (Weisburd and Eck 2004; Braga 2008).

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Policing scholars and police executives will immediately recognize these two broad categories as capturing key aspects of the work pursued by police officers implementing "problem-oriented policing" strategies: the analysis of crime problems to reveal underlying criminogenic conditions, and the assessment of implemented responses to determine whether recurring problems were reduced (Goldstein 1990; Braga, 2008). Others will hone in on the idea of program evaluation as a central activity of "evidence-based policing" (Sherman 1998) and the broader move towards evidence-based crime policy. It is important to note, however, that the scientific evidence that police executives need to support their decision making includes high-quality descriptions of the situations and dynamics that cause problems to recur. Evaluating programs to establish "what works" in policing is clearly important. But it represents only one type of research product valued by police managers and line-level officers alike.

The International Association of Chiefs of Police (2004) has established the goal of developing police practitioner-research partnerships for every law enforcement agency in the United States. There are a small number of academics with experience and expertise in working with police departments on research projects, especially when compared to the roughly 18,000 law enforcement agencies regularly counted by the Bureau of Justice Statistics. Indeed, there is a relatively small cadre of criminologists who have

partnered with police departments in the past and currently maintain highly productive research relationships. Clearly, more scholars are needed to carry out this very important work.

Public Criminology and Embedded Criminologists

The field of criminology seems to be increasingly more invested in the idea that scientific research should be relevant to the world of practice. Similar to movements in other academic disciplines, most notably sociology (Buroway 2005), "public criminology" refers to the call for criminologists to write and conduct policy-relevant research studies. This ensures that those who make crime policy, those who implement crime and justice programs, and those who are affected by those policies and programs are engaged in the production and interpretation of the work (Uggen and Inderbitzin 2010; Loader and Sparks 2010).

Policing has a long history of public criminology with scholars such as James Q. Wilson (1968) and Herman Goldstein (1977) conducting seminal studies on police behavior and the problems of policing, by directly engaging police organizations and the managers and line-level staff that comprise them. Indeed, since its inception, the Police Foundation has played a key role in a series of important field experiments that have led to profound changes in the way police departments do their core business (e.g. Kelling et al. 1974; Police Foundation 1981). And, as described above, academic-police practitioner research partnerships have now become much more common in police departments throughout the United States.

While there have been concerted efforts in criminology in general and policing in particular to bridge the gap between research and practice, these relationships are usually project-based with social scientists focused on collecting data, completing analytical work, and presenting results. Criminologists are typically not embedded in criminal justice organizations nor tasked with the responsibility of working with practitioners to transform organizations by developing, implementing, and testing innovative programs and policies. Criminal justice executives have historically not valued research enough to invite criminologists to observe and contribute to the inner workings of their agencies. One noteworthy exception is Professor Joan Petersilia of Stanford Law School, who served as the Special Advisor for Policy and Research in the California Department of Corrections (CDC) as well as Chair of the Governor's Rehabilitation Strike Force under then-Governor Arnold Schwarzenegger between 2004 and 2008. In this role, Petersilia (2008) participated in California's historic attempt to reform its prisons and ensured that research findings were central to decision-making and to shifting the department's focus towards prisoner reintegration.

Like Professor Petersilia's opportunity in California, I was fortunate enough to be invited to become an embedded criminologist in a large urban police department. I had previously enjoyed a long and productive research partnership with the Boston Police Department where we agreed

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upon projects of mutual interest and, in the tradition of public criminology, collaborated on the framing of research questions and interpretation of results. As suggested by Petersilia (2008: 339), becoming an embedded criminologist was akin to moving from "talking the talk" as a research partner to "walking the walk" of actually making positive contributions to the day-to-day work of the BPD. The next section describes this evolution and the work I performed as part of my duties as an embedded criminologist.

The Evolution of a Research Partnership with the Boston Police Department

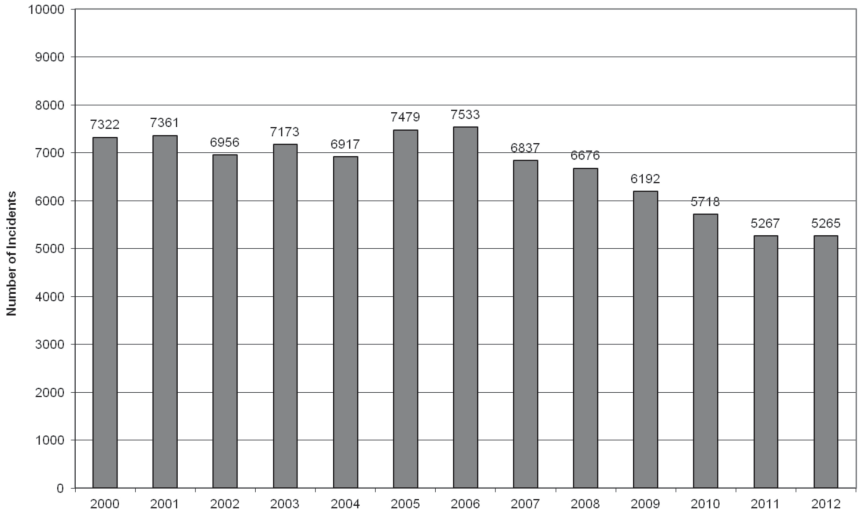
I began working with the Boston Police Department in late 1994 when employed as a research associate in the Program in Criminal Justice Policy and Management at Harvard University. With the support of a grant from the U.S. National Institute of Justice, I was hired to work on The Boston Gun Project by David M. Kennedy, now a professor at John Jay College of Criminal Justice, and Anne M. Piehl, now a professor of economics at Rutgers University. The Project was a problem-oriented policing enterprise expressly aimed at reducing homicide victimization among young people in Boston in the 1990s. The trajectory of the Project, and the resulting Operation Ceasefire intervention, is by now well-known and extensively documented (Braga et al. 2001; Kennedy 1997, 2008; Kennedy et al. 1996). Briefly, a working group of law enforcement personnel, youth workers, and Harvard researchers diagnosed the youth violence problem in Boston as one of patterned, largely vendetta-like hostility amongst a small population of highly criminally-active, gang-involved offenders. The Operation Ceasefire intervention used a focused deterrence approach to halting outbreaks of gun violence among feuding street gangs by combining resources from criminal justice, social service, and the community.

Between the late 1990s and 2006, I worked closely with the BPD on a series of action-oriented research initiatives intended to enhance the quality of data available from official homicide reports (Braga et al. 1999), to disrupt illegal gun markets (Braga and Pierce 2005), and to prevent recidivism by high-risk offenders released from the local jail to Boston (Braga et al. 2009) as well as other crime prevention projects. These research projects resembled the more traditional collaborative arrangements that characterize the bulk of academic–police practitioner research initiatives. However, these projects allowed me to develop a very strong understanding of the internal BPD organizational structure, their crime control and prevention strategies, and their external operational environment. Most importantly, I was able to form strong working relationships with BPD command staff, mid-level managers, and street officers. Over time, most of the officers became very comfortable with my operational questions, requests for data, and general presence at strategy meetings connected to these projects. In short, I had become a trusted research partner to the BPD.

Becoming Embedded

The evolution of my role from trusted research partner to embedded criminologist in the BPD has its roots in prior research projects conducted in Lowell, Massachusetts, a small city of some 105,000 residents located about 30 miles northeast of Boston. In 1997, I formed a collaborative relationship with Edward F. Davis when he was the Superintendent of the Lowell Police Department (LPD). Over the next six years, with colleagues, I worked with the LPD on a series of analyses of gang violence problems and conducted a quasi-experimental evaluation of a problem-oriented intervention to guide their gang violence reduction efforts (Braga et al. 2006; Braga, Pierce et al. 2008). In 2004, Davis expressed a desire to make a substantive contribution to the policing field by conducting a more rigorous test of the effects of problem-oriented policing strategies on

Figure 1. Violent Index Crimes in Boston, 2000–2012



Source: FBI Uniform Crime Reports

crime and disorder hot spots (see Braga and Bond 2008). We collaborated on the design of a randomized controlled experiment and jointly made a successful argument to the State of Massachusetts for research funds.

In December 2006, Davis was sworn-in by Mayor Thomas M. Menino as the BPD Commissioner. Boston was facing a troubling increase in serious violent crime when he took charge of the BPD. After experiencing dramatic decreases in violent crime over the course of the 1990s, Boston experienced a resurgence of serious violence during the early- to mid-2000s, peaking at 7,533 violent index crimes in 2006 (Figure 1). Most concerning was an increase in assaultive street violence, especially assaults committed with guns. The yearly number of fatal and non-fatal shootings increased 133 percent from 162 in 2000 to 377 in 2006.

During this time period, Boston residents became more concerned about crime and less confident in the ability of the BPD to prevent crime (Braga et al. 2008). In 1997, 14.2 percent of Boston residents reported crime as their biggest concern. Crime as the biggest concern of Boston residents dropped to only 7.2 percent in 1999, remained low in 2001 and 2003, and then increased to 15.5 percent in 2006. In 1997, only 16.2 percent of Boston residents had little or no faith in the BPD to prevent crime; by 2006, this lack of faith in the police had risen to include nearly one-quarter of Boston residents. In minority neighborhoods suffering from elevated levels of violent crime, resident concerns about crime were much higher and faith in the BPD to prevent crime was much lower than residents in other parts of the city.

Davis was committed to tackling Boston's uptick in violence by analyzing the underlying conditions that gave rise to recurring violent crime problems in the city, implementing violence reduction programs that drew upon evidence-based practices and were appropriately tailored to the nature of Boston's violent crime problems, and evaluating the impact of these programs on violence. During the first months of his tenure as BPD Commissioner, Davis appointed me his Chief Policy Advisor and used funds from his operating budget to acquire half of my time from Harvard University to do this work. With this appointment, I was provided workspace in the Commissioner's Office, a BPD email address, and BPD identification that gave me access to the department's facilities. He offered me this position because of my prior experience with and deep knowledge of the BPD, my expertise in crime analysis and program evaluation, and, most importantly, because he trusted me. I remained in this position until Davis retired from the BPD in November 2013.

The Work of an Embedded Criminologist

Based on his prior work experiences and exposure to

criminological insights on the nature of crime problems, Davis decided to pursue a set of strategies that would better position the BPD to manage the small number of places and small number of people that generated the majority of violence in Boston. As will be described below, the bulk of my work as his Chief Policy Advisor involved working with his command staff, line-level officers, and civilian analysts to design and implement violence reduction programs appropriately tailored to control these problem places and problem people. However, I soon became a key part of the inner circle that advised Davis on a range of program development and policy matters, personnel decisions, and resource allocations. Although my contract stated that I was supposed to work only half-time, my deep participation in command staff work required a full-time effort. Since I needed to honor my traditional academic responsibilities at Harvard, I did much of this additional work on a pro-bono basis during my personal time. It is important to note here that I was no different than anyone else on the BPD command staff in terms of the sacrifices they made in their personal lives. These police executives were incredibly dedicated to serving the people of Boston, often working extensive hours and dealing with chaotic scheduling changes at a moment's notice to deal with emergency situations.

Serving as Chief Policy Advisor to the Commissioner required my regular presence at standing BPD meetings. Of course, there were ongoing meetings connected to the specific crime control initiatives that comprised my main work for Davis. However, I also attended weekly Bureau Chiefs meetings and bi-weekly Compstat meetings. Bureau Chiefs meetings involved high-level conversations on management issues and challenges across the bureaus (field services, investigative services, professional standards and training, administration and technology, intelligence, and legal services). Similar to other police departments, the BPD police executives attempted to improve organizational performance by embracing Compstat, using it for data-based decision making, enhanced problem-solving, and management accountability (Weisburd et al. 2003). My work also required a fair amount of time in the field directly observing officers implementing programs. On a weekly basis, I participated in "ride alongs" and "walk alongs" with district officers and specialized unit officers. My participation in standing meetings and field-work allowed me to become engaged in the day-to-day business of the department and make contributions as needed.

Without this constant contact with BPD personnel and live knowledge of departmental happenings, I would not have been as useful as an embedded criminologist. Put simply, if you do not maintain "real-time" knowledge of current events, whether significant crimes, arrests, or political maneuvering inside and outside the department, it is difficult to be credible in strategy meetings that are often very sensitive to emerging situations and dynamics. Moreover, the line-level officers and staff are very close to substantive problems that I was called upon to help address. They held very clear insights on the nature of the underlying conditions that caused problems to persist and often expressed very interesting and innovative thoughts on changes that could be made to better manage these problems. In short, their knowledge often made me look good in meetings with the command staff.

Controlling Violent Crime Hot Spots

Commissioner Davis implemented the Safe Street Teams (SST) hot-spots policing strategy in January 2007. Participating in the development of this program was the first major task that Davis asked me to perform. In designing the SST program with the BPD command staff, Davis and I drew upon our earlier experiences with implementing a hot-spots policing program in Lowell (Braga and Bond 2008) and his experiences in reforming the Lowell Police Department from a traditional police department to an organization

that embraced community policing as its core operational strategy. Unlike the trajectory of the Lowell hot-spots policing randomized experiment, the SST program was implemented with little a priori thought given to evaluation. Commissioner Davis was new to Boston and simply did not have the political capital with the Mayor or with the city's residents to launch a randomized experiment during a disturbing violent crime increase (Braga 2010). However, Davis did mandate that the identification of violent crime hot spots needed to be a data-driven process.

Using computerized mapping technology and violent index crime data for the 2006 calendar year, I worked with the BPD Boston Regional Intelligence Center (BRIC) to identify 13 violent crime hot-spot areas to receive the SST program. It is important to note here that not all identified violent crime hot spots received a SST. The BPD only had enough patrol personnel to staff 13 teams. The selection of the treatment areas proceeded in a non-random manner based on BPD command staff perceptions of need. The 13 SST hot spots covered 6 percent of Boston's street geography and experienced 23 percent of Boston's violent index crimes in 2006 (1,743 of 7,533). A deputy superintendent was assigned to oversee the SST initiative and a team comprised of a sergeant and six patrol officers were assigned to implement the program in each of the targeted 13 violent crime hot spots.

The SST officers applied problem-oriented policing to identify recurring violent crime problems in their assigned hot-spot area, analyzed the underlying conditions that caused these problems to persist, and developed appropriate responses. Commissioner Davis also required officers to engage community members and local merchants in defining and responding to identified problems in the hot-spot areas. SST officers were expected to follow community policing ideals in their efforts to reduce violence. Unless there was an emergency that required additional support outside their defined areas, SST officers were required to stay in their assigned hot spot. SST officers were also not allowed to ride around in patrol cars; rather, they patrolled target hot-spot areas on foot or on bicycles.

All SST officers were required to go through additional in-service training on the requirements of the program and on the principles and techniques of community and problem-oriented policing. I worked closely with BPD Academy Staff to design an appropriate training curriculum and taught sessions on hot-spots policing and problem-oriented policing. To ensure that the program was being implemented as intended, the BPD had quarterly accountability meetings with the SST teams. Two of these meetings were held in BPD headquarters, and the other two meetings were held in the policing district stations that covered the SST areas. In these meetings, violent crime trends and patterns in each SST area were reviewed and crime problems and appropriate responses were discussed. I attended these meetings with then Superintendent-in-Chief Daniel Linskey and then Superintendent of Field Services William Evans and participated in discussions of problems and in the design of responses for each SST violent crime hot spot.

As the program was implemented, the BPD wanted to make certain that the SST areas were indeed centered on some of the most persistently violent places in Boston. Some BPD command staff officers were concerned that violent crime spatial concentrations might not be stable over time. Long-term investments of scarce police resources in violent crime hot spots would make little sense if the location of these hot spots shifted year to year irrespective of police activities (see Weisburd 2008). With the assistance of the Boston Regional

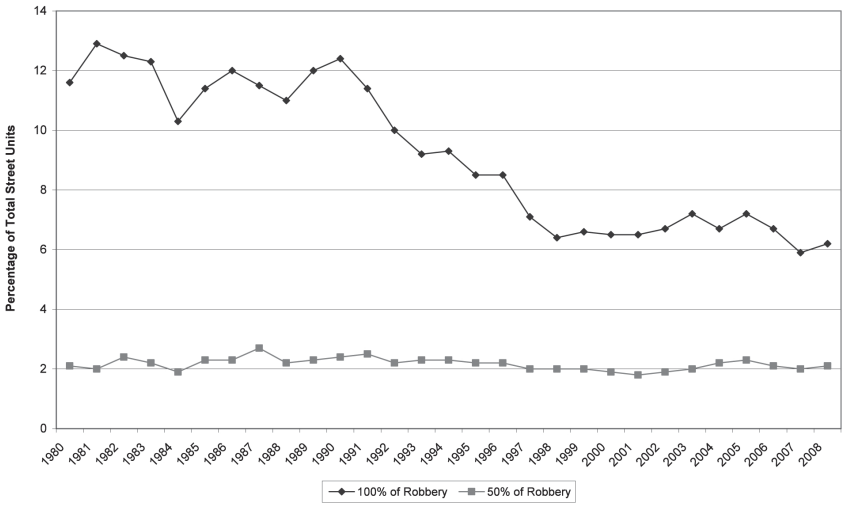
[1] While shootings and robberies are highlighted here, the analyses included total violent crime, aggravated assaults, and rape/sexual assaults. The distribution of violent crimes that generated higher levels of fear, shootings and robberies, weighed more heavily in the minds of BPD command staff in making decisions on the actual locations of SST hot spot areas.

Intelligence Center and some Harvard colleagues, I analyzed the concentration and stability of violent crime in specific hot-spot locations over time in Boston. The purpose of this exercise was to ensure that the SSTs were appropriately assigned to those locations that consistently generated repeated violent crime incidents over a longer time period. The BPD did not want to make investments of scarce police officer resources at locations that represented short-term or temporary problems. Our analysis drew upon methods developed in a seminal longitudinal study of crime at small places conducted by a team of University of Maryland researchers in partnership with the Seattle Police Department (Weisburd et al. 2004).

The analysis began with the creation of a spatial database that captured each intersection and street segment (the street sections in between two intersections) across the city (Braga et al. 2010; Braga et al. 2011a). The research team identified 18,155 street segments and 10,375 intersections in the City of Boston. The team then gathered data from BPD on all reported robberies (street and commercial; 142,213 robberies) and all injurious shooting events (shots were fired and a person was wounded; 7,602) from 1980–2008.[1] These crimes were geocoded and assigned to their appropriate "street unit" (segment or intersection). The research team then used sophisticated longitudinal analyses to examine the stability of trends in robbery and serious gun violence over the 29-year study period.

The analysis uncovered remarkable stability in crime trends within these street units. From 1980–2008 approximately 1 percent of street segments and 8 percent of intersections were the locations of nearly 50 percent of all commercial robberies and 66 percent of all street robberies. Figure 2 demonstrates this stability in robbery trends in a slightly different way. The steady

Figure 2. Robbery Incidents at Street Units in Boston, 1980–2008



Source: Braga, Hureau, and Papachristos (2011a)

Table 1. Distribution of Gun Violence at Street Units in Boston, 1980–2008

N of incidents per street unit	N of street units	% of street units	Sum of incidents	% of incidents
0	25,245	88.5%	0	0.0%
1	1,923	6.7%	1,923	26.1%
2–4	1,037	3.6%	2,674	36.3%
5–9	269	0.9%	1,730	23.5%
10 or more	65	0.2%	1,032	14.0%
Total	**28,530**		**7,359**	

Source: Braga, Papachristos, and Hureau (2010)

lower line demonstrates that about 2 percent of the street units experienced 50 percent of the robberies during each of the 29 years under examination. The top line shows the percentage of street units that experienced 100 percent of the robberies during each year of study. For example, in 1980 all of the robberies occurred in just under 12 percent of the street units in Boston. Over time, the concentration of robberies increased rather dramatically. By 2008, all of the robberies during occurred in just 6 percent of the street units in Boston.

The story was much the same for gun violence, as only 5 percent of street units experienced 74 percent of the gun violence from 1980–2008. Table 1 shows the distribution of gun violence across each of the 28,530 street units, and from 1980–2008, 88.5 percent of the street units in the city did not experience a single shooting event. Alternatively, 269 street units experienced 5–9 shooting events, and 65 street units experienced 10 or more shooting events. Amazingly, the worst 60 street units in Boston experienced more than 1,000 shootings between 1980 and 2008.

In short, both robberies and gun violence were highly concentrated at a small number of street corners and intersections in Boston, and this concentration remained remarkably stable over time. While the analysis confirmed that SST officers were allocated to persistently violent locations, this exercise also revealed that there were many violent places in Boston that were not covered by the SST. As will be discussed below, this provided an important opportunity to conduct a rigorous controlled evaluation of the SST initiative. Over the course of the three years after SST was implemented, violent index crimes in Boston steadily decreased (Figure 1). By 2009, violent index crimes in Boston had decreased by nearly 18 percent to a decade low of 6,192 incidents from the decade high of 7,533 incidents in 2007. Unfortunately, in the absence of a controlled evaluation design to accompany program development and implementation, it was unclear whether the SST strategy could claim any credit for the observed decreases. For instance, the observed Boston violent crime decreases could have been part of a larger national trend; U.S. violent index crimes decreased by 7.5 percent between 2000 and 2009. A simple pre-post analysis of citywide violent crime trend data obviously does not parse out the independent effects of the SST program relative to other rival causal factors.

In 2009, the Boston Police Department received Smart Policing Initiative funding from U.S. Bureau of Justice Assistance to formally evaluate its SST program. I worked closely with the BPD's Office of Research and Development (ORD) on the proposal to acquire these funds. Given the presence of other untreated violent crime hot spots in Boston, my colleagues and I were able to use statistical matching techniques to identify equivalent comparison street intersections and block faces for inclusion in a rigorous quasi-experimental research design (Braga et al. 2011b). Panel regression models, with appropriate covariates to help control for any observable differences between the treatment and control groups, revealed that the SST program was associated with a statistically significant 17 percent reduction in violent Index crimes in the treatment areas relative to the control areas. Most of this reduction in violent Index crimes was driven by a large 19 percent reduction in robbery incidents with a smaller 15 percent reduction in aggravated assault incidents. A subsequent analysis of street units in two-block buffer zones surrounding the treatment and control street units revealed no evidence of significant violent crime displacement. In other words, violent crime did not simply move around the corner due to focused police attention in the hot-spot areas.

Reducing Ongoing Gang Violence

Despite national acclaim, the Boston Police Department discontinued its well-known Operation Ceasefire gang violence reduction strategy as its

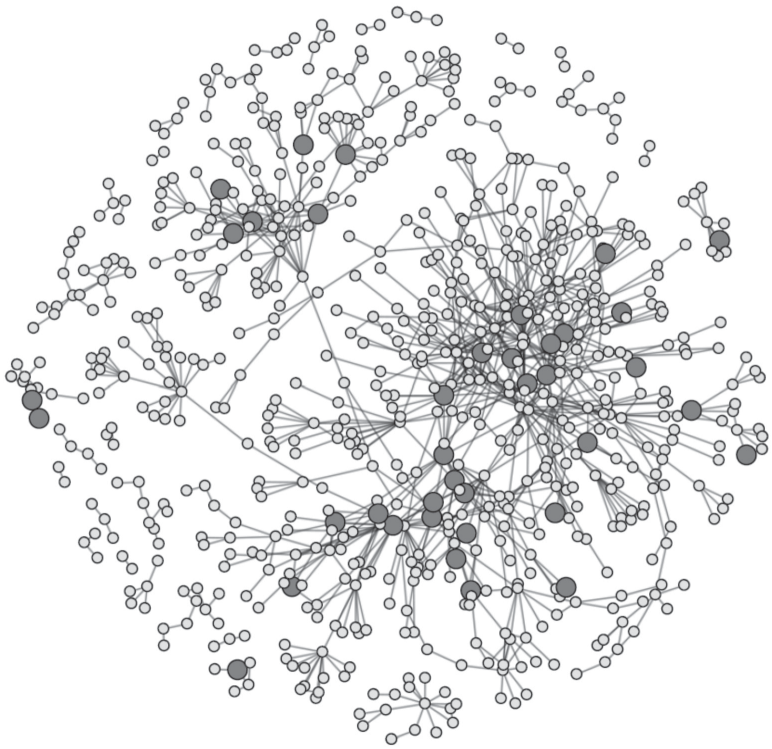
primary response to outbreaks of gang violence in January 2000 (see Braga and Winship 2006). By 2006, fatal and non-fatal shootings had reached levels not seen in Boston since the early 1990s.

Soon after his appointment, Davis announced that Operation Ceasefire would once again be the BPD's main response to outbreaks of serious gang violence. He promoted Gary French, who led many of the BPD's Ceasefire efforts during the 1990s, to Deputy Superintendent with oversight of the Youth Violence Strike Force (YVSF, known informally as the "gang unit"), school police unit, and the tactical bicycle unit. With the support of Davis and his command staff, French reinstated the Ceasefire approach as a citywide, interagency effort to disrupt ongoing cycles of gang violence. As was the case in the 1990s, I became a member of the Ceasefire working group.

The first contribution I made to the working group process was to complete a fresh problem analysis of homicides and gang-involved shootings. As shootings began to increase in the early- to mid-2000s, some BPD managers believed that the gun violence problem was very different than it was in the 1990s and was linked to increasing juvenile populations and prisoner reentry issues (Braga et al. 2008). Completed with my then Harvard colleagues David Hureau and Andrew Papachristos, the problem analysis research revealed that the resurgence in gun violence during the 2000s was linked to the same underlying gang dynamics as the 1990s. In 2006, slightly more than 1 percent of the city youth ages 14 to 24 participated in 65 street gangs that were active in violence. However, street gang violence generated more than half of total homicides and gang members were involved in nearly three-fourths of non-fatal shootings as victims. The gun violence offenders and victims were often very well known to the criminal justice system with long criminal histories and many were under probation and/or parole supervision.

We also used social-network analyzed police records to map the social networks of 763 individuals in one Boston community (Figure 3), by using non-arrest observations to create links between individuals (the nodes) who were observed hanging out together (Papachristos et al. 2012). We found that fully 85 percent of all shootings in this community occur within the observed network (less than 3 percent of total neighborhood population)—nearly all of which are driven by

Figure 3. The Social Network of High-Risk Individuals in Cape Verdean Community in Boston, 2008



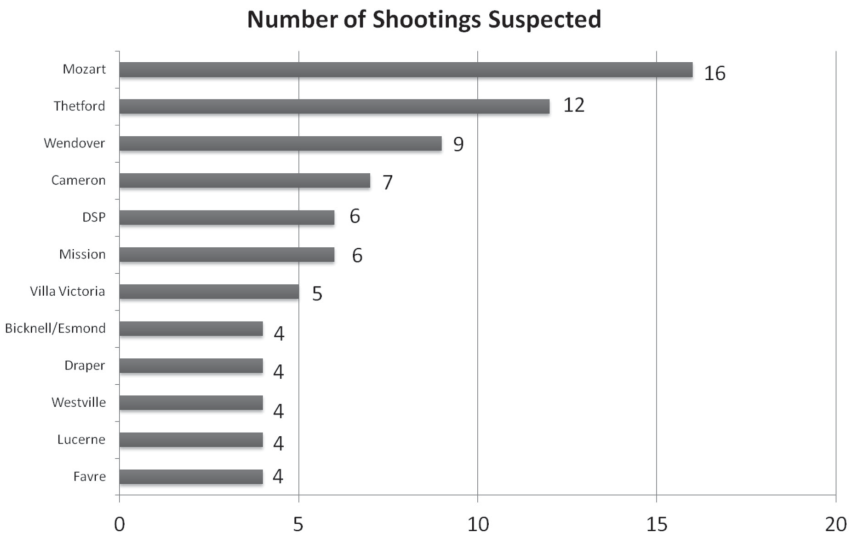
Source: Papachristos, Braga and Hureau (2012)

10 different gangs, also observed in the network. Second, the shooting victims occupy unique and *identifiable* positions in the network. And, third, the risk of victimization within the network spreads outward from other shooting victims to infect their friends and associates. In fact each "handshake" closer one is to a shooting victim increases one's own probability of getting shot by approximately 25 percent.

Focused deterrence strategies honor core deterrence ideas, such as increasing risks faced by offenders, while finding new and creative ways of deploying traditional and nontraditional law enforcement tools to do so, such as communicating incentives and disincentives directly to targeted offenders (Kennedy 2008). Unfortunately, practical experience suggests that focused deterrence strategies can be difficult to implement and sustain over extended time periods (Braga 2012; Kennedy 2011). Research products that document these high-risk social networks and the violent behaviors of particular groups over time are very valuable in ensuring that these strategies are sustained in a particular jurisdiction. Working with the Boston Regional Intelligence Center, we developed gang "shooting scorecards" to help guide Ceasefire implementation. In the most basic form, shooting scorecards are simply rank-ordered frequencies of the criminal groups that commit the highest number of shootings and experience the greatest number of shooting victimizations during a specific time period (Braga et al. 2014). Shooting scorecards, especially when supported by a management accountability system (in this case, the Ceasefire working group meetings and broader Compstat sessions), can be very helpful in ensuring that the groups most active in gun violence, and the groups that offend after the deterrence message has been delivered, receive the enforcement attention they merit. Scorecards keep the operational partners focused on risky groups over time and maintain the implementation of the focused deterrence strategy as a whole.

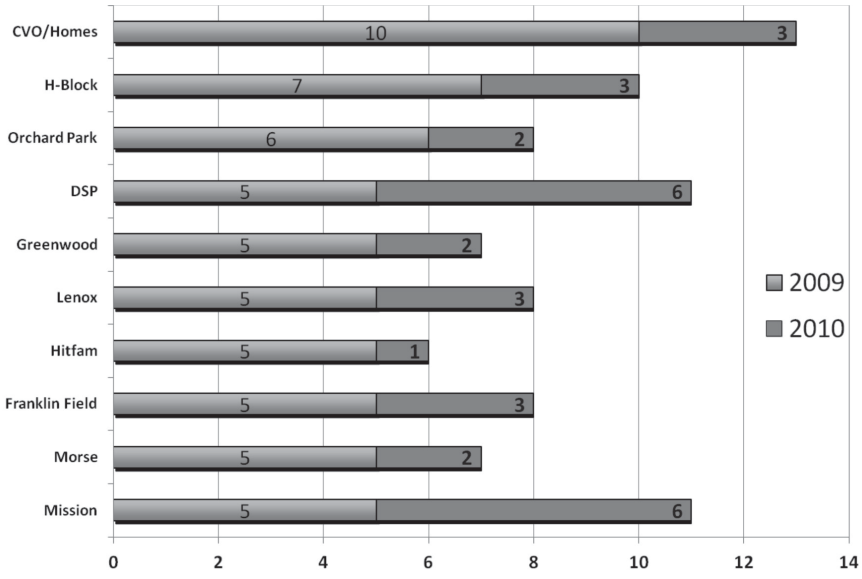
Figure 4 presents the gangs that generated the highest numbers of fatal and non-fatal shootings in Boston during calendar year 2010. The Mozart gang committed 16 shootings, by far the most active shooter group in Boston that year. In order, the next most frequent shooter groups in Boston were the Thetford (12 shootings), Wendover (9 shootings), and Cameron (7 shootings) gangs. The key analytical insight is clear. Relative to other gangs in Boston, these top shooter groups should be closely reviewed to determine whether focused enforcement attention is necessary to halt their persistent involvement in serious gun violence. Gang scorecard data were also used to measure Ceasefire performance by simple comparisons of year-to-year counts of shootings committed by particular groups or more complex analyses of longitudinal data.

Figure 4. Gangs that Generated the Highest Numbers of Shootings in Boston, 2010



Source: Braga, Hureau, and Grossman (2014)

Figure 5. The Number of Shootings Committed by the 2009 Most Frequent Shooter Gangs in 2010



Source: Braga, Hureau, and Grossman (2014)

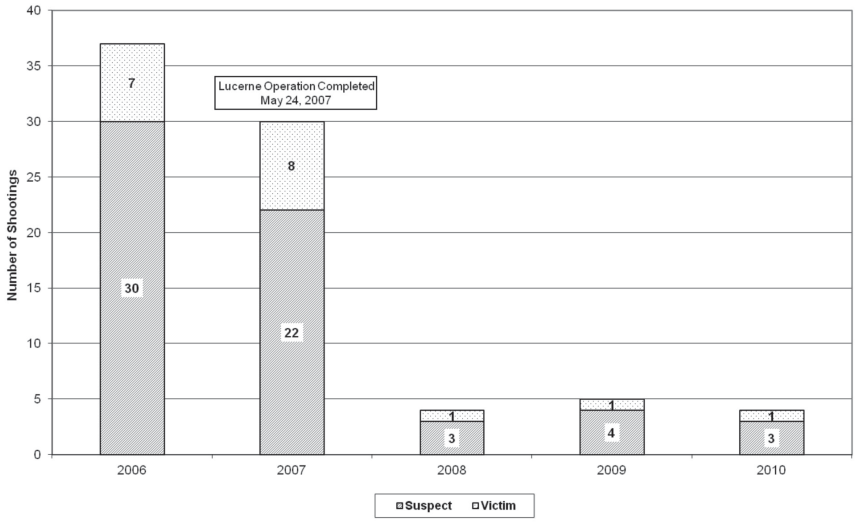
Figure 5 presents the number of shootings committed by the 2009 most frequent shooter gangs in 2010. The number of shootings committed by the CVO/Homes Ave, H-Block, Orchard Park, Greenwood, Lenox, Hitfam, Morse, and Franklin Field gangs decreased between 2009 and 2010. While more careful evaluation of any implemented violence reduction strategies is clearly warranted, this simple year-to-year comparison suggests that shootings committed by these gangs were in short-term decline. In contrast, shootings by the DSP and Mission gangs increased between 2009 and 2010. This suggested to the Ceasefire working group that they needed to reassess existing violence reduction strategies focused on these groups and implement a strategic response immediately.

These gang shooting scorecard data were then used to conduct a rigorous quasi-experimental evaluation of the impact of the post-2007 Ceasefire intervention on gang violence in Boston (see Braga et al. 2013). Between 2007 and 2010, the BPD and its criminal justice, social service, and community-based partners conducted Ceasefire interventions on 19 violent gangs. The Lucerne Street Doggz was the first group selected for renewed Ceasefire attention because it was the most violent gang in Boston at the beginning of the study time period. Lucerne was the suspect group in 30 gang-involved shootings and the victim group in seven gang-involved shootings in 2006. Boston Regional Intelligence Center intelligence suggested that most of the Lucerne shootings, which accounted for nearly 10 percent of all Boston shootings in 2006, were carried out by no more than six or seven members of the gang. As Figure 6 reveals, the impact of the Ceasefire intervention on their gun violence behavior was noteworthy. In 2006 and 2007, Lucerne gang averaged 33.5 total shootings per year. Their yearly average plummeted by 87.2% to 4.3 per year between 2008 and 2010. The formal quasi-experimental evaluation estimated that the re-invigorated Ceasefire focused-deterrence strategy generated a statistically-significant 31 percent reduction in shootings involving treated gangs relative to shootings involving matched comparison gangs.

Translational Criminology

Beyond my close involvement in two key BPD violence reduction programs, I was regularly called upon to summarize and explain the available scientific evidence on the nature of crime problems and the impact of evaluated crime reduction programs. These exchanges would occur when participating in official meetings and during casual conversations. In many ways, this dynamic interface between research and practice represents what former U.S. National Institute of Justice Director John Laub (2012)

Figure 6. Shootings Involving the Lucerne Street Doggz, 2006–2010



Source: Braga, Hureau, and Papachristos (2013)

would describe as "translational criminology"–academics and practitioners working as equal partners in applying scientific knowledge to develop more effective programs and policies. In these settings, I disseminated criminological findings as general information that BPD command staff could consider as they made decisions on how to proceed in dealing with a particular problem or policy dilemma.

Significant strategy meetings were often scheduled well in advance of the actual date and time that they were held. During the interim period, I would be sure to educate myself on the most recent research in whatever substantive area the meeting would focus. For example, immediately after he was appointed, Commissioner Davis decided he wanted to implement Compstat in the BPD and scheduled a series of working group meetings to make the necessary administrative arrangements to launch this initiative. In preparation, I closely read research on Compstat by Weisburd et al. (2003), Silverman (1999), and others. During key moments of these meetings, I interjected factoids from these studies for their consideration. Given their desire to advance community problem solving in the BPD, I made sure to highlight that Weisburd et al. (2003) found that Compstat was more likely to generate reactive crime control responses, such as flooding a problem area with patrol officers (putting 'cops on the dots'), rather than more creative problem-solving responses designed to address the conditions that cause crime problems to recur. The working group participants started to develop programmatic elements to encourage problem-solving responses in the BPD version of Compstat as result of this information.

Sometimes the translation of criminological findings occurred in a much more spontaneous manner. For instance, during a particular Compstat session that involved the discussion of a recent uptick in burglary, Davis asked me to give a quick summary of the research on repeat victimization and the strategies used to protect vulnerable victims and detect the offenders that continue to victimize them. As another example, while getting some coffee in the cafeteria, former Superintendent Bruce Holloway, then the Chief of the Bureau of Investigative Services, asked me to provide a quick synopsis of my past research on the sources of illegal guns to Boston criminals. Apparently, he had been recently asked by Commissioner Davis to think about alternative strategies to reduce the availability of guns on Boston streets. The command staff seemed generally to find these brief commentaries helpful in making decisions on how to approach particular crime problems.

Occasionally, I would be called upon to deliver formal presentations on specific subjects that Davis thought the command staff would find germane to their work. For instance, after his participation in a plenary

discussion at the 2011 U.S. National Institute of Justice annual research and evaluation conference, Davis asked me to present the available research on "collective efficacy" and crime, as well as the problem of "legal cynicism" when the police try to work with disadvantaged minority communities suffering from high levels of violence. Apparently, he was very impressed by the presentation given by Harvard Professor Robert Sampson at the plenary session and felt that his command staff should know the general research in these areas. As such, I prepared a ten-minute presentation that I delivered at the next Bureau Chiefs meeting. While I am far from an expert in these substantive areas, the command staff seemed to appreciate the material as a very thoughtful discussion on the implications of this work for their community policing strategies followed my presentation.

Ad-Hoc Research Projects and Other Jobs

Over the course of my tenure as Chief Policy Advisor, I participated in a number of ad-hoc research projects. Most of these projects were small in scale and carried out in partnership with the Boston Regional Intelligence Center and Office of Research and Development. For instance, during a Compstat session, several Captains raised concerns that the crime incident data used to hold them accountable for managing crime trends in their districts were not accurate. They suggested that the Field Reports Unit, which is charged with coding incident reports according to the strict FBI Uniform Crime Reports standards, was not always properly characterizing the incidents. Davis asked me to conduct a policy analysis of this issue. This project involved modest data analysis and interviewing and took about one month to complete. The analysis suggested that the problem was not with the Field Reports Unit. Rather, the front-line supervisors in the districts needed to more closely scrutinize the narratives of completed crime reports to ensure that the proper elements were identified before submission to Field Reports for final coding. Occasionally, I would be asked to lead other policy analysis work that was much more complex and required multiple years to complete. For instance, the American Civil Liberties Union of Massachusetts requested the BPD analyze their Field Interrogation Observation reports (more commonly called field contact cards) for possible racial disparities. This project landed in my lap and required extensive collaboration with external research partners such as Professor Jeffrey Fagan at Columbia Law School.

Beyond these ad-hoc research projects, I helped out with other important tasks as needed. For instance, I was regularly called upon to assist in speech writing for the Commissioner by adding scientific evidence into his talking points as appropriate. There were times when I was asked to participate in media interviews to justify why particular crime control strategies were being pursued and how these interventions seemed to be generating desirable impacts. My participation in these media sessions basically involved summarizing the results of problem analyses and explaining the findings of impact evaluations. I also assisted the Office of Research and Development in writing particular proposals, such as submissions to the Bureau of Justice Assistance and the National Institute of Justice for much-needed funding, and reviewed requests for data submitted to the BPD by other academic researchers. While Commissioner Davis made the final decisions on whether particular proposed research projects would be supported by the BPD, I provided him with assessments of whether the research methodology represented sound social science and whether the research seemed well positioned to generate value to the BPD in particular and broader crime and justice policy discussions more generally.

Conclusion

The idea of embedding a criminologist inside of a police department to work alongside practitioners on particular

"For criminologists, the personal rewards of engaging work that directly influences practice and helps address long-standing societal problems are substantial."

program initiatives and as a general resource for a wide range of issues represents an evolution from traditional academic-police research partnerships that are usually limited to very specific projects and typically last for very short time periods. Embedded criminologists can enhance the capacity of police departments to understand the nature of ongoing crime problems and develop innovative programs to prevent these problems from recurring. Working in close partnership with sworn and civilian staff, embedded criminologists develop important insights on the reality of urban crime problems and the complexity of the operational environments in which police departments operate. These insights magnify the value of criminologists' scientific knowledge and analytical expertise in developing information products that can improve practice.

It is important to note here that embedding a criminologist is not a silver bullet that, by itself, ameliorates the multifaceted challenges faced by police departments. Rather, inviting a criminologist to work on the inside of a police department in a stable position enhances the capacity of the agency to understand and address these challenges by virtue of adding a skill set not held by other police staff. Commissioner Davis deserves much credit for recognizing the need for this skill set in his agency and taking the bold step of inviting an outsider into his department. Similarly, the willingness of BPD personnel to share data and insights on problems allowed me to generate value for the department. Davis and the BPD staff co-produced the knowledge that led to important policy changes and led to the implementation of programs that generated violence reduction gains in Boston. While my research was a part of this change effort, the BPD command staff and line-level officers and civilians executed the programmatic work inside the department and on the streets of Boston.

The Boston experience suggests that police departments do benefit in tangible ways by adding criminologists to their staffs. Boston now serves as an important example of the potential crime control efficacy of preventive policing strategies that reduce the need to arrest, prosecute, and incarcerate offenders. In response to an increase in violent crime during the early- to mid-2000s, the Boston Police Department implemented two preventive policing strategies. The revitalized Operation Ceasefire focused-deterrence program concentrated criminal justice, social service, and community-based resources on halting outbreaks of gun violence among feuding street gangs. The BPD also launched its Safe Street Teams initiative that used community problem-solving techniques to control violent hot-spot locations in Boston. Controlled evaluations of both programs suggest immediate violence reduction impacts (Braga et al. 2011b; Braga et al. 2013). Influenced by these programs and other innovations, violent UCR Index crimes in Boston decreased by 30 percent between 2006 (7,512 incidents) and 2012 (5,265 incidents) (Figure 1). Equally impressive, total arrests decreased by 37 percent during the same time period (from 24,745 arrests in 2006 to 15,625 arrests in 2012).

For criminologists, the personal rewards of engaging work that directly influences practice and helps address longstanding societal problems are substantial. Unfortunately, most universities place less emphasis on public service

and more value on conducting sophisticated research studies that generate high-quality journal articles. For young scholars seeking tenure, the pressure to produce in a way that fits with well-established scholarly traditions may prevent some from engaging police departments in such a direct way. However, it is important to recognize that forming research partnerships with law enforcement agencies, whether as a research partner or an embedded criminologist, and conducting high-quality research that will stand up to peer review are not mutually exclusive enterprises. Basic problem analysis can be expanded to a more rigorous examination of larger criminological issues. Innovative crime prevention programs can be evaluated in ways that advance methods and models in criminology. Finally, the trust that is built between academics and the criminal justice practitioners they are serving can result in richer data being made available for new analyses.

There are divergent views on how closely program evaluators, such as external or in this case internal academic researchers, should be involved with practitioners in program development and implementation. To some observers, close-working relationships between practitioners and academics may violate the purported scientific necessity to separate program developer and evaluator roles (Eisner 2009). To others, unless there is some convincing evidence of widespread evaluator bias or conflict of interest associated with such arrangements, these collaborations seem necessary to put academics in the position of being able to conduct high quality evaluations of prevention and intervention programs. As David Olds (2009) argues in his essay in support of "disciplined passion," balancing scientific integrity with the practical challenges associated with program evaluation in real world settings needs to be addressed through higher standards for reporting trials, better peer review, improved investigator training, and rigorous collegial support of those who choose this line of work.

Welsh, Braga, and Peel (2012) recently examined the importance of evaluator influence on outcomes in police crime prevention programs. Their study did not find support for the cynical view, which holds that researchers have a personal stake in the program or are pressured to report positive results. Importantly, they found that an evaluator's involvement in the implementation of the program may be a necessary condition of successfully executed police experiments in complex field settings. My experiences as an embedded criminologist in the Boston Police Department support their findings. By being involved in program design and implementation, I was much better positioned to conduct more rigorous controlled evaluations. However, it is important to be wary of bias issues and adopt safeguards when serving as an internal researcher. To ensure that I wasn't unintentionally biased in my approach and interpretation, I invited external colleagues to participate in the design and execution of all problem analysis and program evaluation work completed for the BPD. While my colleagues improved the rigor of these studies, their involvement also increased the transparency of the research enterprises described here. Indeed, serving as an objective voice that presents unbiased findings for consideration by police decision makers is the most important contribution that an embedded criminologist can make.

Author's note: Any opinions, findings, conclusions, or recommendations in this document are those of the author and do not necessarily reflect the views of the Boston Police Department. The author would like to thank former Commissioner Edward F. Davis and the Boston Police Department for giving him the opportunity to work closely with an incredibly dedicated group of men and women on improving public safety in Boston.

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