Police Use of Public Overt Surveillance Technology

BY

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THESIS

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LIST OF ABBREVIATIONS

CCTV	Closed Circuit Television
CSI	Crime Scene Investigation
DPA	Data Protection Act
GPS	Global Positioning System
IRB	Institutional Review Board
L.A.	Los Angeles
MDMA	3,4-Methylenedioxymethamphetamine
NYPD	New York Police Department
POST	Police Overt Surveillance Technology
PTZ	Pan-Tilt-Zoom
UIC	University of Illinois at Chicago
U.K.	United Kingdom
UNLV	University of Nevada Las Vegas
U.S.	United States
VIIDO	Visual Images Identification and Detections Office
XPD	Unnamed Police Department (used in case study)

SUMMARY

A study of the uses of public surveillance technology by law enforcement in the United States (U.S.) was completed using descriptive and exploratory methods. The goal of the research was to better document the scope and nature of police use of public surveillance technology and the resulting data, as well as public attitudes toward such use.

A review of the literature demonstrated a significant lack of information about police use of overt public surveillance technology in the United States. Data from more than 3,000 respondents to two surveys of distinctly different populations (one citywide and one public housing) were analyzed to determine what factors influence an individual's level of support for police use of public surveillance. Findings were inconsistent between the two datasets, suggesting that attitudes toward surveillance are nuanced.

Interviews were conducted with employees of law enforcement and other governmental agencies to document the use of overt public surveillance technologies. These were supplemented by a review of publically available information. A case study was developed around a single large police department in the U.S., providing a detailed description of how one public surveillance technology program was developed and implemented, and how the technology and resulting data were used. Case study information was compared to other national programs.

While there are similarities among law enforcement surveillance programs, a single model for success was not identified. Public attitudes toward surveillance are overall positive, but the potential costs associated with increased public surveillance (including the erosion of privacy) are complex and likely not well understood. Local context and culture are important in the development and implementation of public surveillance programs. Law enforcement

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SUMMARY (continued)

agencies that engage in public surveillance programs and the communities they serve can benefit from transparency and open dialogue about the intended uses and boundaries.

I. INTRODUCTION

Surveillance involves the collection and analysis of information about populations in order to govern their activities. (Haggerty & Ericson, 2006)

Surveillance refers to the processes in which special note is taken of certain human behaviours that go well beyond idle curiosity. (Lyon, 2007)

...surveillance, the systematic watching of people...– a means to an end, onesided, increasingly impersonal, intrusive and yet distant, routine and banal –... (Jenkins, 2012)

Introduction to the Problem

In 1993, two-year-old James Bulger was abducted from a shopping center near Liverpool, England where his mother was placing an order with a butcher. He was subsequently marched through town by his abductors, tortured, and murdered. Video from surveillance cameras set up around the shopping center shows the offenders shoplifting, observing potential targets, and ultimately leading James away from his mother's turned back, to his death. The offenders were later revealed to be two boys, each of them just ten years old. The images were crucial in identifying the perpetrators; police investigators would not have known to look for such young offenders without the public surveillance video images. The release of the images to the public, coupled with some "bragging" by the offenders, resulted in tips that led police to the boys. After the offenders were revealed to be young boys, 38 people reported having seen them with the younger Bulger; because of their ages, their association with each other did not arouse suspicion, even though Bulger was crying. The existence of the video and the particularly heinous nature of the crime are thought to have contributed, in part, to the massive investment in public surveillance technology in the United Kingdom (U.K.) (Hempel & Topfer, 2009; "Someone to watch", 1996; "Big Brother", 1997). McCahill and Norris (2002) noted "The public mood in the wake of the killing, as evidenced by the newspapers of the time, made those who tried to raise objections to CCTV seem either callous or too concerned with the rights of criminals."

During the same time period, there was a proliferation of serious acts of terrorism across the U.K., many of which involved the Irish Republican Army. The public was frightened and wanted protection from violence, be it initiated as a terrorist act or for reasons impossible to understand. Public surveillance footage was instrumental in finding James Bulger's killers, but how did it be come to be seen as capable of preventing crime? Other high-profile incidents involving public surveillance were covered extensively by the media. Video images were used to identify David Copeland, and thus contributed to the end of his nail-bombing campaign. Public surveillance images were used to identify and apprehend Copeland, the bombings stopped. Regardless of what government surveillance of public surveillance can actually be expected to do, a link between video images and crime, particularly high-profile crimes including terrorism, seems to have been created in the early 1990s and solidified over time.

Fast forward to the current day; London is blanketed with public surveillance cameras (Evans, 2012; Shah, 2012). Law enforcement agencies across the United States (U.S.) are employing public surveillance technology (Welsh & Farrington, 2009). There is an intense fear of terrorism in the U.S. and, it seems, a willingness to compromise freedoms in favor of the perception of greater protection.

Little has been consistently empirically established about the crime reduction capability of public surveillance schemes (Groombridge, 1994, 2008; Welsh & Farrington, 2009). Public surveillance schemes may contribute to crime reduction and/or assist in the investigation and prosecution of crime, but the extent of this contribution remains uncertain. There have been numerous studies of the impact of public surveillance projects on crime in the U.K. (finding small but significant impacts on certain types of crime, consistently to vehicle-related crimes in parking lots) and a small number in the U.S. documenting mixed findings (King et al, 2008; La Vigne et al, 2011; Mazerolle et al, 2002; Ratcliffe et al, 2009). There is little in the literature about the extent to which surveillance video images are used in prosecutions. King and colleagues (2008) state that public surveillance footage was used in six prosecution for crimes in San Francisco between 2005 and publication of the report – approximately three years.

Public surveillance schemes have proliferated requiring a huge investment of public dollars to implement the necessary technology equipment and infrastructure (Gerrard et al, 2007; Johnson, 2010; Welsh & Farrington, 2009). A huge investment in this technology has been made in the U.K. The extent of the financial investment in public surveillance programs in the U.S. is unknown, but public funds at the federal, state, and local levels are being spent on these programs. Questions about the costs are starting to surface (Davenport, 2007; Hope, 2009; Johnson, 2010; McSmith, 2008).

The Big Brother Watch website¹ stated:

Figures suggest that Britain is home to 20% of the world's population of CCTV cameras, despite being home to just 1% of the world's population. One study suggested the average Londoner is caught on camera more than 300 times every day. Despite millions of cameras, Britain's crime rate is not significantly lower than comparable countries that do not have such a vast surveillance state.

Add to the limited evidence of impact and the high costs, there is a lack of transparency in law enforcement public surveillance programs. Law enforcement agencies have not provided a great deal of information about how surveillance programs are intended to work or how they intend to use data used after-the-fact. Generally speaking, the media has not questioned the specifics of surveillance programs, nor have the public, suggesting a lack of understanding of the nuances of such programs or the potential consequences on privacy.

¹ http://www.bigbrotherwatch.org.uk accessed December 2011.

Police Use of Surveillance

There are many ways to tackle any problem, and public surveillance has been used by law enforcement to reduce crime, improve investigations and prosecutions, prevent terrorism, increase the public's perception of safety, and demonstrate the government's efforts toward protecting its citizens. Law enforcement executives have argued that they can save on manpower costs by using public surveillance technology, and can "see" more widely and more efficiently. They claim that public surveillance contributes to crime reduction by 1) protecting individuals (watchful eye to dispatch resources in the moment they are needed); 2) controlling potential offenders (inducing self-restraint for fear of detection); while 3) simultaneously collecting evidence to be used for successful prosecutions (should the technology fail to protect or control). Apply these ideas to the James Bulger case. Public surveillance cameras captured images of the killers and led investigators in a direction they otherwise might not have gone (idea #3). But the cameras themselves did not raise the alarm when James was led away from his mother, nor did active monitoring of the location, nor did any of the dozens of people that saw James with the abductors (idea #1). And the presence of the cameras did not deter the offenders (idea #2). The abduction was seen through different lenses – technological and human – and the context influenced the interpretation (witnesses didn't question why a three year old would be crying in the company of two older boys). The reasons for law enforcement to implement public surveillance, the mechanisms by which such schemes might achieve success, and the resultant effects are complex and multi-dimensional, and have not been well evaluated.

Human or technological surveillance has been used in law enforcement crime-fighting efforts since the inception of policing. Until recently, law enforcement's use of surveillance was "low-tech" in that it was paper based and active surveillance required individuals to perform the act of watching and recording information. Individuals can only be in one place at a time, so large-scale surveillance in multiple locations would have required multiple people. Information was manually collected, stored, and maintained and while it could be quite extensive, establishing links between data elements – connecting the dots – within a single data set was laborious. Because gathering human intelligence and making connections among multiple data sets was extremely difficult, the effort was undertaken only when the analysis was highly desired. Privacy was supported by resource limitations that reduced the ability for law enforcement to conduct extensive surveillance. This is no longer the case.

Technology has simplified surveillance processes enormously, with the *potential* to realize massive savings in personnel time. It is the *technology* of surveillance and the *methods* it has created that are new, not the concept or practice of surveillance itself. Surveillance camera technology is used by law enforcement in myriad ways: crime reduction and prevention; hot-spot policing; surveillance of public spaces for crowd control; covert narcotic-detection missions; investigations of incidents and movement of suspects and offenders; and the development of counterterrorism measures. General surveillance has also become increasingly accessible to law enforcement: ready availability of digital information; regular contacts and travel patterns through cell phone records and automatic toll paying devices; buying habits with loyalty cards; any number of interests through internet usage; and tons of information that is voluntarily opened to the public using internet based technologies like MySpace, Facebook, and Twitter².

Law enforcement agencies in the U.S. experimented with overt public surveillance projects beginning in the 1960s in Mt. Vernon, NY, Hoboken, NJ, Saginaw, MI, and San Jose

² Some argue that libraries have become the last bastion of privacy, wary of the government using antiterrorism laws to investigate patron habits without judicial oversight.

CA (Belair & Bock, 1972). The first major city police department to use public surveillance technology was the New York Police Department in the early 1970s. While there was a slow move toward greater adoption of public surveillance techniques by police, the terrorist attacks of September 11, 2001 set off a marked increase in the acceptance and use of such systems. The extent to which these schemes are deployed in the U.S. has not been definitively documented, but many major cities, as well as smaller cities and towns, use some form of public surveillance technology.

Police organizations use technology for surveillance of public places extensively in Europe, especially in the U.K. Police public surveillance programs are deployed in Australia, Belgium, Canada, China, England, Finland, France, Germany, Iran, Iraq, Ireland, Italy, Monaco, Netherlands, New Zealand, Norway, Russia, Scotland, South Africa, Spain, Sweden, Turkey, and the U.S. These places have incorporated public surveillance technology as a strategy to improve public safety and combat everything from terrorism to commonplace crimes.

Law enforcement agencies can use public surveillance actively or passively (also known as forensically). Active use consists of a live-feed of video images monitored real-time by human personnel with the ability to intervene by deploying resources to a site, if necessary. Passive or forensic uses, in contrast, involve reviewing images that have been captured for use in investigations or as evidence in prosecution and conviction. Some law enforcement agencies have developed, funded and implemented their own public surveillance schemes while others have collected the image data from non-law enforcement sources (privately held cameras), or both. While most law enforcement agencies currently rely on human review at some stage in the process, technological innovations are increasing the potential for non-human review and decision-making. For example, license-plate readers linked to data from multiple sources can identify sought-after cars (fine-scofflaws or those wanted in connection with crimes) and provide real-time information on their whereabouts. Facial recognition scanners can alert law enforcement to the presence (or potential presence) of an individual wanted for questioning or with a warrant for arrest. Software that detects certain behaviors – crossing a geographical barrier or leaving inanimate objects at a site – are being tested and implemented by law enforcement.

The way that police use public surveillance technology and the resulting data is not widely understood in the United States. While in some jurisdictions, there are transparency requirements such as mandated reporting, they do not provide much information, and those requirements are not always fulfilled. For example, San Francisco requires an annual report on their public surveillance program but no such report has been produced since program inception. In Washington, DC, annual reports were completed early in the program, but no reports have been published in recent years. This may be due to public complacency. The most commonly available information provided by law enforcement is the location of cameras, but given that these programs are overt by design, providing the location does not reveal a lot of information. Aside from the ways in which public surveillance technology is used, little is known about how police departments use resulting data. Most police programs have a publically known retention schedule, but not much additional information is provided on how those images are accessed, by whom, and for what purpose.

Pervasiveness.

Public surveillance schemes proliferate requiring a huge investment of public dollars to implement the necessary equipment and infrastructure. The U.K. is widely acknowledged to

have the largest number of public surveillance cameras in the world³. The often repeated estimate of more than 4.2 million cameras installed across the U.K. – one for every 14 people – was the work of McCahill and Norris (2002). The actual number of public surveillance cameras is unknown. The McCahill and Norris figure was a rough estimate based on a very small sample of cameras on London streets. The estimate has been challenged in the media and some believe it is inflated by as much as 25% ("Police not using", 2009). The Home Office is the U.K.'s central governmental agency for policies on policing, crime, and counterterrorism, and they fund many crime prevention strategies in the U.K. Norris and Armstrong (1999) estimated that funding for public surveillance programs accounted for more than three quarters (78%) of all Home Office monies spent on crime prevention in the 1990s (more than £500 million). The Home Office report "National CCTV Strategy" (Gerrard et al, 2007) stated that under the "Crime Reduction Programme," from 1994 to 2003, the Home Office provided approximately £208.5 million (over \$346 million) in funding – combined with local funding matches - to over 1,265 public surveillance schemes in the U.K. Welsh and Farrington (2009: 6) estimated £375 million of public money has been spent on installing public surveillance systems in the U.K. The Independent (a U.K. newspaper) reported that 336 local councils spent nearly £315 million on the installation and operation of public surveillance cameras between 2007 and 2010 (Johnson, 2010). The website "Big Brother Watch" ("The Price of Privacy," 2012) reported that there are currently a minimum of 51,600 public surveillance cameras in Britain, with a financial investment over the five-year time period of 2007 through 2011 of £515 million. Add to these

³ Although Fussey and Coaffee 2012 stated that the claim is probably outdated "given China's unparalleled mega-event-driven developments in this area in more recent years."

figures the contributions of the local administering authorities, and a huge but unknown investment in this technology has been made in the U.K.

The Home Office report (Gerrard et al, 2007) suggested that public surveillance is a costeffective and efficient way to deter street-level crime and disorder, with additional benefits (often more difficult to measure) such as reduction in fear of crime and increased revenues in areas where consumer traffic is increased due to increased public safety (Garland, 2001; McCahill, 2002; Zedner, 2000). However, questions about the costs of implementing and maintaining these schemes are starting to surface (Davenport, 2007; Hope, 2009; Johnson, 2010; McSmith, 2008).

While the rise of public surveillance in the U.K. is unparalleled, its use by law enforcement in the U.S. is certainly gaining momentum. Public or combined public/private surveillance programs are in use in most major cities in the U.S., including Baltimore, Boston, Chicago, Dallas, Kansas City, Las Vegas, Los Angeles, Miami, Minneapolis, New Orleans, New York, Philadelphia, Phoenix, San Francisco St. Louis, and Washington, DC⁴. Just as in the U.K., it is unclear just how many cameras are deployed to watch the public in the U.S. Savage (2007) reported that since 2003, the U.S. Department of Homeland Security has granted \$23 billion to large and small municipal governments to finance public surveillance programs.

As public surveillance programs in the U.S. are gaining popularity and continue to expand (with increasing investments being funded in part by federal Homeland Security dollars in addition to local dollars), evidence of their impact on crime may not be as important as their acceptance by the communities they watch. Significant costs are associated with these types of programs and, absent the clear evidence of their impact on crime, the community's acceptance of

⁴ Enter the name of a major U.S. city plus "police surveillance cameras" into a search engine for news accounts of CCTV programs: it appears that CCTV is in all large U.S. cities – and many smaller ones as well.

and attitudes about such schemes may be the only way to justify such expense. Therefore, it is important to understand how communities feel about the use of public surveillance when deciding to expend or expand resources for such projects.

Publically information about public surveillance programs in the U.S. is available mostly through local newspaper reports and official police department information. There has been some effort at understanding the pervasiveness of public surveillance in the U.S., for example the International Association of Chiefs of Police (Nichols, 2001). But surveillance programs have spread rapidly and mostly without coordination at the state or federal levels. This complicates efforts to understand the nature of police surveillance programs nationally.

Questions of effectiveness.

Public surveillance schemes in the U.K. are not centrally administered and managed. Instead, they are comprised of a mix of publically and privately owned cameras that are controlled by a local authority⁵ and not usually the police, although the police have access to the images. In London, for example, there are 32 boroughs, each with its own dedicated control room and public surveillance cameras numbering from a few hundred up to many thousands, depending on how much money has been dedicated by local government.

The responsibility for public surveillance schemes in the U.K. is not centralized, just as it is not centralized in the U.S., although much of the funding comes from a single government agency, which is why the numbers of public surveillance cameras deployed in the U.K. and the U.S. are unknown. Even though the U.K. is widely acknowledged to be the most surveilled place in the world, there is no definitive number to describe the levels of surveillance, and estimates vary widely. This underscores the nature of police innovations; while funding is often

⁵ Local authorities in the U.K. are part of the local government, usually headed by elected officials.

provided at a high level, the development and implementation are left up to localities which often do things quite differently. Recent statements in the media by an inspector within the London Metropolitan Police Service confirm the same.

In May 2008, The Guardian (Bowcott, 2008) and the BBC ("Police 'not using'", 2009) reported that a "senior police officer" said public surveillance cameras have failed to have a significant impact on crime, despite billions of pounds having been spent on the technology. While the impact of public surveillance in deterring potential criminals is unknown, Scotland Yard reported multiple difficulties using public surveillance images for prosecution, and reported that only 3% of robberies are solved using public surveillance footage. One detective reported that more training is needed, and that officers often don't bother to retrieve public surveillance images because it is "too much work." "Billions of pounds have been spent…but no thought has gone into how the police are going to use the images and how they will be used in court. It's been an utter fiasco…" ("Police 'not using", 2009).

According to subsequent articles and interviews with the London Metropolitan Police Department's Detective Chief Inspector Mick Neville of the Visual Images Identification and Detections Office (VIIDO) unit, public surveillance cameras in London are not effective in solving crime. Neville's report ("One crime solved", 2009) stated that 1,000 cameras were necessary to solve a single crime at a cost of approximately £30,000 per incident. These findings have the potential to turn the tide in what has until now been wide acceptance of public surveillance for crime reduction, but Neville's report was intended to contrast the failings in current practices against the potential for improvement if a more scientific approach were to be widely adopted. Therefore, his comments should be contextualized as an argument for a new paradigm in the implementation of public surveillance by London's Metropolitan Police Service (LMPS) in which VIIDO would have centralized control of the London public surveillance cameras with LMPS rather than the local authorities.

In a BBC report ("Police 'not using'", 2009), Neville stated that many smaller municipalities copied London in their public surveillance implementation programs, but they did not learn from the mistakes made in London. Specifically, while money was spent primarily on the equipment necessary to implement public surveillance projects, not enough money was spent on the staff to create processes and monitor the program.

Unless there is a systematic way of gathering CCTV then it will continue not to be as effective as it could be. What I would say...is we've got enough cameras, let's stop now, we don't want any more cameras. Let's invest that money that's available and use it for the training of people, and the processes to make sure whatever we've captured is effectively used.

In response, the BBC quoted Graeme Gerrard on behalf of the Association of Chief

Police Officers (and lead author of the Home Office's National Strategy document), "What is the

value to London to have suicide bombers who failed in their first attempt arrested and detained

before they were allowed to act again? How do you put a value on that?" But the cases to which

Mr. Gerard refers used CCTV public surveillance images as an investigative tool, not for

prevention.

The impact of public surveillance technology has been widely questioned, but it has not slowed the pace at which it is implemented in the U.S. in the last decade. Critics have questioned the usefulness of police public surveillance programs:

CCTV therefore appears to be being implemented as a 'solution' without due consideration of what it is meant to achieve, or what other options might be available, and how the problem might be tackled in a number of ways...Perhaps the greatest success of CCTV may be to reassure politicians and police that they have 'done something about crime', worse still it may persuade everyone else that it has. (Groombridge & Murji, 1994a)

Aside from public opinion polls, not much is known about attitudes toward surveillance in the U.S. There does appear to be widespread acceptance of the technology as reported by the media. But public opinion polls have focused mainly on surveillance as a tool to combat terrorism without a public debate about what public surveillance might reasonably be expected to do. Also absent from public discussion is how the widespread adoption of such technology could potentially impact privacy rights. Scholars have discussed other potential social costs associated with public surveillance, but those arguments have not been heard in mainstream culture.

Description of Research

Beginning in the 1950s (Marx, 2012), the study of surveillance has been of interest to scholars. Since the terrorist attacks of 9/11 in the U.S., surveillance studies has become the focus of increasing attention, and has developed as a focal point of study within a number of academic disciplines: criminology, communications, cultural studies, economics, history, law, philosophy, political science, public administration, public health, social psychology, sociology, and urban planning. A number of researchers theorize about, critically analyze, and empirically test the social, personal, and financial impacts of increased surveillance. Collectively, the intensification of surveillance as a field of inquiry has expanded the topic area and made it difficult to synthesize.

The type and scope of surveillance considerations have resulted in very different lines of inquiry by researchers. For example, analyses of police public surveillance schemes by law enforcement often focus on impacts on crime and displacement, while studies of biometric monitoring or GIS tracking tend to focus on technology and/or consideration of civil liberties. Scholars from many disciplines view surveillance through the lens of social costs, including

threats to liberty and inclusion. Surveillance applications are prominent in policing in the U.S., and are beginning to be widely used by public and private, commercial and social service agencies at all levels.

The focus of this dissertation is on the overt use of surveillance technology by police in public places. The first order of business is to clarify definitions and terminology. These types of programs have been widely referred to as Closed Circuit Television (CCTV). CCTV differs from broadcast television in that the signal that carries the video feed is not openly transmitted and is viewable only with access to the "closed circuit." However, this definition applies to almost all video camera surveillance, including schemes employed by private industry. "CCTV" is not entirely descriptive of what I will be discussing in this paper. Therefore, I have developed a new acronym – POST – which refers to "Public Overt Surveillance Technology" and is meant to represent a police program incorporating overt surveillance technology in public places for the purpose of increasing public safety.

Law enforcement agencies across the U.S. are deploying POST as a tool to reduce crime with limited empirical evidence of the crime reduction benefits of such strategies in the U.S., and no empirical evidence of prosecutorial benefits. U.S. POST programs do not appear to incorporate program experiences from other countries, particularly in the U.K. where POST has been tested over the course of several decades (Welsh & Farrington, 2009). Often U.S. POST strategies are very expensive, and the implications for privacy have yet to be thoroughly assessed or debated, although Groombridge (2008) believes the public should be more concerned with financial costs than with privacy and civil rights implications.

There are an endless number of questions and areas of inquiry to pursue with regard to police use of POST. This study was designed to identify and provide some remedy to

knowledge gaps in the research literature regarding police use of POST. This research will focus specifically on three areas: 1) the adoption and proliferation of POST in the U.S. (using research and survey data from several large cities); 2) the purposes for which POST data can be used and how such data are used by one law enforcement agency in the U.S.; and 3) the community's acceptance of POST programs, including factors that contribute to public attitudes about POST (using survey data from two distinct populations).

The research is descriptive and exploratory, using multiple data sources to examine POST at a national and local level. A case study was developed around one POST program in one large Midwestern city. Case study information was focused on the way POST is deployed and how the resulting data was used, as well as the planning, development, implementation, and continued administration of POST. At the operational level, attention was given to the uses of POST data, both active and forensic, with an examination of how data was used in the case study city. Data gathered from two surveys, as well as publically available information regarding POST in other U.S. cities, were used to contextualize and expand our understanding of the POST program in the case study city. Community survey data specific to two local POST programs were analyzed to explore residents' attitudes about this type of surveillance in residential areas.

This study contributes to the field by providing an in depth look at one POST project conducted by a U.S. police department, exploring the numerous ways in which data were collected and used. By examining the decision-making process and implementation issues in this case, the study is able to inform and improve the practice of POST use. Adding to the knowledge base, I analyzed two data sets containing public perceptions of police use of surveillance. The respondents to each survey were very different demographically but were analyzed in the same manner to see if public attitudes toward surveillance were impacted by the same factors - age, race/ethnicity, gender, prior victimization, fear of crime, and levels of crime in their residential area. Such comparative findings have not been reported previously.

What follows is a review of the literature with regard to police use of surveillance in public spaces and what is known about attitudes toward public surveillance (Chapter II). Chapter III is a description of the research methods, and Chapter IV describes the results of an analysis of attitudes toward police use of public surveillance in two distinct populations. Chapter V describes in detail one police POST program in the U.S. and considers the resulting use of POST images by police. Chapter VI provides context by assessing what is known about other U.S. POST programs and describes some high-profile cases in which POST has been featured by the media. Chapter VII offers a review of privacy implications and expectations with regard to government-run POST programs in the U.S., as well as the use of privately owned data. Finally, Chapter VIII concludes with a discussion of the current findings regarding police POST programs, as well as policy implications and recommendation for future POST projects.

II. LITERATURE REVIEW AND RESEARCH QUESTIONS

In this chapter the current literature on public overt surveillance technology (POST) programs by law enforcement is reviewed and assessed. Critics have argued that law enforcement agencies in the U.K. and the U.S. have "put the cart before the horse" where POST programs are concerned, employing technologies without clearly defining goals (Goold, 2004; Surette, 2004), purposes or policies (Laycock & Clarke, 2001), or boundaries and guidelines to regulate deployment.

The "war on terror" created a funding stream for POST programs in the U.S. Program costs were justified as necessary to fight terrorism. But the investment in POST came at the expense of other public safety projects. As economic conditions worsen and Homeland Security funding diminishes, law enforcement agencies will likely be called upon to justify the costs associated with increasing POST programs. For example, in June 2012, the Philadelphia City Controller released an audit of the city's video surveillance project (Butkovitz, 2012) estimating the cost at \$136,000 per *functioning* camera (only 47% of all deployed cameras, meaning that more than half of the cameras did not work). The report stated that these costs "appeared excessive" compared to cost estimates during project planning. "The cost is exceedingly alarming, and outright excessive - especially when \$13.9 million is equivalent to the cost of putting 200 new police recruits on our streets," said Butkovitz in a 2012 press release on the audit findings (Office of the Controller, City of Philadelphia, June 20, 2012).

Decisions about the locations of cameras have also been questioned. Often, government agencies that implement POST programs have been advised by criminologists to identify surveillance areas through careful consideration of the patterns of crime (geo-spatial distributions, offender modus operandi, etc.). However, some communities apparently pursued

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POST programs because neighboring communities already had them (Davies, 1996a; Goold, 2004; Norris & Armstrong, 1999; Nunn, 2003; Surette, 2004; Welsh & Farrington, 2004a, 2004b). This phenomenon has been also discussed in the diffusion of innovation literature (Rogers, 1995; Weisburd, 2005).

There is concern that this funding may have been based partly on political considerations (e.g., the popularity of POST with the public) and partly on a handful of apparently successful schemes that were usually evaluated using simple one group (no control group) before-after designs. According to researchers, these evaluations were conducted with varying degrees of competence (Armitage et al, 1999) and were often lacking in professional independence from government (Ditton & Short, 1999). That substantial funding was poured into POST schemes on the basis of questionable research, while an effective alternative in the form of improved street lighting— supported by high quality research—was widely known, raised serious questions about the use of public resources to prevent crime in Britain (Welsh & Farrington, 2004b: 703-4).

Without careful consideration of desired goals and mechanisms by which POST programs might accomplish those goals, quality evaluations of effectiveness are difficult to produce. Without the clear identification of goals before implementation, evaluators are left trying to assess successes on multiple fronts, often without adequate or high quality data. Furthermore, as POST programs are implemented with increasing regularity, there is a need not only to determine if POST is producing desired effects, but also the cost-effectiveness and sustainability of these programs. Additionally, as with many crime prevention programs, measured successes in one context does not assure success in all contexts, and POST programs might show divergent patterns in different locations and contexts (Welsh & Farrington, 2004a; Wilson & Sutton, 2003).

Support and endorsement of POST schemes by the public is an important component of government decision making. Attitudes toward government surveillance have been documented through survey research in the U.K. Similar studies have not been published in the U.S. It is widely believed that U.S. residents are supportive of government surveillance, if only slightly wary of the risks to individual liberty, perhaps as a reaction to the September 11th terrorist attacks. Most of what is known about attitudes toward public surveillance in the U.S. has been described through non-scientific media polls. Certainly, views of government surveillance are sure to be nuanced.

POST has been used in many ways and for many reasons, but the underlying ways in which surveillance impacts criminal behavior and the overall effectiveness of POST as a crimefighting strategy are not well understood or universally agreed upon. This section of the paper reviews relevant theories of police use of public surveillance, describes evaluations that have been conducted, summarizes what is known about citizen's attitudes toward the use of surveillance and identifies knowledge gaps.

Theory

Many police POST programs have been implemented without stated goals, let alone concise statements of the theoretical mechanisms by which the system could achieve those goals (Goold, 2004; Surette, 2005). "In sum, at this time most evaluations conclude that CCTV seems to work but how, when, and why remains unspecified," (Surette, 2004). An examination of underlying theoretical concepts of how POST may or may not work is important in the development of POST programs. Theory may help to illustrate some of the best uses or potential limitations of POST projects.

A widely cited surveillance theorist for many years was Michel Foucault. Foucault is known for incorporating the ideas of the "panopticon" (a surveillance mechanism designed but never constructed by Jeremy Bentham in late 18th century) into an understanding of power and control. In the panoptic model, few watch many. Foucault (1977) wrote that perfect power is both invisible and unverifiable. Perfect power subjects individuals to continual, *unverifiable* scrutiny that induces a state of consciousness of permanent visibility. That consciousness would induce the subject to behave as expected for fear of detection and punishment. The closest example in modern law enforcement is the impact of hidden highway patrol officers on the speed of drivers or in the near future, the impact of cameras on speeding. In this way, surveillance ensures the automatic functioning of power with very little or no effort on the part of the authority. POST schemes theoretically provide the unverifiable scrutiny, placing subjects in a "power situation" of which they themselves are the bearers. In other words, the subjects of POST regulate their own behavior, thus reinforcing the legitimacy of the authority without the authority having to exercise its power directly with human (police) intervention.

In recent years, many in surveillance studies wrote of the need to move beyond the panopticon (Boyne, 2000; Leman-Langlois, 2002; Lyon, 2006; Mathiesen, 1997; Rosen, 2004). They argue that Foucault overlooked the important opposite process: the many watching the few, (the synopticon or synoptosim) or even the many watching the many (the omniopticon or omnioptosim). The impact of Foucault on surveillance theory is undeniable, but for the purposes of this research, the focus is on crime control theories in criminology.

Pawson and Tilley (1997) have been widely cited for their list of the mechanisms through which POST schemes might be effective. In a discussion of how to conduct *Realistic Evaluation* (1997), the authors used POST as an example. In their example, the authors noted that POST in any location does not *physically* prohibit the commission of a crime in that location. In order to understand how POST *might* prevent crime, the authors enumerated the mechanisms by which it *could* be effective, incorporating roles for the individual, the community, or the situation. Their list is often used as a starting point for a discussion of the theories underpinning POST programs:

- "caught in the act" instant detection and arrest
- "you've been framed" deter offenders who don't want to risk apprehension and punishment
- "nosy parker" increased formal surveillance reduces fear of victimization, increases use and thus natural surveillance, deterring offenders who risk observation
- *"effective deployment"* resources should be deployed in order to deter more potential offenders or catch them in the act
- "publicity" symbolizes that crime is considered serious and there is a commitment to stop it
- *"time for crime"* decreases crimes that take time to complete as offenders calculate how long they have before detection and apprehension
- *"memory jogging"* remind people of vulnerabilities, prompting them to secure property effectively, increasing the difficulty for offenders
- *"appeal to the cautious"* naturally cautious people seek surveilled places, pushing those who are less cautious into use less secure areas, increasing chances of victimization away from surveilled areas

Within criminology, researchers have defined three major perspectives on crime

causation and prevention; biological / psychological theories, social theories, and most recently

situational theories (Clarke, 1995). Situational crime causation and prevention theories were

defined after several studies concluded that individual behavior could be controlled by

environmental manipulation. Situational crime prevention theorizes that crime can be prevented by prohibiting factors within an environment or situation that allow crime to occur. These are sometimes called "opportunity theories" or "opportunity reduction theories" (Rosenbaum, 1988)

Situational crime prevention measures: 1) are directed at specific forms of crime; 2) involve systematic (and sometimes permanent) management or manipulation of the targeted environment; and 3) are used in order to reduce opportunities for crime by increasing risks as perceived by offenders (Clarke, 1983). These types of crime control strategies can include, among others, 'target hardening,' defensible architecture, and community crime prevention such as "neighborhood watch." Situational crime prevention measures, similar to "environmental design" theories (Jeffery, 1971; Newman, 1972), are not aimed at root causes as are social or psychological theories of crime. Rather they involve environmental manipulation in order to minimize opportunities to commit crime and to reduce victimization.

Clarke and Homel (1997) differentiated three kinds of surveillance that can be used in situation crime prevention: formal, natural, and employee (employee surveillance can occur when the nature of the position includes opportunities for surveillance, such as bus driver, flight attendant, or retail store clerk). Each of these types of surveillance is aimed at increasing a potential offender's perceived risks. POST as a crime control program can be understood as a tool of situational crime prevention. POST cameras are used to address crimes that occur only at specific locations rather than offender motivations for committing crimes. And POST is a form of formal surveillance which may deter potential offenders through threat of detection, deployment of police personnel, and state-sanctioned punishment. Yet POST may operate in any number of other ways (as discussed by Pawson & Tilley, 1997, above).

Situational crime prevention strategies seek to increase risks and the difficulty of committing crimes, thus reducing the rewards of criminal behavior. These theories assert that crimes are not necessarily premeditated, but occur as the result of the presentation of an opportunity (door or window is open, car is unlocked, etc.). Situational crime prevention theorists tend to focus on the role of physical space, technology, and sometimes the presence of police as the mechanisms of prevention. Rosenbaum et al in their book *Preventing Crime* (1998) argued that members of the community play an important role in many crime prevention schemes. How they perceive and respond to their environment, including POST, will influence the level of prevention achieved. Rosenbaum and his colleagues also point out that displacement and loss of civil liberties are aspects of situational crime prevention strategies that can be problematic. Displacement occurs when criminal activity is not prevented, but is changed to a new location, time, modus operandi, or type of incident. If situational crime prevention measures result in displacement, they may not be useful to the overall community, although they may benefit particular neighborhoods if local crime has been reduced. Although it is difficult to measure, there has been some evidence of displacement with POST schemes as well as diffusion of benefits (Welsh & Farrington, 2009)

Situational crime controls have been associated with "big brother," sometimes seen as strategies that do not clearly address concerns about privacy, freedom and other ethical and moral issues raised by the implementation of situational crime control strategies. Furthermore, practical limitations (such as infrastructure, built environment, and community organization) impact the application of situational crime control. Trasler (1986) argues that situational crime control measures will be useful for deterring some types of crime, but will not be useful for reducing violent crime, concluding that situational measures will deter only "occasional or lowrate offenders." Additionally, in order for situational crime prevention methods to be successful, the strategies must be widely known and thus the underlying problem must garner attention to justify the strategy and encourage participation, which may have the unintended consequence of increasing fear of crime (Heal & Laycock, 1986; Rosenbaum et al., 1998; Skogan, 1990). The mere presence of cameras may suggest to local residents or users of the environment that "I am entering a high crime area."

The umbrella of situational crime prevention includes several theories, including rational choice, routine activities, and crime pattern theories. Rational choice theory (Clarke & Cornish, 1985), compatible with situational crime prevention theories, asserts that offenders make choices to commit crime based on rational decision-making. In order to deter potential offenders, the state must ensure that offenses will be swiftly detected and that punishment will be severe enough so as to provide both specific and general deterrence. Specific deterrence will ensure the offender will not choose the same behavior in the future, and general deterrence will ensure others will not repeat the offender's behaviors based on punishment imposed. If law enforcement surveillance systems ensure the swift detection of illegal activities and effectively publicize the results, then theoretically the system can provide both specific and general deterrents to criminal behavior.

Also closely associated with situational crime control measure is routine activities theory. Introduced by Cohen and Felson (1979), routine activities theory was presented as an approach for "analyzing crime rate trends and cycles" which did not concentrate on offender characteristics but on the circumstances in which offenders commit criminal acts. Central to routine activities is the idea that most *illegal* activities result from the *legal* activities of everyday life. Criminal violations are then understood as being directly tied to, sharing many attributes of, and being interdependent upon the legal daily activities. In order for crime to occur, there must be three elements present: a motivated offender, a suitable target, and the absence of a capable guardian. Cohen and Felson argued that lifestyle changes in our society that moved activities away from households and families contributed to higher crime rates by increasing public opportunities for crime. These two ideas are what Felson (2008) referred to as both micro and macro theories on how crime rates develop. Contemporary use of POST by law enforcement may act as a capable guardian in the absence of an actual guardian, providing a deterrent to criminal behavior. This model assumes, however, that the "guardian" is viewed by potential offenders as "capable", meaning it will "respond" in a way that increases the risk of detection, apprehension, or other forms of punishment. In the absence of data from offenders, this assumption cannot be directly tested. Additionally, large POST program like London's may simply be too extensive to allow law enforcement to respond as this model requires. If law enforcement is unable to monitor the cameras and respond swiftly, the routine activities model provides a framework for understanding and challenging the effectiveness of POST schemes.

Closely related to routine activities theory, Brantingham and Brantingham (1993, 2008) wrote that while crime is a complex phenomenon, it does not occur randomly or uniformly across time or space. There are discernible patterns in both events and perpetrators. In crime pattern theory, we can make sense of why crime is not evenly distributed geographically or temporally. Crime is "clustered" and the attributes of the clustering having to do with the regular activities patterns of both potential offenders and targets or victims. Therefore, in order to understand crime, we need to consider the routine activity space of offenders, their networks that involve other offenders, stationary targets and mobile victims in the area of those targets. Brantingham and Brantingham assert that the consideration of these factors make it possible to

understand crime patterns as well as develop effective interventions. POST could be used in places where patterns have been identified and either victims or offenders are clustered; thus, POST should deter crime under crime pattern theories if properly deployed.

Police have derived a number of crime control strategies including POST as a manifestation of the theories discussed in this section. Crime does not occur evenly across all places but is concentrated in relatively small places that account for nearly half of all criminal events (Braga, 2001). Law enforcement agencies have been aware of crime patterns for centuries, and recently have begun to assign more officers to areas with higher levels of crime under the label of "hot spots policing." POST placement, if based on crime patterns and not on political considerations, is a form of hot spots policing that replaces police officer surveillance with electronic surveillance. The actual impact of POST in a given incident would depend on the mechanism through which it deters or displaces crime or diffuses benefits. The mechanism will likely vary from situation to situation and thus one theory of how POST works may not be adequate.

Regardless of the situational crime prevention theory under which POST might operate, these programs are all theoretically linked to social control. Control theory was briefly noted above in regard to the work of Michel Foucault and surveillance. More generally, social control theory (Hirschi, 1969) assumes that delinquent and criminal acts are the outcome of an individual's weakened or broken bonds to society. Social control theory posits that the process of socialization and the social learning entailed within it contribute to self-control and reduce the desire for individuals to indulge in antisocial behavior. The combination of an individuals' commitments and relationships, as well as learned beliefs, values and norms, influence them not to break the law. If individuals have connections to their community and "buy into" community
norms, they will voluntarily refrain from committing criminal or delinquent acts. Therefore, assigning negative consequences to undesirable (i.e.: immoral or illegal) behavior will build social order. According to Hirschi, the question for control theorists is "why *don't* people commit crimes?" rather than "why *do* people commit crimes?" In this way, POST could be understood as a crime prevention strategy incorporating social control theory. In a formal sense, POST could induce expected behaviors within potential offenders and victims thus preventing crime. For example, a potential offender may choose not to commit a crime within the camera's view for fear of being detected, and a potential victim may see the presence of the camera as a symbol of the risk of victimization and avoid that area or take additional precautions. Of course, this scenario could have the opposite effect if the victims interpret the cameras as a symbol of government protection, lessening their awareness of situational risks and making themselves more vulnerable.

As an informal mechanism of social control, POST programs might operate in a number of ways. POST might strengthen community cohesion by representing governmental investment in neighborhood conditions (Welsh & Farrington, 2004b). POST programs could be seen as an investment in the community, which may induce in residents the desire to further improve living conditions (Kelling 1986; Skogan, 1990; Wilson and Kelling, 1982) and ultimately contribute to informal social control. Mere increased use of the neighborhood by residents may deter offending. Furthermore, in theory if residents work together and are successful in bringing (or keeping) POST schemes in their neighborhoods, the success of such action could be an expression community efficacy (Sampson et al., 1997; Welsh & Farrington, 2004b). Community efficacy, defined by Sampson et al as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good," is an indication of neighborhood stability (although some have argued there is no evidence that communities can create efficacy where it is weak or nonexistent, e.g. Rosenbaum et al, 1987). When neighborhoods are "organized," informal social structures such as families and peers, act to deter crime by protecting their environment. POST schemes, in very different ways, may contribute to social control either formally or informally.

Situational crime prevention strategies, however, are noted by theorists as having a number of potentially negative social consequences. Surveillance researchers and theorists have argued that social control through surveillance is exercised through exclusion (Fussey, 2008; Lyon, 2003; McCahill, 1998; Norris, 2003; Welsh & Farrington, 2009; Zurawski, 2007). Emerging surveillance technologies are fundamentally different from other forms of human surveillance in two ways: by extending Foucault's "disciplinary gaze," authorities have the ability to detect acts that might otherwise go undetected; and images and information captured by surveillance systems can be extracted and stored permanently. The technology is inherently neutral -- it is the way in which the technology is used and for what purpose that has to potential to disproportionately impact different populations. Emerging surveillance technologies are exclusionary in that their capabilities are used to exclude "deviant" from "non-deviant" populations. Often the gaze of surveillance cameras falls on the "underclass," leading to exclusion of entire populations (McCahill, 1998). One might argue, however, that this type of exclusion is unintentional. Public disorder is more likely to occur in low income and minority neighborhoods. Using broken windows theory as a strategy, police intervene when minor forms of disorder and incivility are observed on the streets. POST could be used to support this strategy, but, critics have argued that such place-based strategies could be viewed as a racist de facto, although not intentional (Rosenbaum, 2006). Other potential negative consequences from

POST use include displacement of crime, escalation in the severity of crime in a location, threats to personal liberties, and victim blaming.

Impact on Crime

This dissertation research did not test for the impact of POST on crime. However, it is still important to have some understanding of what has been established about its effectiveness. Evaluations of the impact of POST on crime have found little consistent evidence of impact on crime. This may be due, in part, to the difficulty in controlling for other competing factors that may impact crime. This section includes a review of existing literature on the effectiveness of POST on crime. The reader should note, however, that while this information is relevant to the study of POST in general, this dissertation research does not measure the impact of POST on crime.

Most of the literature of the impact of POST use by law enforcement focuses on crime reduction and displacement. While public POST surveillance is gaining momentum and popularity, few agencies have planned for evaluations and fewer have published well planned and well executed evaluations. Evaluations that have been published show mixed results which vary by crime type and location of cameras. Much of the early research on the effectiveness of POST has been "post hoc shoestring efforts by the untrained and self- interested practitioner" (Pawson & Tilley, 1994) which generally leads to highly unreliable results (Groombridge & Murji, 1994b). The late 1990s to mid-2000s saw analyses that were more scientifically rigorous than in previous years (Gill et al., 2005; Welsh & Farrington, 2003a, 2009). Evaluations of POST programs are difficult under ideal situations because of the quantity of variables that should be measured and controlled and the difficulty in collecting and quantifying these data. In reality, many projects are implemented without first identifying program goals and mechanisms by which the scheme is expected to work, making the identification and collection of data to measure success extremely difficult (Goold, 2004; Laycock & Clarke, 2001; Surette, 2004). Furthermore, rarely do evaluations provide for a test of "theory failure" versus "implementation failure" (Rosenbaum et al, 1987); rather most evaluations tend to look only at outcomes, leaving problems with implementation unknown. One notable exception is a "practice guide" created by Gill and colleagues (Gill et al, 2003), in which "lessons learned" are discussed from 17 POST schemes funded by the United Kingdom's Home Office, including the pre-bidding process, project management, building the project team, engaging stakeholders, the inclusion of third parties, costs and resources, and design and technology. Ratcliffe (2006, 2010, 2011) also documents implementation considerations in his COPS Office "Problem-Oriented Guides for Police" report on POST.

For evaluations that assess outcomes, one possible explanation for null results is "evaluation failure." Evaluators may not have measured the correct outcomes, for example, or measured them unreliably or without a comparable control group. However, implementation failure is a likely culprit in many evaluations because the importance of the planning process is often ignored in the rush toward implementation. Other implementation factors that have not been widely considered in evaluations include: the number of cameras installed (the optimal number and process for locating cameras), the ways in which they are monitored cameras (actively, to interrupt a crime in progress – or reactively, to support an investigation and prosecution), public notification of the of the presence of cameras (which could impact deterrence), or data retention policies (for retrieval in support of investigation and prosecution). Evaluations of POST schemes vary in rigor, measurements and methods. The most easily accessible information on POST typically summarizes the programs in existence, details anecdotal evidence on those programs, and summarizes opinions about its effect (see Nichols, 2001; Nieto, 1997). A number of reports on POST are either not specific as to a municipal or sub-municipal location (Beck & Willis, 1999; Gill & Turbin, 1998, 1999; Harris et al, 1998), mention POST as effective without evaluation (Clarke, 2002), or simply provide summaries of programs (Nieto, 1997).

Third-party evaluations of POST programs began to appear in the late 1990s, examining program effects mainly in the U.K. and Australia. Evaluations of U.S. POST programs that included significance testing were first published in the late 2000s. Evaluations of POST programs in the U.K. and Australian are summarized first, followed by evaluations of U.S. programs.

Meta-analyses.

Many evaluations of POST programs have been conducted, mostly in the U.K., and as noted earlier, not all evaluations have been equally rigorous in their methodology. In an attempt to understand the overall documented impact of POST, ten meta-analyses were reviewed (Gill & Spriggs, 2005; Gill, Spriggs, Allen, et al., 2005; Isnard, 2001; Phillips, 1999; Sutton & Wilson, 2004; Welsh & Farrington, 2002, 2003a, 2004b, 2009; Wilson & Sutton, 2003), the vast majority of which involve POST programs in Britain. Meta-analyses overlap each other in that they incorporate many of the same local area evaluations in the analyses. Only one meta-analysis did not reveal the actual sites of evaluations (Gill, Spriggs, Allen, et al., 2005), and therefore, the degree of overlap with other evaluations is unknown.

Noteworthy meta-analyses of evaluations of POST programs in mostly the U.K. were authored by Phillips (1999) and Welsh and Farrington (Welsh & Farrington, 2002, 2003a, 2004b, 2009). The Phillips analysis included 27 evaluations of POST projects; 14 in city centers, eight in parking facilities, three in public transport facilities, and two in public housing projects. Of the Phillips evaluations, 14 were also included in the meta-analyses by Welsh and Farrington that were conducted prior to 2009, plus the addition of eight POST evaluations not included in the Phillips analyses. Welsh and Farrington were explicit about criteria for inclusion of studies based on scientific rigor. As a result, while they reviewed 46 evaluations for the analyses prior to 2009, only 22 were include in their analysis (11 in city centers, five in parking facilities, four at public transit locations, and two at public housing sites). The evaluations included in these meta-analyses number 35 in total. By 2009, the number of evaluations that were rigorous enough to be included in meta-analyses by Welsh and Farrington were 44. Since many of the same evaluations are used in the Welsh and Farrington analyses, only the most recent review (2009) will be covered here.

Phillips did not discuss criteria for inclusion of evaluations in her meta-analysis. Phillips found the implementation of POST in parking facilities led to drops in car-related thefts, although impact could have been the result of new lighting and other new security measures installed in concert with the POST cameras. In her meta-analysis, Phillips found mixed results in the ability of POST programs to affect crime reductions o interpersonal or public disorder crimes, either in city centers or at public transportation locations. Phillips suggested that a small number of studies indicated POST might lead to reduced fear of crime for residents near the POST cameras (Brown 1995, Chattlerton & Frenz 1994; Mahalingham 1996; Musheno et al.

1978; Sarno, 1996). Overall, Phillips suggested that POST may reduce some property crimes in some instances, while the effects on personal crime and fear of crime are less clear.

Phillips (1999) warned about the difficulties of isolating the effects of POST. She also noted a pronounced lack of evaluations that take into consideration the context, mechanism, and outcome strategy. She suggested that the mechanisms developed by Pawson and Tilley (1994; 1997) could be beneficial if considered in evaluation of POST projects. Additionally, Phillips described the lack of adequate consideration of displacement and diffusion benefits.

The meta-analysis by Welsh and Farrington included evaluations of POST used in town centers (which could be a city or a smaller town), public housing developments, public transportation facilities, and parking lots. Twenty two of the 41 evaluations were of POST programs in town centers: 17 in the U.K., three in the U.S., one in Sweden, and one in Norway. In ten of the sites, POST programs were shown to have a desirable impact on crime (crime decreased), five had an undesirable impact (crime increased), one had both a desirable and undesirable effect on crime, five had a null effect on crime and one had an uncertain effect on crime. Twenty studies included measurable effect size, and when pooled, they showed a small but insignificant reduction of crime in town centers.

Nine evaluations of POST in public housing locations were analyzed; seven in the U.K. and two in the U.S. Three of the evaluations showed a desirable impact on crime, two had an undesirable effect, three had an uncertain effect, and one had a null effect. Eight of the studies had measurable effect sizes, which when pooled showed a small but nonsignificant impact of POST in public housing developments. Four evaluations of POST public transportation systems were analyzed (three in the London Underground system and 1 in Montreal's Metro). Two of the evaluations showed a desirable impact on crime, one an undesirable impact, and one a null impact. Pooling measurable impact data demonstrated a sizable but nonsignificant impact of POST on crime in public transportation facilities.

Finally, six evaluations of POST in parking lots, all in the U.K., were analyzed for impact. All of these interventions were done in conjunction with other public safety projects like improved lighting. Five of the evaluations showed a desirable impact on crime and one an undesirable impact. When measurable impact in all programs were combined, a significant desirable effect on crime in parking lots; crime decreased by 51% in experimental compared to control areas.

Overall, the meta-analysis reveals POST had no effect on violent crime (measured in 23 evaluations), and a desirable effect on vehicle crimes in ten of 22 evaluations where they were measured. Data disaggregated by country showed that POST was more effective at reducing crime in the U.K. than in the U.S., Canada, Norway or Sweden. Overall, Welsh and Farrington conclude that POST has a significant desirable effect on crime, mostly in parking lots, mostly on vehicle crimes. However, a recently published evaluation by Reid and Andresen (2012) of a POST pilot project in Canada to reduce vehicle-related crimes in parking lots found there was little evidence that POST contributed to drops in vehicle crime during the study period. More importantly, they noted that evaluation findings were dependent on evaluation methods, with the most commonly used method (data from one year pre- and post-implementation) showing a significant decrease in vehicle-related crime, a methodology the authors considered inappropriate.

Gill and colleagues published five evaluations of POST programs in specific sites in Britain in 2005 as well as two meta-analysis of POST effectiveness. The research was commissioned by the Home Office, which selected 17 of 300 POST programs that had received

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government funding for evaluation, choosing a mix of projects that could be easily evaluated, and that were high profile either because of the amount of funding they received, or high crime before the POST scheme was implemented. Fourteen of the 17 places were included in the evaluation findings published in 2005 as two meta-analyses (Gill & Spriggs, 2005; Gill, Spriggs, Allen et al., 2005); and three case studies (Gill, Little, Spriggs, et al, 2005; Gill, Allen, Spriggs et al, 2005; and Gill, Swain et al, 2005). The two meta-analyses cover the same 14 schemes and overlap with the three case studies. Therefore, I focus here on the meta-analysis by Gill and colleagues (Gill and Spriggs, 2005; Gill, Spriggs, Allen, et al, 2005). The meta-analyses are distinguishable from the Welsh and Farrington studies because they covered a wider range of measured outcomes, included site selection considerations, and took into account competing crime control programs.

A great deal of data were collected for the Gil et al evaluations, including: police statistics; public attitude surveys; identification of other crime initiatives operating within the geographic area covered by POST programs; process by which project designers chose locations and the internal assessment of the scheme; control room operations; and economic impact data. The quality of program implementation, however, whether administrative or tactical, is unknown or was not included a part of the evaluations.

With regard to crime data, police statistics were available for 13 of the 14 POST programs. Six were shown to have reductions in crime in the target area relative to the control area. Of those six, only two had statistically significant reductions, and one had to be discounted by the presence of confounding variables. Significant changes in crime could be attributed to POST in only one of the 14 locations evaluated, and as in the Welsh and Farrington meta-analyses, the POST involved parking lots. Gill and Spriggs (2005) found that "impulsive"

crimes (such as alcohol-related incidents) were less likely to be affected by POST systems than were "premeditated" crimes (like auto theft).

Gil and colleagues found POST in parking facilities to have the best results, while programs in residential areas demonstrated mixed results. They theorized that POST worked best in areas with limited and controlled access points like parking lots. This could be because potential offenders believed they would have a reduced opportunity for escape, should they be detected. Gil and colleagues wrote that residential programs may not have demonstrated successes because they were often implemented to deal with short-term problems which would require very sensitive measures to detect impact. They found that displacement was uncommon but occurred to varying degrees depending on the system.

Gil et al noted that POST programs had to be understood in the context of "risk" level; low-risk locations did not experience significant changes in crime after POST implementation. They also found that many of the projects studied did not have a clear objective, and that often schemes were requested by residents in relation to neighboring towns installing POST, regardless of need. They advocated for POST systems to be developed as part of a comprehensive strategy that outlines goals and objects of the implementation. Moreover, they advised that these planned implementations should include a detailed understanding of the local crime problems that the POST program seeks to remedy, with an accounting of the measures already in place to respond to those problems.

Evaluations of U.S. programs.

In the United States, knowledge about the impact of POST programs is limited to a relatively small number of program summaries and evaluations. Early survey research (Nieto, 1997) summarized the use of POST in public places in 11 U.S. cities. This summary of

programs asked respondents to report on the outcome of the program – no independent verification was conducted. The respondents were the government agencies who had implemented the program, and therefore, the "findings" should be considered in that light.

Baltimore, Maryland and Virginia Beach, Virginia provided only anecdotal evidence to suggest success, and Anchorage, Alaska provided anecdotal evidence of success in targeting POST specifically at prostitution, drugs and gambling. Tacoma, Washington and Hollywood, California reported general "reduced criminal activity," and Newark, New Jersey, reported success based on the commercial growth in surveillance areas. Locations that reported more specific "results" included Memphis, Tennessee (10% decrease in "crime"), South Orange, New Jersey (40% decrease in motor vehicle thefts), Dover, New Jersey (loitering and "crime" down overall), and San Diego, California (Park District reported that POST reduced criminal activity in parks). St. Petersburg/Tampa Bay, Florida reported preliminarily that crime was down, but cautioned that the change could not be attributed to POST. This early attempt at understanding the impact of POST on crime underscores the need for programs to define in advance their goals and specific verifiable measures rather than rely on anecdotal evidence. This survey also shows a variety of ways that U.S. agencies used POST before the terrorist attacks of September 11, 2001.

Compared to the number of POST programs that have been implemented in the U.S., few have been evaluated using methodologies that include significance tests and often, the evaluation is not part of program design, so measures of impact are post hoc. For example, an evaluation of a POST program in Las Vegas was the result of collaboration between local police and the University of Nevada Las Vegas (Sousa & Madensen, 2008). The POST cameras were installed to "address the high level of crime and reduce the risk of victimization." However, the police did not maintain either incident or arrest data electronically that could be extracted by date, so the researchers used calls for service as the unit of analysis, as well as residential and business surveys. The evaluation concluded that the program was successful because calls for service decreased after implementation of the POST program and because survey respondents perceive crime as having decreased as a result of program implementation. A total of six third party evaluations covering sites in eight cities that incorporated rigorous methods of evaluation of police POST programs in the U.S. are described below.

The earliest evaluation of POST in the U.S. also incorporated a unique design. The evaluation of the Cincinnati POST program (Mazerolle et al, 2002) did not use crime incident data to measure impact. Instead, evaluators developed a methodology for measuring behavior at camera sites (four total cameras in the program) and reviewed footage at randomly selected points in time. Evaluators measured behaviors including pro-social (coming and going out of stores, waiting at bus stops, pedestrian traffic, people in conversation with others, people using payphones and ATMs), anti-social (loitering, "horsing around," drug dealing, begging, and intoxicated persons), and guardianship (police, store owners and civic officials on the street). They also measured traffic in addition to the behaviors around the camera installation sites and concluded that the most promising aspect of the program was the *initial* deterrent impact on antisocial behavior from installing the cameras. Short term behavior modifications happened in response to camera installation, but ultimately people were desensitized to the presence of cameras and returned to pre-implementation behavior "watering down the potential for long term gains." The authors suggested that greater deterrent impact might have been achieved with an advertising campaign that alerted the public to the presence of the cameras. While the measurement of behavior as dependent variable in this study was unique and interesting, it was also time consuming and could potentially be expensive (labor to review footage). This

methodology has not been replicated in the U.S. as it may be unrealistic for programs that incorporate large numbers of cameras.

A "comprehensive evaluation" of the effectiveness of San Francisco's POST program (King et al, 2008) included "a multifaceted empirical approach," examining impacts on crime, policy, technology, and management. The evaluation found no evidence that POST in San Francisco reduced violent crime, drug incidents, prostitution, vandalism, or incidences described as "suspicious occurrences." However, statistically significant decreases in in property crimes near POST were found with no evidence of displacement, mostly due to a reduction in thefts. As to the potential benefits for investigations, SFPD made a limited number of requests (approximately three per month) for captured video footage to see if it contained evidence about an incident that had already occurred, and used POST footage to charge a suspect only six times in three years. In order to put this number in perspective, I contacted the San Francisco District Attorney's office to find out how many cases were accepted into prosecution in 2008. While I was told they could not provide that data, the contact person reported that there were 9,138 convictions in 2008 (which included guilty pleas)⁶. POST footage is also reported to have contributed to dropped or amended charges on at least two occasions.

Two actively monitored sites in Los Angeles (Cameron et al, 2008) were evaluated for the impact POST had on crime: one in a public housing development in Watts the other on Hollywood Boulevard. The evaluation did not find statistically significant reductions in either violent or property crime after the implementation of the POST program in either location. Tests

⁶ Arthur Meirson, Justice Fellow, San Francisco District Attorney's Office provided the data in a telephone conversation on 24 September 2009.

for displacement suggested some types of crimes may have been displaced, although not significantly.

An 18 camera POST system was implemented in ten sites in Philadelphia. An evaluation of these sites (Ratcliffe et al, 2009) employed two statistical techniques (weighted displacement quotient and hierarchical linear modeling). Reductions in "serious" crime were found in target areas, but the reductions were not statistically significant, although this may be due to the low numbers of reported serious crime. Statistically significant reductions in "disorder crimes" were found in the target area, and when combined into a single analysis with serious crimes, reductions in target areas were significant. Some diffusion of benefits was reported around some cameras and displacement was seen around others.

An evaluation of the impact of cameras in Chicago (two sites), Baltimore (four sites), and Washington DC (La Vigne et al, 2011) provided mixed results. In Chicago, there were statistically significant reductions in violent crime after the installation of POST cameras in one of the two locations, with no evidence of displacement and some indication of diffusion of benefits. Three of the four sites in Baltimore were shown to have statistically significant reductions in violent crime with no evidence of displacement and some indication of diffusion of benefits. The Washington DC analysis was a little different from the other two cities in that cameras placement was more diffuse. Chicago and Baltimore both had a number of areas where camera "view shed" were overlapping, but there was only one such area in Washington. Therefore, the Washington program was analyzed in two ways: individual camera analysis and an analysis of a cluster of cameras in one location where the view shed was overlapping. In neither case did the POST program result in statistically significant reductions in crime after the installation of cameras. The research also included cost-benefit analysis, and found benefits in excess of costs in both Baltimore and Chicago. When excluding victim costs from the analysis, the costs and benefits were nearly the same in Baltimore but still providing more benefit in Chicago. However, the cost-benefit analysis uses costs for the entire city and generalizes the benefits based on the desired impact that was found in one of the two study areas. Crime was not found to be impacted by POST in the other treatment area and so we cannot assume that benefits would be found consistently.

An analysis of the impact of POST cameras in Denver (Papazian, 2012) used crime incident data around 88 cameras (total project incorporates approximately 130 cameras) as the unit of analysis. A statistically significant relationship in the installation of cameras and the reduction of thefts from cars was reported. Other crime categories were also reduced after the implementation of the cameras, but the changes were not significant.

In summary, few agencies have incorporated evaluations into their planning process and fewer have published well planned and well executed evaluations. Published evaluations report mixed results and much of the early research on the effectiveness was post hoc analysis by program advocates. Analysis in the last several years has been more rigorous than in previous years, but evaluations remain handicapped by the quantity of variables that could be included as controls and the difficulty in collecting and quantifying these data. In reality, many projects are implemented without first identifying program goals and mechanisms by which the scheme is expected to work, making the identification and collection of data to measure success extremely difficult. This may be due, in part, to the fact the law enforcement agencies are implementing POST schemes without a theory of how POST may work – or even what they are intended to do.

Attitudes about Surveillance and Law Enforcement

In the 21st century, public law enforcement agencies are expected to be responsive to the concerns and issues raised by the community. Surveillance systems are expensive, so taxpayers must be convinced that they are effective and appropriate for use in urban neighborhoods. Some of the key values we share and seek to protect in our society -- safety, efficiency and individual liberty -- can be in conflict when it comes to law enforcement functions. Surveillance systems embody these conflicting values by offering both the perception of improved safety and greater surveillance by government ("big brother"). Because of these potential concerns, this dissertation will also examine public attitudes about surveillance and POST in particular.

Several studies explored public attitudes toward surveillance from different perspectives. Surveys have generally uncovered a positive attitude about POST in other countries, with some expressed concern about being watched, but the actual effects of installing POST on public perceptions and fears are more mixed. The earliest survey of public attitudes toward POST (Honess & Charman, 1992) was conducted in four English towns. The vast majority of respondents reported they would welcome POST, and differences were noticed by gender and age. Men and younger respondents expressed more concerns about POST than women people over 20. No statistically significant differences in responses were found regardless of the presence or absence of POST cameras. Respondents expressed concerns about the potential that program managers may use the system inappropriately to justify program costs, that camera watchers may abuse the system, uneasiness about "being watched," and the erosion of civil liberties. Respondents were asked who should have authority to decide to install POST in public places, to which most responded the local council, the police, local shopkeepers, and neighborhood watch groups. Just over half of respondents felt that the federal government and private security firms should <u>not</u> be allowed to decide to install POST in public places, and just about half reported that magistrates and courts should be allowed to decide to install POST at specific sites. Overall, many respondents noted that no single body should make installation decisions and the public should be provided an opportunity to debate POST placement locations. The majority of respondents believed that the police, the magistrates, and the courts should have access to POST data, and about half reported the general public should have access to the data. Respondents reported that POST cameras were used for "security purposes," "to stop any potential trouble," "prevent crime," and "general surveillance," although nearly 20% "appeared to have no idea about the purposes of POST without being prompted."

Ditton (2000) conducted opportunity sample interviews in three areas of Glasgow in 1994, 1995, and 1996. Interviews were conducted before and after the implementation of POST cameras in areas where POST was installed and control locations. Ditton did not find evidence that the installation of POST decreased fear of crime. Age and gender were strong predictors of attitudes, with males more likely than females and young people more likely than older people to express concern about POST cameras. Support for police viewing the images was high and did not change over time, and just over half reported that the presence of cameras would make them feel safer. Age was positively correlated with all three responses but gender was not; older respondents were more likely to express supportive attitudes toward POST programs.

The Bennett and Gelsthorpe (1996) survey of people in Cambridge, England found that the public generally supported the installation of POST cameras in public places. The public also believed that POST was effective in deterring and detecting crime, and preventing fear of crime (approximately 70% of both genders in all three categories). The study also found a strong bivariate correlation between support for POST and age, gender and fear. Older respondents, females and those reporting greater levels of fear were more likely to support POST programs. However, the effect of gender disappeared in the multivariate analysis, suggesting that gender was only linked to support for POST through fear.

Sarno et al (1999) interviewed individuals in a London borough and found that more than half believed crime had fallen post-implementation of the POST program. Respondents who were aware of the presence of POST cameras reported feeling safer as a result of its implementation. The vast majority of respondents believed that POST helps to catch criminals, and two-thirds believed cameras deter crime and increase perceptions of public safety. Overall, about half of respondents reported that the presence of POST cameras in an area made them feel more positive about the area. There were no differences in responses by gender.

Gill and Spriggs (2005) conducted pre- and post-implementation surveys in 12 sites with control areas for 7 locations. The authors found statistically significant decreases in fear of victimization in 25% of the sites, and perceptions of safety increased in all but 1 site post-implementation, although none significantly. POST schemes were not reported to lead to behavior modification and did not keep people out of monitored areas. However, in residential areas where POST was used, the proportion of those surveyed who thought POST would have a positive impact decreased following its installation.

Gill, Bryan, and Allen (2007) surveyed individuals in eight residential areas in the U.K., both before and after the installation of POST, to determine levels of victimization, fear of crime, avoidance, and support for POST. The survey included both pre- and post-installation measures in both treatment and control areas and random sampling was used to select the households for questioning. Fear of crime decreased in treatment areas after implementation of POST while those in control areas reported no change in levels of fear. Reports of avoidance behaviors decreased after implementation of POST in treatment areas but not in control areas, more so during daylight hours than dark hours. Overall, support for the introduction of POST was high both pre- and post-implementation, but support fell after implementation.

Using "the public" to assess the merits of POST does not always mean relying on surveys of the general public. Short and Ditton (1998), in order to find out if POST actually leads to reductions in crime rather than displacement of crime, interviewed 30 "offenders" on probation or doing community service in Airdrie (the first Scottish town to install POST) in 1996. All but three were men and most were in their teens or early 20s. Most (17) had been charged with non-property offenses including breach of the peace, assault, drunk and disorderly, and possession of drugs. None of the 30 could be considered "career criminals," although many had prior records. Of the total sample, almost half had heard about local POST from initial media accounts in 1992. Most believed the police watched the captured images, but no one knew exactly when cameras were implemented. Most had a good idea of the areas that could be viewed by cameras, and most understood the purpose of the POST cameras. Eight of the 30 offenders reported POST had no impact on their offending, but 12 said it did have an impact.

While there seems to be widespread acceptance of POST programs in the U.S. (Reuters, 2009), no empirical analysis has been conducted about attitudes toward POST. Only one report on crime reduction as a result of POST in the U.S. (Las Vegas) included data on community attitudes (Sousa & Madensen, 2008), but little detail is provided in the report. The survey of less than 100 residents who lived in apartment buildings around the area where POST cameras were installed found that respondents were generally positive about the impact and supportive of expanding the program.

Absent empirical research on attitudes toward police use of POST in the U.S., there have been several national opinion polls conducted over the last decade that present mostly positive attitudes toward police use of POST, at least for terrorism prevention. Starting shortly after the September 11th, 2001 terrorist attacks in the U.S., Harris⁷ polls asked approximately 1,000 survey respondents if they would favor or oppose "some increased powers of investigation that law enforcement agencies might use when dealing with people suspected of terrorist activity, which would also affect our civil liberties." One of the items was "Expanded camera surveillance on streets and in public places." Nearly two thirds of respondents stated that they favored increased use of surveillance cameras for "dealing" with terrorist activity in September 2001, falling to a low of 58% the following March. The last time the item was included in a national survey was 2006, when a high of 70% said they would favor police use of POST.

During some of the same polls, Harris asked respondents about their confidence levels that "U.S. law enforcement will use its expanded surveillance powers in what you would see as a proper way, under the circumstances of terrorist threats?" In the aftermath of the September 11th terrorist attacks, nearly nine in ten (87%) respondents reported confidence in law enforcement. The same question was asked in two subsequent polls and nearly three in four expressed confidence.

Table I								
CONFIDE	ENCE IN L	AWENFOR	CEMEN	T TO USE	SURVEIL	LANCE APP	PROPRIATE	LY

				Not Sure /			Not
		Very	Somewhat	Decline to	Not	Not Very	Confident
Date	Confident	Confident	Confident	Answer	Confident	Confident	at all

⁷ Harris Interactive is a market research firm.

Sep 2001	87	34	53	1	12	8	4
Mar 2002	73	12	61	3	23	17	6
Feb 2003	74	22	52	2	23	14	9

In 2009, a Harris poll (commissioned by a video-analytics software development company) of approximately 2,400 adults (Reuters, 2009) found that a whopping 96% felt that law enforcement agencies should be able to use video surveillance both to counteract terrorism and to provide protection in public places. More than half (54%) responded that they would support the use of stimulus funds to install POST cameras for reduce crime reduction.

In 2010, a Financial Times / Harris Poll (Harris Interactive, 2010) asked approximately 7,200 respondents in seven countries about surveillance by their local governments.

Specifically, pollsters asked:

Following the failed attempt to explode a bomb on a plane in America on Christmas day, certain measures to increase not only airline security, but also security measures in other locations, are being discussed. How much do you agree or disagree with the following statements about some of these measures? There is already too much surveillance of individuals by the government.

Respondents in the U.S. were nearly evenly split between agree (32%), disagree (35%) and neither (33%) and thus showed the most divided opinions about use of POST of the countries represented in the Harris poll and in other attitude polls conducted in the U.S. But next to Italy (where only 25% of respondents agreed that there was too much surveillance), U.S. had the lowest percentage of respondents who agreed (32%): China (34%), France (39%), Germany (38%), Great Britain (39%), and Spain (40%), all had higher rates of agreement that there was too much government surveillance. Interestingly, in China, only 22% of respondents disagreed that there is too much government surveillance, but 43% neither agreed nor disagreed.

In 2011, an Associated Press / NORC poll asked nearly 1,100 survey respondents about specific policy measures related to public places in the United States. Specifically, respondents

were asked "Do you favor, oppose or neither favor nor oppose the installation of surveillance cameras in public places to watch for suspicious activity as a way of responding to terrorist threats?" Nearly three quarters of respondents favored the installation of POST cameras for the purposes of capturing license plates and only 14% opposed. Slightly more than 70% of respondents favored POST cameras to "watch for suspicious activity" and two in ten opposed.

Other than media opinion polls published in newspaper articles or broadcast during news reports, this author is not aware of any studies that have been conducted on the public's attitude toward POST in the U.S. Given that the rate of adopting POST in the United States seems to be increasing exponentially, research on public attitudes about this type of surveillance system is critically important. Since the 1980s, American society has been living in the "community era" of policing (Kelling & Moore, 1988), where consultation with the public is a fundamental principle for the police, and we are now entering the "information technology era" of policing (Rosenbaum, 2007). Thus, with the blending of these two paradigms, arguably there is an imperative to seek public input about the use of surveillance technology in the public safety arena. Feedback from the public may provide important information to law enforcement about the possibilities and limitations on the use of this crime control strategy. The present study will analyze community survey data gathered in 2007 and 2010 specifically asking residents about the POST program that is the focal point of this case study.

Limitations / knowledge gaps

Much extant research on the effectiveness of POST focuses on quantifiable outcomes, while simultaneously noting the difficulty in isolating the impact of camera installation and cautioning against drawing definitive conclusions about effectiveness. Laycock and Clarke (2001) argued that while U.K. crime control policies are driven by research on crime prevention strategies, the opposite was true in the U.S.; the U.S. research agenda was designed to support existing policy and little governmental investment has been made in the study of situational crime prevention. Researchers and practitioners often noted that POST is not a panacea and cannot be expected to be a single strategy that will lead to significant crime reductions. Small or null effects point to the need for a more in-depth assessment of POST programs and policies, rather than just outcome measures, as was the case in the San Francisco evaluation.

Criminal justice scholars have begun to explore the process of innovation diffusion in law enforcement (Skogan & Frydl, 2004; Weisburd & Braga, 2006), yet our knowledge of POST in particular is limited. When it comes to making decisions about the adoption of crime control strategies at the local level, Rosenbaum (2002), in his assessment of numerous multi-agency partnerships, argues that non-law enforcement agencies and community leaders are typically under-represented at the decision-making table.

The actual financial investment in police POST programs by governments at the local, state, and federal level is unknown, but assumed to be huge. Equipment, infrastructure, software, and human resources are all part of the massive cost of surveillance technologies and are not simply one-time start-up costs. Rather, as technology changes, costs associated with maintenance, replacement, upgrade, infrastructure capacity, and storage are sure to be on-going.

Little is known about how the public in the U.S. feels about police use of POST. It appears that the public supports surveillance generally as a tool against terrorism. However, many police agencies use POST for additional purposes outside of that scope. The general sentiment as represented by media accounts suggests that people in the U.S. find the police use of POST acceptable, but this has not been empirically established. In light of these knowledge gaps, this dissertation research digs deeper to understand how POST operates in practice rather than to look for statistical impacts on crime. This study includes analysis of survey data regarding attitudes toward POST gathered from two separate samples in one large city. Additionally, the research examined in depth a POST program that was implemented in a large Midwestern city, beginning with the planning process involved in the development of POST and the development of policies regarding implementation. In an effort to contextualize the use of POST, this research considers both active and forensic uses of surveillance data, including information regarding the frequency of use. The case study program is also compared against what is known about police POST programs in other large cities in the U.S.

Research Questions and Hypotheses

Surveys regarding attitudes toward surveillance found that the public generally supports police POST in the U.K. (Bennett & Gelsthorpe, 1996; Bryan, & Allen, 2007; Ditton, 2000; Honess & Charman, 1992; Sarno, Hough, & Bulos, 1999). Public opinion polls show that U.S. respondents are also generally supportive of police use of POST for both terrorism and crime prevention (Taylor, 2001; 2002a; 2002b; 2003; "Harris Poll Shows", 2009) and have confidence that police will use POST appropriately (Taylor, 2001; 2002a; 2002b; 2003). But there is a pronounced lack of surveys that measure attitudes toward police POST in the U.S.

This dissertation examined factors that predict willingness to support public surveillance. Most surveys regarding attitudes toward surveillance have found that the public generally supports police POST, but that support varies by subgroups within the population. Research has shown that fear of victimization is highest among females, elderly persons, non-whites, low income earners, and people who live in urban environments (Liska, Sanchirico & Reed, 1988; Hale, 1996). Age and gender are thought to be associated with fear due to feelings of vulnerability that may be addressed by POST. Prior research also indicates that females, older respondents, and those with greater levels of fear are more likely to support POST programs than other respondents. This may be because those who feel more vulnerable to the threat of crime will be more likely to support strategies to reduce the perceived threat. POST could be seen as a tool to do just that.

Therefore, the following hypotheses are posited:

Hypothesis 1A) Females will support POST more strongly than males;

Hypothesis 1B) Older respondents will support POST more strongly than younger respondents; and

Hypothesis 1C) Respondents who express higher levels of fear will support POST more strongly than those who report less fear.

This research also explored associations between victimization experiences, crime conditions in a given neighborhood, and attitudes toward POST. Victimization is an upsetting event that causes individuals to take precautions to avoid future victimization (Skogan & Maxfield, 1981; Liska et al, 1988). POST may be perceived as a tool to prevent victimization (e.g.: by acting as a capable guardian). Therefore:

Hypothesis 2A) Community members who have been victims in the past year will be more supportive of POST than those who have not been victims; and

Hypothesis 2B) Community members who live in high-crime neighborhoods will be more likely to support the use of POST than those who live in lower crime neighborhoods.

The research also examined the question of whether living in public housing influences support for POST. Public housing residents are more likely to have regular interaction with

governmental agencies than those who do not live in public housing. As a result, public housing residents may be more comfortable with or have greater trust in public agencies than those who do not have similar levels of regular interaction. Therefore:

Hypothesis 3) Community members who are residents of public housing will be more likely to support police use of POST than people who are not residents of public housing.

A competing explanation would be that public housing residents live in neighborhoods with higher levels of crime and as a result may be more fearful than those who do not live in public housing. To test this competing hypothesis, the analysis controlled for levels of fear and crime in the area where the respondent lived.

Fourth, what factors contribute to the decision to implement a POST program? The current research explored the factors that contributed to the decision to implement POST in major city police departments. Additionally, the research examined the extent to which police departments incorporated extent empirical findings regarding POST when considering the implementation of POST programs.

Finally, how are POST used by law enforcement? There is little reliable information on the use of POST data and how often they contribute to arrests or prosecutions. While some research provides anecdotal information about specific uses of POST data, King et al (2008) is the only study showing that POST data are rarely useful to prosecutors. The costs of POST programs are not insignificant and government funding largely supports the implementation and maintenance. In order to develop a more complete picture of costs and benefits, a more thorough analysis is needed of the ways in which POST data are used. Therefore, this research included an in-depth examination of the uses of POST equipment and the resulting data in one large police department in the U.S.

III. METHODS

This dissertation is largely exploratory and descriptive, and includes data from multiple sources that are analyzed to develop a more nuanced understanding of the use of public surveillance technology. Data were collected from two separate community surveys, interviews with key informants, secondary data analysis (including both quantitative data and interviews), and analysis of existing public information about POST in several cities.

All data included in the analyses were approved under University of Illinois at Chicago (UIC) Institutional Review Board (IRB) Protocol 2010-0083. Secondary data were approved under UIC protocol #2006-0553 and the Urban Institute IRB in 2008.

Community Surveys

As noted in the literature review, while there have been some attempts to understand public attitudes toward public surveillance in the U.K., in the U.S. knowledge about attitudes toward public overt surveillance technology (POST) have been conducted by either media outlets or market research firms and did not explore relationships between variables. Attitudes toward the use of POST may not be markedly different than they are in the U.K., but that has yet to be established empirically.

This dissertation includes analysis of responses collected from two distinct populations who participated in surveys regarding attitudes toward POST. Two surveys were conducted in a single city that included similar and identical items about POST, thus allowing for comparisons between populations. The first survey (referred to as "open community survey") was conducted via the internet and was open to anyone in the city who chose to respond. The second survey (referred to as "public housing resident survey") was open only to public housing residents who attended one of a number of regularly scheduled resident meetings.

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Open Community Survey

Survey purpose.

The first community survey was administered as part of a National Institute of Justicefunded research project about policing techniques and strategies in one large Midwestern city (Alias Reference 54)⁸. The purpose of the internet survey was to collect data on attitudes toward a number of policing strategies. POST was included as one of those strategies.

Data collection strategy.

The open community survey was administered on-line or over the phone, and respondents were provided with instructions at which time they had to indicate consent to proceed. See Appendix 3.1 for survey instructions. This survey was designed and posted online using Perseus SurveySolutions® software, and made available to the general public. It took approximately 20 minutes to complete.

Recruitment strategy.

Participants were recruited with two common strategies for internet surveys: webpage advertisement and email list solicitation. With the webpage advertisement strategy, all internet users who visited a particular webpage were invited to participate in the survey. An invitation to participate and a graphic link to the survey were posted on the websites of the local police department and the university partner from April 16, 2007 through August 31, 2007.

With the email list solicitation strategy, persons on an electronic mailing list were sent an invitation to complete the survey. A mass email regarding the survey was sent to all residents who had signed up to receive email updates from the police department. A second mass email

⁸ In order to obscure the identity of the city used in the case study, any direct reference to that city was provided an "Alias Reference" number. A master list of these references was provided to the committee chair for verification.

was sent to students, faculty, and staff of the university partner. Both mass emails introduced the survey and provided a direct link to the survey webpage.

Additional strategies were developed to increase the diversity of the sample. First, a local television station affiliated with a major network included a segment on the evening news announcing the availability of the survey, and advising viewers how to participate. Second, 25 of the city's largest community-based organizations agreed to engage in a variety of efforts to encourage their clientele to complete the survey. These efforts included posting the survey on their website, posting flyers in their buildings, and sending a mass email to persons on their distribution lists.

Survey measures.

Eighteen questions about the police use of public surveillance technology were included in the survey instrument (see Appendix 3.2). Many of these questions were used in other published articles regarding attitudes toward public surveillance (Bennett & Gelsthorpe, 1996; Ditton, 2000; Gill, Bryan, and Allen, 2007; Honess & Charman, 1992; Spriggs et al, 2005). Factor analysis was performed in order to reduce the number of dependent variables that were available to be included in regression analysis.

Public Housing Resident Survey

Survey purpose.

In 2009, a public housing agency in the same large Midwestern city received federal funding to install approximately 3,000 CCTV surveillance cameras in and around nearly 60 family developments and senior buildings. In order to provide information back to the federal government about the impact the funding had on their residents and the larger community, the public housing agency, mayor's office, and the local police department designed an optional pre-

and post-implementation survey focused on resident's perceptions of safety and efficacy of POST. Analysis in this research was conducted only using the pre-implementation survey sample.

Data collection strategy.

The local public housing agency holds monthly resident meetings at each property, open to any resident of that property. These meetings are run by employees of the housing agency. During monthly resident meetings in early 2010, at each of the locations where the surveillance cameras would be installed, public housing agency employees discussed the planned implementation of surveillance cameras and then provided residents with an optional, anonymous survey on paper about their perceptions of the use of public surveillance technology. The public housing agency employee then provided time to the residents so that they could complete the survey if they chose to do so. Employees also provided residents the opportunity to ask questions about the survey generally, as well as specific to the survey instrument. In a few locations, housing agency employees read the questions out loud to residents in the order they appeared on the survey. Paper surveys were then collected by housing agency staff.

Recruitment strategy.

Surveys were distributed to all residents who attended one of the regularly scheduled monthly meetings for residents. Respondents were encouraged to complete the survey, with the explanation that it would help the housing authority to understand resident attitudes about the cameras that were scheduled to be installed. However, the survey was voluntary and residents were told they did not have to complete the survey. Time was provided for questions and to complete the survey, and in some cases the questions were read aloud to residents.

Survey measures.

Fifteen questions about the police use of public surveillance technology were included in the survey instrument. The public housing resident survey was developed after the open community survey had been conducted, and by individuals who had participated in the open community survey design. As a result, many of the survey items in the public housing survey were adopted from the open community survey.

The initial draft of the public housing survey contained all of items from the open community survey and other additional items regarding POST. However, the housing authority did substantial editing of the survey instrument, which was also reviewed by at least one public housing resident. As a result, the final survey contained many fewer questions than the initial draft, and less than the open community survey. A full list of questions asked on the survey is included in Appendix 3.3. In total, the two surveys had 10 questions about POST in common.

Combined Surveys Dataset

Survey purpose.

As noted above, the two independent survey datasets were analyzed using the same techniques in order to reveal difference or similarities between the populations. In order to determine if significant differences exist between the two survey populations, data from both surveys were combined into a single dataset and the analyses performed on the separate surveys were repeated.

Data collection strategy.

While the combined dataset included common variables from each dataset, some slight modifications had to be made. First, the coding on the community survey had "strongly agree" as 1 and "strongly disagree" as 4 while the public housing data was coded with "strongly agree"

as 4 and "strongly disagree" as 1. Therefore, the codes in the open community survey were reversed to match the public housing survey data. Additionally, while each dataset had a measure of index crime by beat in the year in which the surveys were conducted, the open community survey was administered in 2007 and the public housing resident survey was administered in 2017. Analysis revealed that these two variables were highly correlated. Therefore, the measure of crime used in the combined data set was the average of these two scores. Finally, one variable was created to indicate if the respondent had participated in either the public housing survey or the open community survey.

Recruitment strategy.

No recruitment strategy was unique to this dataset, as it was composed of data from the two survey datasets discussed earlier.

Factor Analysis.

Factor analysis was performed for all three datasets in order to reduce the number of dependent variables to meaningful dimensions and increase the reliability of measurement. The factor analysis was the same for all three data sets. First, the survey data was factor analyzed independently for common items. The two original datasets (open community survey and public housing resident survey) shared 10 items about attitudes toward public surveillance that had highly similar wording (see Table II). The only difference was that the open community survey was worded in present tense, while the public housing resident survey was worded in future tense. The Likert scale coding for the open community survey was reversed to be consistent with the public housing survey. Thus, agreement with positive statements would produce a higher score.

Table II ITEMS IN COMMON IN BOTH SURVEY DATASETS Open Community Survey

Preface Statement: Please give your opinion about the visible blue-light cameras installed by the [local] Police Department throughout the city.

Public Housing Resident Survey Preface Statement:

Please provide your opinion on each of the statements below if surveillance cameras were implemented in your neighborhood:

Variable Name		Pos /		Pos /
	Item	Neg Stmt	Item	Neg Stmt
Improve Safety	The cameras improve neighborhood safety		Surveillance cameras will improve neighborhood safety.	
Prevent Crime	The cameras prevent criminals from committing crimes	+	Surveillance cameras will prevent criminals from	+
No Effect	Cameras do not have an effect on neighborhood crime	+	Surveillance cameras will not have an effect on neighborhood crime.	+
Cost Effective	Cameras are a cost effective way to improve safety	+	Surveillance cameras will be a cost effective way to improve safety.	+
Safe Message	Cameras send a message that a neighborhood is safe	+	Surveillance cameras will send a message that the neighborhood is safe.	+
Neighborhood Dangerous	The presence of cameras sends the message that a neighborhood is dangerous	-	Surveillance cameras will make it look like my neighborhood has a crime problem or is dangerous.	-
Approve	I would like to have (do like having) a camera in my neighborhood	+	I approve of having surveillance cameras in my neighborhood.	+
Feel Safe	Having a camera in my neighborhood would (does) make me feel safe	+	Surveillance cameras in my neighborhood will make me feel safer.	+
Property Value	Cameras have a positive impact on property values	+	Surveillance cameras will have a positive impact on property values	+
Invasion Privacy	The cameras are an invasion of neighborhood privacy	_	Surveillance cameras will be an invasion of privacy.	_

Open Community Survey.

Factor analysis extraction with Varimax rotation was performed using SPSS on 10 items from the survey of community residents. Three of the items were negatively stated and seven were positively stated. Tests for presence of outliers, absence of multicollinearity, and factorability were conducted to test for the appropriateness of factor analysis. All items were normally distributed.

The dataset was analyzed for missing values and while the number of cases with missing values was small, most respondents who skipped one of the attitude questions, failed to complete much of the survey. Cases where the respondent failed to answer the majority of attitude questions were excluded from the analysis.

Two components were extracted. Communality values ranged from .341 to .650, (from poor to very good, according to Tabachnick & Fidell, 2001). Only variables with loadings of .32 and above were interpreted (Tabachnick & Fidell, 2001), with a cut-off for inclusion of .3, all variables loaded on one of the two factors.

Factors interpreted as "positive attitudes" and "negative attitudes" were negatively correlated (r = -.344, n = 1323, p < .001). Loadings of variables on factors, communalities, and percent of variance and covariance are shown in Table III. Variables are ordered and grouped by size of loading to facilitate interpretation. Loadings under .3 are not reported.

Variable	Factor	Factor
variable	1	2
Prevent Crime	.805	
Improve Safety	.805	
Feel Safe	.786	
Cost Effective	.785	
Approve	.742	
Safe Message	.720	
Property Value	.650	
Invasion Privacy		.620
Neighborhood Dangerous		.607
No Effect		.584
Eigenvalueas	4.494	1.744
Percentage of total variance	44.937	17.437
Chronbach's alpha	.904	.623

Table IIIOPEN COMMUNITY SURVEY FACTOR LOADINGS

Public Housing Resident Survey.

Factor analysis extraction with Varimax rotation was performed using SPSS on 10 items from the survey of the public housing residents. Tests for presence of outliers, absence of multicollinearity, and factorability were conducted to test for the appropriateness of factor analysis. The negative statements were normally distributed or slightly skewed, but the positive statements were all negatively skewed (see Table II above for positively and negatively phrased statements). According to Tabachnick and Fidell (2001) assumptions regarding distributions are not in force in factor analysis as long as the analysis is used descriptively.

The dataset was also analyzed for missing data. Overall, across the variables examined, the number of missing cases was small. However, when missing cases existed there appeared to be a pattern: most respondents who skipped one of the attitude questions, failed to complete much of the survey. Cases where the majority of questions were not completed were excluded from the analysis.

Two components were extracted. Communality values ranged from .386 to .757 (from poor to excellent), and only variables with loads of .32 and above were interpreted (Tabachnick & Fidell, 2001). With the cut-off for inclusion of .3, all items loaded into one of the two factors.

Factors interpreted as "positive attitudes" and "negative attitudes" were negatively correlated (r = -.172, n = 2617, p < .001). While they were statistically significantly correlated, the relationship between the two factors was weak. Thus, it appeared that the two factors were measuring two different concepts and are not mirror images of each other. Loadings of variables on factors, communalities, and percent of variance and covariance are show in Table IV. Loadings under .30 are not reported.

	Factor	Factor
Variable	1	2
Improve Safety	.870	
Feel Safe	.831	
Safe Message	.780	
Property Value	.765	
Approve	.759	
Cost Effective	.747	
Prevent Crime	.712	
Neighborhood Dangerous		.644
Invasion Privacy		.638
No Effect		.619
Eigenvalueas	4.717	1.828
Percentage of total variance	47.166	18.279
Chronbach's alpha	.918	.666

Table IVPUBLIC HOUSING RESIDENT SURVEY FACTOR LOADINGS
Combined Survey Dataset.

In order to obtain a better understanding of the variables that have an impact on attitudes, the two datasets were combined into a single dataset that contained responses to all common questions. One additional variable was created to indicate whether the respondent was a public housing resident or not. Scale items from the community survey were recoded so all responses were going in the same direction in the combined dataset. A new measure that included both 2007 and 2010 index crime data was created.

Factor analysis extraction with Varimax rotation was performed in SPSS on 10 items from the combined survey dataset in order to reduce the number of dependent variables that were available to be included in the regression analysis. A test for correlation between the dependent variables found they are significantly correlated (r = -.145, n=3,929, p < 0.001), although the level of correlation is not of concern (Tabachnick & Fidell, 2001).

All of the variables except "invasion of privacy" (which was slightly positively skewed) and "no effect" (which was normally distributed) were slightly negatively skewed. Attempts to reflect and square root the variables to transform them resulted in variables that were moderately positively skewed, so the factor analysis was conducted with the original, slightly skewed variables intact. Furthermore, assumptions about distribution are not in force since the factor analysis is used to summarize relationships in a large dataset.

Two components were extracted. Since Varimax rotation was used, the factor correlation matrix is not relevant because the correlations between the factors are set to 0. Communality values were not low (ranging from .375 to .824), with .3 as the cut off for inclusion of a variable, all items loaded into one of the two factors.

Just as in the two previous analyses, two factors were revealed, including the same items as previous analysis. As expected, factors interpreted as "positive attitudes" and "negative attitudes" were negatively correlated (r = -.145, n=3929, p < .001). Loadings of variables on factors, communalities, and percent of variance and covariance are show in Table V. Variables are ordered and grouped by size of loading to facilitate interpretation. Loadings under .30 are not reported.

Table VCOMBINED SURVEYS DATASET FACTOR LOADINGS

Variable	Factor	Factor
variable	1	2
Feel Safe	0.907	
Improve Safety	0.881	
Approve	0.865	
Safe Message	0.865	
Cost Effective	0.842	
Property Value	0.839	
Prevent Crime	0.788	
Invasion Privacy		0.622
No Effect		0.604
Neighborhood Dangerous		0.537
Eigenvalueas	5.548	1.688
Percentage of total variance	55.476	16.885
Chronbach's alpha	.950	.646

Final Measures

As discussed above, factor analysis was performed on all data sets. The variables listed in Table V factored similarly; in all data sets two factors were identified and these two factors included the same variables. The first factor seems to be defined by positive assessments of POST effectiveness, ranging from improved safety to better property values. Thus, a Positive Attitudes Index was computed (alpha = .950) using the following variables: Improve Safety, Prevent Crime, Cost Effective, Safe Message, Approve, Feel Safe, and Property Values. The second factor is defined by neutral or negative assessments of POST. Hence, a Negative Attitudes Index was computed (alpha = .646) using the following variables: No Effect, Neighborhood Dangerous, and Invasion Privacy.

Dependent Variables.

Using the attitudinal indexes as the dependent variables, six hierarchical regression models were created using variables in common between the two data sets. Models 1, 3, and 5 ("positive attitudes" as dependent variable) were compared to determine if there are differences in attitudes toward surveillance between the two populations. Models 2, 4, and 6 ("negative attitudes" as dependent variable) were also compared. Prior to running regression analysis, univariate and bivariate analysis were conducted, and correlations among independent variables to ensure that hierarchical linear regression were appropriate analyses.

Independent Variables.

Race/Ethnicity was included in the regression analysis using three dummy coded variables, *African-American* (0=No, 1=Yes), *Hispanic* (0=No, 1=Yes), and *Asian / Native American* (0=No, 1=Yes), with White being the omitted reference category. This measurement strategy necessitated the omission of a small number of survey respondents from the sample; members of other racial/ethnic groups. A large majority of the city population is White, African-American, or Hispanic, and a correspondingly large percentage of our survey sample was composed of persons from these racial/ethnic groups. *Age* was included in the open community sample as a continuous variable measured in years. The survey instrument for the public housing

resident survey included age categories; therefore age could not be ungrouped so these categories were used to code age in the open community survey for all respondents in the final sample. The public housing resident survey sample was very skewed with those age 61 years or older comprising two thirds of total respondents. *Gender* was dummy coded for females (0 = No, 1 = Yes).

Additional independent variables were selected based on their inclusion in previous studies about attitude toward surveillance. As noted earlier, prior research found that age, gender, and prior victimization are important predictors of attitudes toward surveillance. *Prior Victimization* was a dichotomous variable indicating whether the respondent had been a victim of violent or property crime in the last year (0 = No, 1 = Yes). This variable was created using responses to the following "yes/no" questions: Has anyone physically attacked you? Has anyone broken into your home to steal something? Has anyone stolen something directly from you by force, or after threatening you with harm? Have you had anything stolen that you left outside, including motorcycles or bicycles? Has anyone stolen, damaged, or taken something from your car or truck?

To determine if feelings of neighborhood safety was related to our dependent variables, *Feel Safe Alone at Night* (0 = No, 1 = Yes) was included in the regression analysis. In order to create the *Feel Safe Alone at Night* variable, data from responses to two highly similar questions were used. The open community survey asked "How safe do you feel or would you feel being alone outside in your neighborhood at night?" The public housing resident survey included the item "How safe do you feel or would you feel being alone in your neighborhood at night?" Respondents could select "Very safe," "Somewhat safe," "Somewhat unsafe," and "Very unsafe," or "Don't know." Finally, in order to determine whether levels of neighborhood crime had an impact on respondent's attitudes toward POST, a measure for crime was included in the analysis. *Violent Index* was created using the total number of reported violent index incidents (murder, criminal sexual assault, aggravated assault or battery, and robbery) on the beat in which the respondent lived in the calendar year the survey was issued (2007 and 2010). These numbers were then divided into quartiles, with 1 being the lowest quartile for violent index incidents and 4 the highest. The quartiles are included as the independent variable.

Hierarchical regression was the final analysis conducted, with the demographic "control" variables (age, race and gender) entered in the first block and the other independent variables entered in the second block (prior victimization, violent index on the beat, feelings of neighborhood safety). Six hierarchical regression models were built in total: three datasets each with one "positive attitudes" dependent variable and one "negative attitudes" dependent variable. Hierarchical regression was used to evaluate the relationship between the independent variables and the dependent variable, taking into account the impact of demographic characteristics on the dependent variable.

Final Sample Description

Open community survey.

Using recruitment the strategies described above, 1,334 surveys were completed. Of these, 24 respondents did not provide a response and 102 responded "Prefer Not to Answer" to a survey item asking the respondent's race/ethnicity. Missing data analysis revealed that those who reported their race did not respond differently on our dependent variables than those who did not report their race. Thus, we had little reason to believe that those who did not report their race had systematically different attitudes toward surveillance.

As summarized in table VI, just over half of respondents were female, and less than 10% were age 61 years or older. The majority of respondents were white (68.8%), and 63.2% said they felt "somewhat" or "very" safe being alone outdoors in their neighborhood at night. Just under half of the respondents (49.7%) reported being a victim of crime in the past year, and three quarters lived in police beats in the lower quartiles of violent index crime in 2007.

OPEN COMMUNITY SURVEY FINAL	SAMPLE	
	f	%
Female	604	52.0
61 Years or Older	102	8.9
Race/Ethnicity		
White	829	71.9
African American	187	16.2
Hispanic	137	11.9
Feel Safe at Night (very or somewhat)	747	63.7
Prior Victimization	585	48.8
Quartile Viol Index Beat		
Lower (1 & 2)	749	75.0
Upper (3 & 4)	250	25.0

Table VIOPEN COMMUNITY SURVEY FINAL SAMPLE

Public housing resident survey.

A total of 2,829 individuals completed the survey in whole or part. The majority of respondents in the public housing resident survey were female (63.3%) and age 61 years or older (71.9%), much greater than in the general population. Also departing from the general population, almost 70% of respondents reported that they were black, and 12.4% reported they were white. Seven in ten respondents reported that they felt safe being alone in their

neighborhood at night, and less than 1 in 4 (23%) said they had been victims of crime. Nearly two thirds (66.1%) lived in beats in the lower quartile for violent index crime in 2010.

	f	%
Female	1,404	62.7
61 Years or Older	1,526	68.8
Race/Ethnicity		
White	328	13.9
African American	1,844	77.9
Hispanic	196	8.3
Feel Safe at Night (very or somewhat)	1,555	69.5
Prior Victimization	507	23.4
Quartile Viol Index Beat		
Lower (1 & 2)	1,450	62.6
Upper (3 & 4)	865	37.4

Table VIIPUBLIC HOUSING RESIDENT SURVEY FINAL SAMPLE

Combined surveys dataset.

The combined surveys data set contained 4,241 cases, of which a total of 2,937 cases were valid (listwise). Where the information was documented (see Table VIII), just over half of the respondents were 61 years of age or older (51%), black (52.2%), and female (59.1%). Almost one in three respondents (29.6%) reported they had been a victim of a burglary, theft from vehicle or theft of something left outside, robbery, or battery. More than two thirds responded "somewhat" or "very safe" when asked "How safe do you feel or would you feel being (alone) in your neighborhood at night?" Approximately two thirds (68.7%) lived in police beats that were in the lower half of the Index crime rates compared to 31% who lived in the

upper half. Just over two thirds of valid cases were respondents to the public housing resident survey.

Table VIIICOMBINED SURVEYS DATASET FINAL SAMPLE

	f	%
Female	2,008	59.0
61 Years or Older	1,628	48.5
Race/Ethnicity		
White	1,209	33.9
African American	2,031	56.9
Hispanic	327	9.2
Feel Safe at Night (very or somewhat)	2,302	67.5
Prior Victimization	1,031	30.1
Quartile Viol Index Beat		
Lower (1 & 2)	2,215	66.8
Upper (3 & 4)	1,100	33.2
Public Housing Survey Respondent	2,368	66.4

Case Study

While many municipalities have used or are currently using public surveillance technology systems, significant detailed documentation has not been published any one POST project, from inception to how the data are being used. To fill this void, the author developed a detailed description of the public surveillance program in one city using multiple data sources, including interviews with employees and decision makers (10 original interviews, and 18 provided by another agency that conducted research on POST in the study city (Alias Reference 8 – see next paragraph for explanation of "Alias References"), news articles, department documents and publications (including written policies), and summary data to document how the department uses POST and the resulting data. Additionally, many informal conversations with employees of the city and the police department helped to inform this research.

Interviews with individuals involved in this project revealed reluctance on the part of many to provide information. For this reason, the identity of the case study city is not provided. References that make explicit the city being discussed were coded as "Alias References" and the master list of these references was provided to the committee chair in order to verify the legitimacy of the articles.

High-ranking individuals within the police department in the case study city provided the researcher with access to POST in three separate locations for observation purposes. In all three settings, the use of POST was scheduled for the benefit of the author's observation and the monitoring was for demonstration purposes only. The observations were interactive, with the researcher asking questions and the participants setting up situations and using the technology to demonstrate its functionality.

Scan and Survey of Police Agencies

Only a few summary reports have been published about the use of POST by police agencies in the U.S. (IACP, 2002; Neito, 1997). The purpose for the scan and survey of other police agencies was to increase knowledge about the decisions to implement and usage policies of POST programs in some of the larger U.S. cities, and to develop a context in which to understand the case study city POST program. In this research, a basic matrix was created as a data collection guide to compare and contrast existing POST programs on key variables.

Original survey research design and outcome.

In order to contextualize how the case study city compares to other cities in their use of public surveillance technology, a request was made to other cities to complete a brief telephone survey containing open-ended questions. The recruitment strategy was twofold. The first strategy was to contact specific individuals within police departments known to be currently or previously using public surveillance technology and either ask them to complete the survey or for a referral to another individual in the agency who would be knowledgeable on the subject. The author made contact with established contacts in departments where such contacts existed and explained to those individuals, either by telephone or via email, the purpose of the contact and then asked them to recommend the most appropriate person to participate in an interview. When contact was made with referred individuals, a recruitment script was used (see Appendix 3.6).

The second strategy was to "cold call" police departments known to be currently or previously using public surveillance technology and ask to speak to the individual responsible for administration of the POST program. If a number was available on the police department internet website for a research or planning branch, that number was used as the initial contact number. Otherwise initial calls were placed to the general phone number, where the purpose of the call was explained to the individual who answered that number. The person answering the phone was asked to make a referral to the division that had management responsibility for the POST program, and if they did not know the appropriate division they were asked to refer the call to a division that has responsibility for research or planning. Upon being directed to the relevant division, the interviewer explained the purpose of the call to the person who answered the phone. A request was made to speak to the appropriate individual, which was often a supervisor. When initial contact was finally made with the person who was considered an appropriate survey respondent, the interviewer used a recruitment script to explain the purpose of the study and request to either proceed or schedule a time to speak again (see Appendix 3.5).

For those who agreed to participate, at the start of each survey, the subject was read a consent statement (approved by UIC IRB Protocol #2010-0083) and asked to provide verbal consent to continue. When interviews were conducted, they were done using a structured interview guide (see Appendix 3.7). Responses were recorded manually (via computer or "pen and paper"). The subject was only asked to provide a verbal response. When the survey was completed, the subject was asked to refer the interviewer to additional subjects that might be willing to participate.

The convenience and snowball sampling techniques proved ineffective as most contacts declined to participate. After contacting at least one person (but as many as three) in each of 18 cities, a total of five people had agreed to participate. Therefore, in order to learn more about POST programs in comparison cities, the researcher collected police department policies and government statutes or ordinances relevant to POST programs (where available). First, a review of existing publicly available documents was done to complete a matrix of basic program information. These documents included written policies and information posted on official websites of police agencies, and the few published evaluations of POST programs (e.g.: King et al, 2008).

Second, the Urban Institute recently published an evaluation of POST programs in three major cities (Chicago, Washington DC, and Baltimore) that included interviews with investigators, stake holders, prosecutors, and vendors (see Appendix 3.4 for the interview protocol). Secondary analysis of de-identified Urban Institute interview and observation data

was conducted to increase the knowledge about POST in these major cities. Finally, additional information was gathered from media and other sources (e.g.: internet search) wherever possible to supplement information and understanding of U.S. POST programs.

IV. ANALYSIS OF COMMUNITY SURVEY DATA

Little is known about public attitudes toward police use of POST in the U.S. As discussed in Chapter II, most of the empirical analyses on public attitudes were conducted in the U.K. Most available data on attitudes in the U.S. were descriptive, collected during media and other opinion polls which document strong support for law enforcement use of surveillance. These polls were not specific to POST and typically asked for opinions about surveillance to combat terrorism. This chapter presents the results from analyses of two survey datasets collected from residents in a large Midwestern city on their attitudes toward police use of surveillance technology. The samples were comprised of two distinct population groups within the city. The first sample was collected via the internet using convenience sampling. It was, by and large, comprised of middle class individuals living in various neighborhoods in the city. The other dataset, collected voluntarily via paper surveys during tenant meetings, was comprised of respondents who lived in public housing and were predominately older and African American.

Nearly a decade ago, the case study city installed its first wave of POST cameras – less than one hundred - at various locations around the city. The program has continued and as of this writing incorporated thousands of cameras, both publicly (by the police, the transit authority, local schools, etc.) and privately owned. Many, but not all, of these cameras were "federated" to the police network and could be accessed by the police – either in real time (actively) or after the fact (forensically).

The POST cameras were a high-profile police crime reduction strategy from the start. A number of questions about police use of POST were included in a community survey of public attitudes toward police strategies administered in 2007 (see Chapter III). Using scale items from that survey, a second survey was developed and administered to public housing residents in the

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same city. The first ("open community survey") included not only responses to questions about POST and demographic information, but also information on attitudes toward other policing strategies and important measures such as informal social control and efficacy. The second survey ("public housing resident survey") included only responses to questions about POST and demographic information. The two surveys were analyzed using responses to items that were in common between the two datasets. The survey responses were also combined into a single dataset ("combined common survey items") to determine which factors best predict attitudes toward police use of surveillance. This chapter summarizes these analyses.

Hypotheses

Surveys of attitudes in the U.K. toward surveillance found that the public generally supports police POST, and public opinion polls show that U.S. respondents are similarly supportive. However, public attitudes toward POST in the U.S. have not been empirically established. Therefore, this research tested:

Hypothesis 1A) Females will support POST more strongly than males;

Hypothesis 1B) Older respondents will support POST more strongly than younger respondents;

Hypothesis 1C) Respondents who express higher levels of fear will support POST more strongly than those who report less fear;

Hypothesis 2A) Community members who have been victims in the past year will be more supportive of POST than those who have not been victims;

Hypothesis 2B) Community members who live in high-crime neighborhoods will be more likely to support the use of POST than those who live in lower crime neighborhoods; and Hypothesis 3) Community members who are residents of public housing will be more likely to support police use of POST than people who are not residents of public housing.

To test these hypotheses, six regression models (using positive and negative attitudes as dependent variables) were run for both the open community survey responses as well as the public housing resident survey responses. The two datasets were also combined into a single dataset containing responses to the common questions in order to determine which factors best predicted attitudes about POST. Two more regression models (with positive and negative attitudes as dependent variables) were run in the combined survey dataset; those analyses are described following the analysis of the separate datasets.

Findings from the analyses were mixed. The open community survey analysis demonstrates support for Hypotheses 1C, 2A and B (fear, victimization, and neighborhood crime). The public housing resident survey analysis demonstrated support only for Hypothesis 1B (age). Hypothesis 3 is supported by analysis, demonstrating that respondents to the public housing resident survey significantly differed from respondents to the open community survey in their attitudes toward POST.

In total, six different regression models run on three datasets were described in this chapter. The analyses for all three datasets were the same. The chapter is organized as follows. First a description of bivariate analysis of the open community survey is followed by bivariate analysis of the public housing resident survey. Next, a description of the two regression models run on the open community survey dataset are followed by a description of the two regression models run on the public housing resident survey dataset. A comparison of these four regression analyses is next, followed by the analysis of the third dataset, the combined common survey items dataset.

The differences in the dependent variables and their interpretation should be reiterated for the sake of clarity. For each dataset, there were two regression models: one using *positive* attitudes toward POST as the dependent variable (DV 1) and the other using *negative* attitudes toward POST (DV 2). The dependent variables were derived from the factor analysis described in Chapter III. Interpreting the outcomes of the regression analyses can be confusing in that respondents responded to both positive and negative statements. To *agree* with positive statements about POST (DV 1) would indicate support and to *disagree* with positive statements would indicate lack of support. Conversely, to *agree* with negative statements about POST (DV 2) would indicate a lack of support while to *disagree* with negative statements would indicate support. Wherever possible, simplified language was used. For example, "more likely to agree with DV 1" and "less likely to agree with DV 2" were both interpreted as supportive of POST and "less likely to agree with DV 1" and "more likely to agree with DV 2" was interpreted as less supportive of POST. In those cases where outcomes were contradictory – respondents agreed with *both* DV 1 (positive) and 2 (negative) - or vice versa – it is indicated in the text.

Bivariate Analysis – Open Community and Public Housing Resident Survey Data

Open community survey.

Bivariate analyses identified five variables that were significantly related to attitudes toward surveillance: gender, age, prior victimization, feeling regarding safety in the neighborhood at night, and levels in violent index crimes in the beat in which the resident lived during the year the survey was administered (2007).

	Ι	DV1	DV2			
	Positive	e Attitudes	Negative Attitude			
	F	р	F	р		
Female	9.122	0.003**	31.487	0.000***		
Age 61+ Years	41.830	0.000***	18.741	0.000***		
Race	1.437	.238	.118	.889		
Crime Victim	.001	.974	4.657	0.031*		
Feel Safe at Night	1.662	0.173471	2.344	0.0711		
Viol Index Quartile	2.970	0.031*	.368	.776		
Race	Mean	SD	Mean	SD		
Black	2.982	.868	2.636	.797		
Hispanic	2.966	.959	2.597	.846		
White	3.079	.941	2.636	.873		

 Table IX

 OPEN COMMUNITY SURVEY BIVARIATE ANALYSIS

 $^{1}p < .1, *p < .05, **p < .01, ***p < .001$

Race was not significantly correlated with either dependent variable, although it was retained in the hierarchical multiple regression model in order to compare findings with survey results from the public housing survey. Age was significantly related to both positive and negative attitudes (DVs 1 & 2), as was gender. Prior victimization and feelings of safety in the neighborhood at night were only significant (and feeling safe only marginally) in relationship to negative attitudes (DV2). The level of violent index crime in the beat in which the respondent lived was only significant when predicting the positive attitudes dependent variable (DV1).

The direction of the relationship between these variables and attitudes toward surveillance was not always as expected. As hypothesized, crime victims were more supportive of surveillance than non-crime victims, suggesting that prior victimization increases acceptance of public surveillance technology. Respondents who lived in neighborhoods with higher levels of index crimes were more accepting of public surveillance technology than people who live in safer neighborhoods. Contrary to the hypotheses, older and female respondents were less supportive of POST than younger and male respondents.

Public housing resident survey.

Variables were examined at the bivariate level to determine whether there was a statistically significant relationship between the independent and covariate variables and the dependent variable. Variables that were significantly related to the dependent variable at the p < .05 level were then included in the final multivariate models. This process was used to ensure adequate power across all of the models.

	l	OV1	I	OV2	
	Positive	e Attitudes	Negative Attitud		
	F	р	F	р	
Female	3.748	.053 ¹	1.340	.247	
Age 61+ Years	55.919	0.000***	8.735	0.003**	
Race	6.766	0.001**	1.071	.343	
Crime Victim	1.717	.190	2.093	.148	
Feel Safe at Night	13.203	0.000***	14.986	0.000***	
Viol Index Quartile	13.490	0.000***	3.490	0.015*	
Race	Mean	SD	Mean	SD	
Black	3.175	.799	2.413	.891	
Hispanic	3.226	.821	2.514	.976	
White	3.349	.691	2.435	.922	

Table XPUBLIC HOUSING RESIDENT SURVEY BIVARIATE ANALYSIS

p < .1, *p < .05, **p < .01, ***p < .001

Bivariate analyses of the full data identified four variables that were significantly related to attitudes toward surveillance: age, race/ethnicity, feelings regarding safety in the

neighborhood at night, and levels in violent index crimes in the beat in which the resident lived during the year the survey was administered (2010). Age, feelings about neighborhood safety, and the level of violent index crime on the residential beat were significantly related to both positive and negative attitudes. Race was only significant in relationship to positive attitudes about POST.

The direction of the relationship between these variables and attitudes toward surveillance was supportive of hypotheses. As hypothesized, older respondents were more likely to support POST than younger respondents. Respondents who reported feeling less safe in their neighborhood at night were more supportive of POST than those who did feel safe alone at night. Respondents who lived in the neighborhoods with higher levels of crime were more likely to support POST than those who lived in lower crime neighborhoods.

Unlike the open community survey sample, race was significant in the public housing resident survey sample, where white respondents were more supportive than African American or Hispanic respondents.

The variables significant at the bivariate level for each sample – open community and public housing residents - were then analyzed for potential problems with multicolinearity by examining coliniearity tolerances in the coefficients table in SPSS. Multicollinearity exists when sets of predictor variables are highly intercorrelated, skewing the outcome of regression analysis. No problems were identified, and therefore, all of the variables significant at the bivariate level were retained for the multivariate analyses.

Hierarchical Multiple Regression – Open Community and Public Housing Resident Survey Data

Hierarchical multiple regressions were performed to test several hypotheses. Data from both datasets were analyzed separately, but the steps taken were the same in both analyses. First, data was entered in blocks beginning with 1) background characteristics of the respondents - age, race/ethnicity, and gender; and 2) neighborhood public safety variables - prior victimization, levels of violent crime on the beat in which they lived in the year in which the survey was conducted, and feelings of safety in the respondent's neighborhood at night. Hierarchical regression was used to evaluate the relationship between the independent variables and the dependent variable, taking into account the impact of demographic characteristics on the dependent variable.

Open community survey.

Results of evaluation of assumptions led to an attempt to transform one variable to reduce moderate positive skewness (violent index on the beat in which respondent lived). However, square root transformation for moderate positive skewness resulted in moderate negative skewness, thus yielding no noticeable improvement in the variable. Therefore, the variable was not transformed.

With the use of a p < .001 criterion for Mahalanobis distance, 28 outliers were found among the cases with both positive and negative attitudes as the dependent variable. These cases were excluded from the final model. After the first set of exclusions, another 16 outliers were identified using Mahalanobis p < .001. They were also excluded from the final model. A review of the cases that were identified as outliers was conducted to determine if a pattern existed in responses for these cases. The review indicated that all respondents who reported that they were "Asian / Native American" were excluded with those outliers. In order to develop consistent models across all datasets, Asian / Native American respondents were excluded from all regression analyses.

Positive attitudes dependent variable (DV 1). Positive attitudes toward public surveillance were regressed and Table XI displays the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (sri²), and R, R², and adjusted R² after entry of all eight variables. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, R² = .045, F(4, 957) = 11.203, *p* < .001. After the second block, with all independent variables in the equation, R² = .053, F(3, 954) =2.810, *p* < .05. The increase in R² by including the public safety variables was .008. Using a proportional reduction in error interpretation for R², information provided by the public safety variables reduced our error in predicting negative attitudes toward surveillance by less than 1%.

The addition of block two did not significantly change the relationship between any of the control variables and the dependent variables, therefore, the results discussed here were based on the final model that included all independent variables and the dependent variable.

	Block 1			Block 2		
Variable	В	SE B	β	В	SE B	β
Female	13	.06	-0.07*	14	.06	-0.08*
Age 61+ Years	63	.10	-0.07***	63	.10	-0.19***
African American	11	.08	07	.02	.10	.01
Hispanic	15	.09	07	13	.10	04
Violent Index Quartile 2010				09	.04	-0.10*
Prior Victimization				02	.06	01
Feel Safe Alone at Night				.08	.04	0.08*
R^2		.04			.05	
F for change in R^2		11.20			2.81	

 Table XI

 REGRESSION SUMMARY, OPEN COMMUNITY SURVEY DV1 (POSITIVE ATTITUDES)

 $^{1}p < .1, *p < .05, **p < .01, ***p < .001$

Negative attitudes dependent variable (DV 2). Negative attitudes toward public surveillance were regressed and Table XII displays the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (sr_i²), and R, R², and adjusted R² after entry of all eight variables. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, R² = .038, F(4, 957) = 9.448, *p* < .001. After the second block, with all independent variables in the equation, R² = .047, F(3, 954) =3.106, *p* < .05. The increase in R² by including the public safety variables was .009. Using a proportional reduction in error interpretation for R², information provided by the public safety variables reduced our error in predicting negative attitudes toward surveillance by less than 1%.

The addition of the second block did not significantly change the relationship between any of the control variables and the dependent variable, therefore, the results discussed here are based on the final model that included all independent variables and the dependent variable.

		Block 1			Block 2		
Variable	В	SE B	β	В	SE B	β	
Female	.27	.06	0.16***	.29	.06	0.17***	
Age 61+ Years	.34	.10	0.11***	.32	.10	0.11**	
African American	05	.08	02	09	.09	04	
Hispanic	06	.09	02	04	.09	02	
Violent Index Quartile 2010				.04	.03	.04	
Prior Victimization				09	.06	05	
Feel Safe Alone at Night				07	.03	-0.08*	
R^2		.04			.05		
F for change in R^2		9.45			3.11		
p < .1, *p < .05, **p < .01, ***p < .001							

 Table XII

 REGRESSION SUMMARY, OPEN COMMUNITY SURVEY DV2 (NEGATIVE ATTITUDES)

As previously stated, the hypotheses tested were:

Hypothesis 1A) Females will support POST more strongly than males;

Hypothesis 1B) Older respondents will support POST more strongly than younger

respondents; and

Hypothesis 1C) Respondents who express higher levels of fear will support POST more strongly than those who report less fear.

Hypothesis 2A) Community members who have been victims in the past year will be more supportive of POST than those who have not been victims;

Hypothesis 2B) Community members who live in high-crime neighborhoods will be more likely to support the use of POST than those who live in lower crime neighborhoods.

The variables found to be statistically significant in the regression models were gender, age, crime in the residential neighborhood, and fear of victimization. In confirmation of hypotheses H1C, respondents who reported high levels of fear of victimization (afraid to be

alone in their neighborhood at night) were more likely to support POST than those who reported lower levels of fear.

Contrary to the hypotheses H1A and B, H2A and B, women, older respondents, victims of crime, and those living in neighborhoods with higher levels of crime were *less likely* to support POST than males, younger respondents, those who have not been victimized, and those who lived in neighborhoods with lower levels of crime.

Public housing resident survey.

Results of evaluation of assumptions led to an attempt to transform DV 1 to reduce moderate positive skewness. However, square root transformation for moderate positive skewness resulted in moderate negative skewness, thus not significantly improving the skewness this variable. Therefore, the variable was not transformed.

With the use of a p < .001 criterion for Mahalanobis distance, no outliers were found among the cases with both positive (DV 1) and negative (DV 2) attitudes as the dependent variable.

Positive attitudes dependent variable (DV 1). A hierarchical multiple regression was conducted on positive attitudes toward surveillance as the dependent variable. Table XIII displays the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (sri²), and R, R², and adjusted R² after entry of all eight variables. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, R² = .035, F (4, 1770) = 16.192, *p* < .001. After the second block, with all independent variables in the equation, R² = .052, F(3, 1918) = 13.896, *p* < .001. The increase in R² by including the public safety variables was .017. Using a proportional reduction in error interpretation for R²,

information provided by the public safety variables reduced our error in predicting positive attitudes toward surveillance by 1.7%.

The addition of block two did not significantly change the relationship between any of the control variables and the dependent variables, therefore, the results discussed here were based on the final model that included all independent variables and the dependent variable.

Table XIIIREGRESSION SUMMARY, PUBLIC HOUSING RESIDENT SURVEY DV1 (POSITIVEATTITUDES)

	Model 1			Model 2		
Variable	В	SE B	В	В	SE B	β
Female	03	.04	02	02	.04	01
Age 61+ Years	.29	.04	0.17***	.29	.04	0.17***
African American	08	.05	04	04	.05	02
Hispanic	.01	.08	.00	.02	.08	.01
Violent Index Quartile 2010				08	.02	-0.11***
Prior Victimization				.05	.04	.03
Feel Safe Alone at Night				.05	.02	0.06*
R^2		.04			.05	
F for change in R^2		16.19			10.49	

 $^{1}p < .1, *p < .05, **p < .01, ***p < .001$

Negative attitudes dependent variable (DV 2). Next, a hierarchical multiple regression was run for negative attitudes toward surveillance using responses from public housing residents. Table XIV displays the regression results. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, $R^2 = .013$, F (4, 1751) = 5.799, *p* < .001. After the second block, with all independent variables in the equation, $R^2 = .040$, F(3, 1748) = 10.322, *p* < .001. The increase in R^2 by including the public safety variables was .027. Using a proportional reduction in error interpretation for R^2 , information provided by

the public safety variables reduced our error in predicting negative attitudes toward surveillance by 2.7%, thus indicating that the combined variables explained little of the variation in the dependent variable.

The addition of block two did not significantly change the relationship between any of the control variables and the dependent variables, therefore, the results discussed here were based on the final model that included all independent variables and the dependent variable.

Table XIV REGRESSION SUMMARY, PUBLIC HOUSING RESIDENT SURVEY DV2 (NEGATIVE ATTITUDES)

	Model 1			Model 2		
Variable	В	SE B	β	В	SE B	β
Female	.04	.04	.02	.06	.04	.03
Age 61+ Years	19	.05	-0.10***	21	.05	-0.11***
African American	11	.06	05	11	.06	-0.05^{1}
Hispanic	01	.09	.00	.00	.09	.00
Violent Index Quartile 2010				.05	.02	0.07**
Prior Victimization				01	.05	01
Feel Safe Alone at Night				.14	.02	0.16***
R^2		.01			.04	
F for change in R^2		5.80			16.15	

 $p^{-1}p < .1, *p < .05, **p < .01, ***p < .001$

As previously stated, the hypotheses tested were:

Hypothesis 1A) Females will support POST more strongly than males;

Hypothesis 1B) Older respondents will support POST more strongly than younger

respondents; and

Hypothesis 1C) Respondents who express higher levels of fear will support POST more

strongly than those who report less fear.

Hypothesis 2A) Community members who have been victims in the past year will be more supportive of POST than those who have not been victims;

Hypothesis 2B) Community members who live in high-crime neighborhoods will be more likely to support the use of POST than those who live in lower crime neighborhoods.

The variables found to be statistically significant in the regression models were age, crime in the residential neighborhood, and fear of victimization. As in the analysis of the open community dataset, female respondents were not more likely to express support for POST than males (H1A). However, unlike the open community survey, older respondents were more likely to be supportive of POST than younger respondents (H1B). Also in opposition with the findings of the open community survey, hypotheses 2A and B were not confirmed, in that victims of crime and those that live in neighborhoods with higher levels of index incidents were not more likely to support POST than respondents who were not crime victims or lived in neighborhoods with lower levels of crime.

The findings regarding two hypotheses differed between the open community and public housing resident surveys. First, the public housing resident survey confirmed that older respondents were more likely to support POST than younger respondents. The sample of public housing residents was largely those age 61 years or older, so it may be the case that the analysis was impacted by the sheer numbers of seniors. The finding regarding fear of crime was somewhat confusing. In this case, respondents who reported feeling safe in their neighborhood at night were more likely to agree with *both* positive *and* negative statements about POST than those who felt less safe. This may suggest that there were differences in the way fearful public housing residents generally saw POST, in that their attitudes may have been more subtle (i.e.: seeing both the potential positive and the negative aspects of POST).

Race was used as a control variable and was not included in the hypotheses. However, African American respondents were marginally significant in support of POST (p<0.1), based on the analysis using DV2 in which African Americans were less likely to agree with negative statements than white respondents.

Finally, with regard to H3, public housing resident respondents differed in their attitudes toward surveillance than the respondents to the open community survey. First, gender was significant in the analysis of the open community survey data but not in the public housing resident survey. And while age was significant in both surveys, the association was in different directions. Older respondents were less likely to support POST than younger respondents in the open community survey, but the opposite was true in the public housing resident survey, where older respondents were more likely to express support for POST than younger respondents.

Higher levels of violent index crime on the residential beat was predictive of support for POST in both the open community survey and the public housing resident survey. Findings regarding fear of crime were mixed. In both samples, respondents with higher fear levels were more likely to express positive attitudes toward public surveillance. Although as previously noted, public housing resident survey respondents who were fearful were more likely to agree with *both* positive *and* negative statements about POST than respondents in the open community sample.

Combined Common Survey Items Dataset

A third dataset – created by combining all responses from both surveys where survey items were common - was analyzed in order to test Hypothesis 3 and discover what variables are most predictive of support for POST. In order to do this, one additional variable was created to indicate if the respondent was a public housing resident. Scale items from the community survey were recoded so all responses from both surveys were going in the same direction. Six of the variables were skewed, but attempts to transform lead to skewness in the opposite direction, so variables were left intact.

Bivariate analysis.

Bivariate analyses of the combined dataset revealed that all seven variables were significantly related to attitudes toward surveillance: gender, age, race, prior victimization, feeling regarding safety in the neighborhood at night, levels in violent index crimes in the beat in which the resident lived during the year the survey was administered, and being a public housing resident.

	DV	/1	DV2			
	Positive A	Attitudes	Negative	Attitudes		
	F	р	F	р		
Female	11.043	0.001**	.785	.376		
Age 61+ Years	545.497	.000***	32.708	.000***		
Race	192.411	.000***	14.752	.000***		
Crime Victim	85.987	.000***	.041	.840		
Feel Safe at Night	.598	.616	26.202	.000***		
Viol Index Quartile	27.324	.000***	2.286	$.077^{1}$		
Public Housing Resident	1384.470	.000***	38.301	.000***		
Race	Mean	SD	Mean	SD		
Black	3.162	.817	2.421	.878		
Hispanic	2.875	.955	2.537	.896		
White	2.516	.994	2.592	.822		

Table XVCOMBINED SURVEYS DATASET BIVARIATE ANALYSIS

p < .1, *p < .05, **p < .01, ***p < .001

Age, race, and public housing residential status were significant on both the positive and negative attitudes dependent variables. Gender and neighborhood crime were significant on positive attitudes only and feelings of safety at night on negative attitudes only. Age, gender, and feelings of safety were correlated in the direction as hypothesized, and prior victimization and neighborhood crime conditions were in correlated contrary to hypotheses.

The variables significant at the bivariate level were analyzed for potential problems with multicolinearity. No problems were identified, and therefore, all of the variables significant at the bivariate level were retained for the multivariate analyses. These variables were entered into hierarchical multiple regression models to examine the relationship between these variables and attitudes toward POST. Variables were entered into the regression models in separate blocks to identify any changes in the significance of the coefficients as new variables were entered. For ease of presentation, blocks were condensed when no significant changes occurred in the model or the coefficients.

Hierarchical multiple regression.

In order to test Hypothesis 3 - residents of public housing are more likely to support POST than non-residents - two hierarchical regressions were performed using positive and negative attitudes toward public surveillance as the dependent variables. Results of evaluation of assumptions led to an attempt to transform one variable to reduce moderate positive skewness (violent index on the beat in which respondent lives). However, square root transformations for moderate positive skewness resulted in skewness in the opposite direction. Therefore, the variable was not transformed. With the use of a p < .001 criterion for Mahalanobis distance, 2 outliers were found among the cases with both positive and negative attitudes as the dependent variable. These cases were excluded from the final model. After the first set of exclusions, no additional outliers were identified using Mahalanobis p < .001.

Positive attitudes dependent variable (DV 1).

Positive attitudes toward public surveillance were regressed and Table XVI displays the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (sr_i²), and R, R², and adjusted R² after entry of all nine variables. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, R² = .203, F(4, 2767) = 176.66, *p* < .001. After the second block, with all independent variables in the equation, R² = .302, F(3, 2763) =149.749, *p* < .001. The increase in R² by including the public safety and residency variables was .099. Using a proportional reduction in error interpretation for R², information provided by the public safety and residency variables reduced our error in predicting negative attitudes toward surveillance by 10%.

There were significant changes in the relationships between three of the demographic variables and the dependent variables when the second block was entered.

	Model 1		Model 2			
Variable	В	SE B	β	В	SE B	β
Female	.12	.03	0.06***	.04	.03	.02
Age 61+ Years	.63	.03	0.33***	.25	.04	0.13***
African American	.47	.04	0.25***	.01	.04	.01
Hispanic	.31	.06	0.10***	.07	.06	.02
Violent Index Quartile 2010				05	.02	-0.05**
Prior Victimization				.01	.04	.00
Feel Safe Alone at Night				05	.02	-0.05**
Public Housing Resident Respondent				.93	.05	0.47***
R^2		.20			.30	
F for change in R^2		176.66			98.05	
$^{1}p < .1, *p < .05, **p < .01, ***p < .001$						

Table XVIREGRESSION SUMMARY, COMBINED SURVEYS DATASET DV1 (POSITIVE ATTITUDES)

In the first block, all control variables were significant at the p < .001 level, but with the addition of the second block, only age was significant while the other variables were not. Compared to the previous models, this model was much better at explaining the variance in the dependent variable. The strongest variable in the model was the respondent's residency (public housing or not); respondents who live in public housing were significantly more likely to express positive attitudes toward surveillance than respondents living in other settings, confirming Hypothesis 3.

Negative attitudes dependent variable (DV 2).

Negative attitudes toward public surveillance were regressed and Table XVII displays the correlations between the variables, the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), the semipartial correlations (sr_i²), and R, R², and adjusted R² after entry of all eight variables. R was significantly different from zero at the end of both blocks. After the first block, with demographics in the equation, R² = .023, F(4, 2741) = 15.914, *p* < .001. After the second block, with all independent variables in the equation, R² =

.050, F(3, 2737) = 12.647, p < .001. The increase in R^2 by including the public safety and residency variables was .027. Using a proportional reduction in error interpretation for R^2 , information provided by the public safety and residency variables reduced our error in predicting negative attitudes toward surveillance by approximately 2.7%. The R^2 in this model is similar to the other models, with the exception that public housing residency was only marginally related to negative attitudes.

The addition of block two did not significantly change the relationship between any of the demographic variables and the dependent variable; therefore, the results discussed were based on the final model that included all independent variables and the dependent variable.

		00111210	2			
		Model 1			Model 2	
Variable	В	SE B	β	В	SE B	β
Female	02	.03	01	.01	.03	.00
Age 61+ Years	19	.03	-0.11***	17	.04	-0.10***
African American	14	.04	-0.08***	10	.05	-0.06*
Hispanic	04	.06	01	.00	.06	.00
Violent Index Quartile 2010				.04	.02	0.05*
Prior Victimization				01	.04	01
Feel Safe Alone at Night				.15	.02	0.17***
Public Housing Resident Respondent				09	.05	-0.05^{1}
R^2		.02			.05	
F for change in R^2		15.91			19.69	

REGRESSION SUMMARY, COMBINED SURVEYS DATASET DV2 (NEGATIVE ATTITUDES)

p < .1, *p < .05, **p < .01, ***p < .001

Table XVII

This model was created to test Hypothesis 3 regarding attitudes of public housing residents. Unlike the analysis using DV1 positive attitudes, negative attitudes toward POST were only marginally associated (p<.1) with being a public housing resident. Therefore, while

public housing residents were more likely to agree with positive statements about surveillance, they are only marginally more likely to disagree with negative statements, which is consistent with Hypothesis 3. This indicates that public housing residents' attitudes in support of POST are much stronger than attitudes against POST.

In summary, Age, gender, crime in the neighborhood, and feelings of safety were significantly related to the dependent variables. There were some inconsistent findings among the different analyses; differences are summarized in Table XVIII. The positive symbol (+) indicates that respondents were significantly more likely to agree with the dependent variable and the negative symbol (-) indicates respondents were significantly less likely to agree than their counterparts. For example, in the open community survey, females were less likely to agree (-) with positive attitudes about POST and more likely to agree (+) with negative attitudes than males. Interpreted, females were less likely to be supportive of POST than males in the open community survey, regardless of the dependent variable. Being female was not significantly predictive of either dependent variable in the public housing resident survey and therefore does not appear in Table XVIII under "Public Housing Residents Survey."

Table XVIII COMPARISON OF SIGNIFICANT VARIABLES, OPEN COMMUNITY AND PUBLIC HOUSING RESIDENT SURVEYS

	DV 1	DV 2		
	Positive Attitudes	Negative Attitudes		
Open Community Survey	(-) Female	(+) Female		
	(-) Age 61+	(+) Age 61+		
	(-) Violent Crime in Beat			
	(+) Feel Safe Alone at Night	(-)Feel Safe Alone at Night		
Public Housing Residents	(+) Age 61+	(-) Age 61+		
Survey	(-) Violent Crime in Beat	(+) Violent Crime in Beat		
	(+) Feel Safe Alone at Night	(+) Feel Safe Alone at Night		

These inconsistencies could theoretically be explained as the outcome of the nuanced feelings that people hold toward surveillance. For example, in the analysis of public housing residents and in the combined dataset, respondents who felt safe alone in their neighborhood at night were both more likely to agree with positive *and* negative statements about surveillance than those who did not feel safe at night. While on the face of it, these findings seem contradictory. However, one way to interpret these findings is that feelings toward public surveillance are complex and nuanced, and therefore it is possible to have both positive and negative feelings about surveillance.

Regarding hypotheses testing, findings were mixed (see Table XIX). In the open community survey analysis, five of the seven hypotheses were supported. In the public housing resident survey analysis, only two of the nine were confirmed. For the most part, respondents were generally supportive of POST, but the two populations are significantly different in their attitudes toward POST.

Table XIX	
SUMMARY OF SUPPORT FOR HYPOTHESE	S

Hypot	hesis	Open Community Survey	Public Housing Resident Survey	Combined Survey Responses Dataset
1A	Females will support POST more strongly than males	No support	No support	Not tested
1B	Older respondents will support POST more strongly than younger respondents	No support	Support	Not tested
1C	Respondents who express higher levels of fear will support POST more strongly than those who report less fear	Support	Conflicting findings	Not tested
2A	Community members who have been victims in the past year will be more supportive of POST than those who have not been victims	Support	No support	Not tested
2B	Community members who live in high-crime neighborhoods will be more likely to support the use of POST than those who live in lower crime neighborhoods	Support	No support	Not tested
3	Community members who are residents of public housing will be more likely to support police use of POST than people who are not residents of public housing	Not tested	Not tested	Support

The findings are difficult to interpret. The survey samples were significantly different when compared to each other, as well as from the general population, which may have impacted outcomes in ways that were not considered in this research. Findings from the preceding analyses indicate a need for additional research about attitudes toward police surveillance.
V. CASE STUDY

The preceding chapter summarized analyses of two datasets, which provided some understanding of public attitudes about the use of POST in one large municipality. In order to develop a more detailed understanding of POST programs - how programs are developed and implemented as well as how the resulting data are used - this chapter will examine, in depth, one POST program developed and implement by the police department in a large Midwestern city, the same city were the survey data discussed in the preceding chapter was collected. What follows are detailed descriptions of POST as conceived and implemented in one city and the uses of POST equipment and resulting POST data in the case study city. The purpose of this analysis was to gather richer information about why and how POST programs are implemented, and how the program equipment and resulting data are used by the police. This chapter addressed research questions regarding the factors that influence the decision to implement POST, the extent to which empirical research was incorporated in the consideration and implementation of POST and how data collected using POST was used.

Interviews used in this case study revealed reluctance on the part of many individuals to provide information (a phenomenon. Potential interviewees were not necessarily reluctant to share their experiences, but were perhaps more concerned about having the authority or permission to speak for the department or the city. Efforts to secure approval for individuals to talk about POST for this project proved impossible, as there was never clear agreement about who had the authority to grant permission for an interview. For example, Person A said they needed permission from B, but B denied they could give permission and suggested C who deferred to A. Therefore, while some interviews and observations were conducted through "official" channels, as were the interviews used as secondary data, information was also gathered

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through "unofficial" conversations with a number of city employees. For this reason, the identity of the case study city was not provided in this research. The study city will be referred to as City X and the police department that initiated, developed, and implemented the program will be referred to as XPD. References that make explicit the city being discussed were coded and the master list of those references was provided to the committee chair in order to verify the legitimacy of the articles (as previously described in Chapter III, footnote 8).

Description of POST Program in Study City X

City X is large, has a diverse population, and crime rates that vary substantially by neighborhood. The goal of the POST program stated in the department's written policy was "to reduce violent crime and narcotics activity by creating a visible crime deterrent in communities with high incidences of violent crime." The POST program included cameras in locations throughout the city, with the greatest concentration of cameras in the central / business and entertainment areas. The cameras were sometimes referred to as a "cop in a box" by residents who believed that having a camera in their neighborhood was a good as having a full time police officer stationed there at all times. The "cop in a box" concept brings with it the belief that the cameras are as good as real eyes, monitoring every deviant behavior, prepared to send an immediate response. The assumption that the cameras are being continuously monitored will be examined later. The program has expanded since initial inception and as of this writing included thousands of cameras purchased and /or owned by multiple sources, public and private. For the purposes of this study, the data discussed here are limited to cameras owned by the XPD.

Video surveillance was first implemented in the study city nearly a decade ago. Since that time, the program has gone through multiple phases and continues to evolve. The detailed program description that follows includes information gathered through interviews, from publicly available sources, and secondary analysis using data from previously approved research. The description was meant to document the POST program evolution. The description included program inception and development; policy and training; accountability; technical features; program cost and financing; implementation issues; expansiveness; camera deployment locations and distribution; and community and media reactions to the program.

Program inception and development.

The XPD press release that first announced the POST program stated that POST would be used "to reduce crime in [City X's] most violence prone communities" (Alias Reference 53). The press release also indicated that the program was one piece of a series of crime prevention strategies to "hit drug dealers and gang bangers in their pocketbook by disrupting illegal narcotics operations – the lifeblood of any gang." The goal of the program was "create a visible crime deterrent." The cameras were to remain in one location "as long as it takes to make an impact on crime and disorder" and that the program was "yet another layer we're adding to our overall violence reduction strategies." The press release also noted that "video that records normal, non-criminal activity will be erased within three days."

Accounts of the POST program's early stages varied from person to person and in public documents. However, there was general agreement about implementation and planning decisions. Stakeholders were interviewed about the origins of the program, who was involved in the decision making process, and whether the decision was evidence-based.

Origin of the idea. Interviewees reported that the decision to develop a POST program came from the highest levels of local government; from internal police department leadership and the mayor. However, there is some disagreement about where the idea came from. Several interviewers reported that the decision was made by the mayor or other high-level leadership

after seeing the technology in action in London and other cities. Other interviewees reported that a core group of (low ranking) police officers within the department who had responsibility for technology and innovation were asked to develop innovative ways to use technology. At that time, surveillance technology was already being used in the department in other capacities, and those officers saw a POST program as the next natural step.

Several interviewees reported that the POST program was developed as part of the larger project, in which a number of police officials were asked to brainstorm and develop ways to incorporate "outside the box" thinking for multiple crime reduction projects (such as portable metal detectors). One interviewee noted that a fusion center, enhanced mapping applications, and the development of specialized deployment teams – all of which XPD implemented - also came out of this initiative. One interviewee who indicated POST was first conceived as part of this program said it eventually "took on life of its own."

Interviewees consistently reported that London was the only city that was consulted during planning phases although several local news reports repeated the claim that Las Vegas casinos were used as a model for the program (Alias References 19, 20, 21). "We did extensive research to determine what works and what doesn't work across the world in putting our strategy together," said a high-ranking XPD official involved in project planning. He also said that City X representatives "visited the London surveillance center. We looked at the way Las Vegas casinos do monitoring. We looked at the way the Department of Defense does surveillance both in combat situations and other surveillance strategies to determine what would make the most sense for the city" (Alias Reference 20).

Evidence-based decision making was not a strong component of the planning process. Most interviewees were unaware of any review of existing literature on the effectiveness of POST programs had been part of the planning process. One interviewee stated that they looked at POST literature for their own curiosity, but had not discussed it during program development meetings. Interviewees reported that people involved in the planning process worked closely with legal counsel prior to implementation and were more focused on minimizing legal risk and less interested in the experiences of other agencies or existing evaluation research. Most people interviewed reported that the study city itself had since become the national leader in law enforcement use of POST. After initial implementation, there were weekly visits from representatives of one or two cities who wanted to learn more about XPD experiences.

Purpose and theory. Interviewees were asked to relate their understanding of the intended purpose of the POST program and the theory of how the program would accomplish stated goals. There was agreement among interviewees that the pilot program design included custom cameras and equipment deployed in high crime neighborhoods specifically included to disrupt criminal activities, namely narcotics operations. Interviewees reported that narcotic operations on the public way prevented community members from having access to public spaces. Removing narcotics operations would open access to public spaces for community members, which would improve not only safety but also community perceptions of safety. Therefore, both decreasing crime and fear of crime, and improving safety and perceptions of safety, were reported to be program goals.

Several major theoretical concepts were described by interviewees, including visibility, the importance of monitoring, the ability to control crime, public notice, and displacement.

Visibility. The visibility of cameras was cited by officers as central to program success, although the impact of visibility was interpreted in different ways. One interviewee reported that *the* central idea of the POST program was visibility: to provide the community with an enhanced

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feeling of safety through highly visible cameras that would suggest that the police are watching and area. This strategy suggested detection and deterrence as well as "broken windows" policing strategies: officers would monitor cameras and tactical teams would wait, ready to be deployed, to stop crime in progress, based on what officers observed. Furthermore, cameras would cause would-be criminals to avoid committing crimes within the perceived view of the cameras because of the more general message they conveyed. One officer stated that POST cameras would disrupt or prevent crime by "shining a light" on a particular area and communicate a message that "someone cares, someone is watching out for our safety." This officer believed that the only chance for success of the POST cameras would come from publicizing their presence, so that people "think twice" before committing crimes, because of fear of detection because the police care enough to watch this neighborhood.

Monitoring. The importance of monitoring was controversial with interviewees. One interviewee related that monitoring was *not* an important part of the POST program because the *perception* of being watched by police was an adequate deterrent. But other interviewees stated that cameras in static locations "outlive their usefulness" because the lack of immediate or eventual response to most illegal activities committed within the perceived view of the cameras has lead offenders to conclude that no one is monitoring the cameras. As evidence, officers reported their experiences of having seen illegal activities were committed within the view of the cameras "all the time" with no police response. In addition, officers reported hearing such feedback from some community members.

Crime control. Only one officer discussed the idea that POST may not be useful to control all types of crime. This officer believed that only narcotics crimes, and crimes that resulted from the narcotics trade, could reasonably be expected to be influenced by POST

cameras. To illustrate, the interviewee described an area where a large number of night clubs lead to violent crimes in the early morning hours. In a focused effort to prevent violence in that area, the police stationed officers in front of every single night club in the area near closing time. Regardless of the physical presence of numerous police officers, shootings continued to occur. The interviewee interpreted this to mean that certain types of crime can't be controlled, like violent crime, because they are not rational, occurring even when the chances of getting caught are high. The interviewee didn't believe cameras would have had any impact on that particular situation: he reported that cameras work in a similar way to physical police presence in that cameras conveyed a message that a police response is imminent. However, the police response from POST cameras is even less certain than the physical presence of officers, so if the first scenario didn't reduce crime then neither would cameras. In contrast, the interviewee stated that narcotics operations were run more like businesses, with offenders acting in a rational manner, and thus the cameras had the potential to work in a similar manner to police presence; increasing the chance of getting caught could stop narcotics sales, if only for the moment.

Public notice. Related to visibility, were ideas about notifying the public of the presence of POST cameras. One officer suggested that the department could increase the impact of the POST cameras by using regular resident meetings to "spread the word" about the impact of the cameras on crime. The officer said community meetings should have included the message that "you'd have to be pretty dumb to do something in front of cameras." That message should have been reinforced by showing POST video of people being arrested. This officer believed attendees would repeat this message and thus it would be communicated throughout the community resulting in more self-control and a decreased need for the cameras to be actively monitored. More than one officer noted that when they made a POST-related arrest, it was their individual practice to inform the arrestee that POST was the cause of their arrest. These officers believed that these arrestees would also repeat the message to others, increasing the perception that cameras were actively monitored and illegal activity would result in arrest.

Displacement. Interviewees reported acceptance of the idea of displacement. Interviewees explained that POST cameras were planned as a single tool in a larger strategy, where either precinct commanders or a centralized intelligence unit would be responsible for addressing displacement caused by cameras. Therefore, they did not see displacement as an undesirable impact of POST since the impacts would be address through other strategies. However, based on interviews and a review of data, department leadership did not appear to hold officers accountable for POST camera usage and the resulting outcomes, such as displacement. Additionally, more than one officer reported that the community didn't care if the cameras displaced crime, only that crime did not occur where *they* lived. No official reports of displacement were recorded by the XPD or the media.

Initial project design. Interviewees reported that the initial program design included 25 highly portable cameras that were to be set up to saturate a four-block-by four-block area. The cameras would be portable, easy to move like "chess pieces." According to media reports, the project plan was to install cameras in high crime areas (reported as either violent crime or gang and drug activity). The presence of POST cameras would cause criminals to move their activities to another location, and the cameras would move with them (Alias References 4, 5). This is confirmed by interviews; the initial project design included two phases to the use of POST.

This strategy had two phases – "clear" and "hold." During the first phase, targeted locations (based on the number of 911 calls reporting narcotics sales) were "cleared" by

"narcotics missions" (described below). The second phase, POST cameras were installed in the area that had been cleared by narcotics missions to "hold" that location. The cameras were to maintain order in that location to ensure buyers and sellers did not return.

Two major types of "narcotics missions" were used to clear an area: reverse sting and conspiracy missions. During a "reverse sting" mission, officers posed as narcotic buyers and then arrested individuals that sold them narcotics. After sellers have been removed, officers took the role of the seller and arrested would-be buyers. Another type of narcotic mission that could be used prior to the installation of POST cameras was a conspiracy missions. Conspiracy missions involved more strategic considerations and long-term investigations that would result in large "drug busts" where multiple individuals were arrested and charged in a single case. Covert surveillance was a necessary part of conspiracy missions in order to document the sales organization and sales volume for prosecution.

After either type of narcotics mission was completed, POST cameras were planned to be used to "hold" the location. A description of such a strategy appeared in a local media report: "Gangbangers and street thugs scattered like cockroaches under a bright light after police pulled up with the crime-fighting gear...A day earlier, nearly 100 special [unit] officers flooded the area arresting 32 people in a crackdown on crime" (Alias Reference 51).

One interviewee described the initial narcotics enforcement operation as analogous to disrupting a new business, "like McDonalds." Breaking up narcotics businesses and moving the organization, if only a little bit, caused a need for reestablishment of the business in a new location. Continuing to break up the organization bit by bit resulted in business failure. The officer further noted that:

we always knew when there were narcotics sales there was crime. There was robberies and theft. They coincide. There were shootings. You always knew there were weapons nearby or involved because you had people protecting narcotics. (Inv1)

In a slightly different take on the use of POST, the officer reported that the POST cameras themselves would result in a "take back" of an area because buyers and sellers would relocate when POST was installed.

Following the business relocation, the original project plan was that POST cameras would move every 30 days to the new locations. This cycle would disrupt criminogenic operations and related offenses, resulting in arrests. The city would also involve city services to improve neighborhood conditions, and any other strategy that might keep an area from returning to a drug location. "What we will be able to do is take a look at what individuals may be dealing narcotics that the officers are able to watch, swoop in and then make the arrest and take back this corner" (Alias Reference 51). Under this plan, with cameras regularly moved to where they were most needed, displacement would not have been a concern.

An interviewee who was involved in early project planning noted that POST cameras were intended to displace crime in the short term; narcotics operations would be disrupted by the presence of cameras and moved to other locations. In theory, operations would be similarly disrupted in the new location by the installation of additional cameras, continuing the cycle until there was no place left to commit crimes. Obviously, if cameras are mobile, this cycle could be indefinite as there would always be a location without cameras to where drug markets could relocate. Only if the city were blanketed with cameras, as the mayor envisioned, would there be no public place left to commit crime unseen. After the first cameras were installed, the mayor reaffirmed his commitment to mobility: "If you move to 'Block A' – we go to 'Block A'...What do you think? It's not going to be permanent here. It's mobile" (Alias Reference 51).

Despite the initial plan, after the cameras first were installed, the idea of saturation and movement was abandoned. Instead, the department installed single camera "systems" (rather than multiple cameras) and left them in place for long periods of time, some indefinitely. The change in strategy is universally attributed to the public's desire to keep the cameras in place in their neighborhood, according to interviewees. The idea that the community kept the cameras from moving was reported time and again. One officer stated that the program plan was to include 100 cameras that were moved every 30 days, but community complaints created "political" problems, so the idea to move cameras was abandoned in favor of buying more cameras.

Public reaction and media coverage. The survival and future trajectory of the POST program was influenced early on by public reaction to the cameras and media coverage. The earliest media reports focused mostly on program details, but one article published just after the initial XPD press release quoted residents who were skeptical of the project, mostly because they did not trust the police to use the technology appropriately (Alias Reference 6). Many of the follow-up local news reports included both positive and negative comments from the public. Starting in 2004, media coverage often repeated unverified claims of program success by XPD officials, as well as other unverified statements as though they were fact. For example, an article in 2004 reported that the use of POST cameras would reduce response time with no information about how or why it might be the case (Alias Reference 45). The following is typical of local reports on camera "success":

In the seven months since the 30 cameras were installed on light poles, calls to police relating to narcotics from the immediate areas have declined by 76 percent, and serious crimes have dropped by 17 percent, [an XPD official] said. Arrests on the police beats covered by cameras rose by 60 percent, officials said." (Alias Reference 7)

Most interviewees noted that feedback from the community (during meetings, through individual contact with police, reported in media reports, or related to and repeated by city council members) made it clear that residents wanted to keep POST cameras once they had been installed and did not want them moved after narcotics or other missions were concluded. This is why, in the words of one interviewee, the camera program "spiraled into what it is today." The program changed drastically from the original vision, as documented in this case study.

The media initially provided both positive and negative reaction to POST.

People are scared to play outside. People are scared to take their kids to the park...Don't nobody want to come to a restaurant...Because they're afraid they'll have to dodge bullets and that don't make no sense. So I think it's a good idea that we've got these cameras out here. (Alias Reference 51)

Later in the same article: "'I don't like it,' said a middle-aged man. "It reminds me of like Nazi Germany." Another article from early in the program quoted a resident saying: "People say it's invasive, but it's invasive for you to stand by my house and sell drugs." In the same article: "'A camera in a public area does not violate constitutional rights' [ACLU spokesperson] said. 'It's not about the technology. It's about the use.'" And finally: "It ain't nothing but a showpiece with big old flashing lights...They're just spending money" (Alias Reference 14). Articles in the year following implementation tended to note lack of public outcry, but also quoted concern from other people. For example, in an article from 2004: "But [ALCU spokesperson] cited a 2003 ACLU report that concluded that a "dark potential" lurks in the national proliferation of monitoring Systems" (Alias Article 20). Also in 2004, well-known columnist in a major newspaper wrote:

...there was no great outcry when [the mayor] announced that 250 new cameras and 2,000 existing cameras will be integrated...giving us the most extensive surveillance system of any city in the United States...Still, there's something chilling about a system equipped with state-of-the-art software that will recognize potentially illegal or dangerous situations and 'suspicious and unusual behavior.'

If such technology existed in Germany in 1939, you think it would have been implemented – and abused – by the government?

In 2006, a local media conglomerate engaged a private research company to conduct a poll on POST cameras. Seven hundred registered voters in City X were asked: "As a means of reducing crime, the city has installed security cameras at hundreds of sites such as public transportation stations, schools and city neighborhoods. Do you favor or oppose this program?" Support for the program was reported to be 80%, 13% opposed, and 7% expressed no opinion (Alias Reference 22). Eighty percent of white respondents, 77% of African-American respondents, and 83% of Hispanic respondents supported the program. A small number of articles about the POST program were published by the two major local newspapers each year, with no more than 6 in each paper in a given year. The newspapers published much of the same information, as coverage was mostly around program changes or camera additions were announced. For the most part, cautionary or less-than-positive comments were reserved for editorials of which there were a few.

Interviewees generally perceived not only wide acceptance of the cameras by community members, but also that cameras became highly desired. One interviewee claimed that this acceptance was due to an aggressive campaign by mayor to inform the public about the benefits of POST. Interviewees reported that citizens genuinely supported POST cameras, that there was no negative feedback, that "everyone" wanted cameras in their neighborhood, and many reacted negatively when the city tried to remove cameras. One interviewee who had responsibility for implementation and maintenance of cameras reported that when working on POST cameras, people would approach to ask "are you taking this down?" followed by expressions of their desire to keep the cameras. The interviewee also reported that when removing cameras, people were not confrontational, but let him know they wanted the camera left in place.

One interviewee had a different perspective from the others, and reported that initially there was a *negative* reaction from the community when the cameras were installed. This person reported that street-level employees responded to concerns and complaints by explaining that the cameras were "for the community." After this strategy was employed, the interviewee reported, complaints about camera installation stopped, and the only complaints they heard was when the cameras were removed. According to this report, it was not how the city leadership handled concerns that turned the tide in favor of the cameras, rather the actions of individual officers.

When asked about the community reaction to flashing lights on the cameras that alert people to the presence of the camera, one interviewee stated that it depends on the community, but guessed that 95% of people favored the flashing light. The same individual noted the department received some complaints about the flashing lights, but not many. Several interviewees reported that the only complaint they had ever heard was that blue lights would lower property values in the area by indicating the area was "bad." But even when people expressed their displeasure with the flashing lights, they still requested the presence of the cameras. Subsequent phases of the project made flashing lights optional.

One interviewee reported that some residents believed that the visual aspects of the cameras (size, lights, markings, etc.) lead to crime reductions, not active monitoring (deterrence vs. apprehension). Furthermore, the interviewee stated that community residents did not care if crime was displaced as a result of the POST cameras, citing a prevailing "Not In My Back Yard" attitude.

Technical features.

The pace at which technology advanced in the past decade created an environment where the capacities of surveillance equipment were drastically improved in a short amount of time. As a result, no two POST programs are exactly alike. Within existing POST programs, new opportunities created by technological advances are a daily reality. This seems to have created both challenges and opportunities for police POST programs. On the one hand, technological advances lead to less expensive POST equipment. But, on the other hand, the quickly outdated equipment also quickly becomes expensive to maintain or replace. The XPD has had several generations of POST cameras and equipment.

First generation cameras. The first generation POST cameras were housed within large, metal, bullet-proof cases, measuring approximately 36" tall by 24" wide and deep. A bulletproof glass bulb was mounted on the bottom of the box that contained the camera lens. The metal boxes were adorned with the police logo and checkerboard banner, and had a large flashing blue light affixed to the top. The high visibility design of these cameras could have been interpreted to mean the police department believed their presence would act as a deterrent, as much – if not more - as they would aid in detection of crime, evidence collection, and prosecution. First generation cameras transmitted video images wirelessly only to "camera control cases" assigned to officers in the field. The "camera control cases" were portable terminals by which an officer could manipulate the camera equipment from a remote location using a joy stick and view the activity within the eye of the camera. First generation cameras recorded the images onto storage in the metal box and could not be accessed on a desk-top computer – they could only be viewed on the screens in the remote cases. In order to retrieve recorded images, a technician had to physically remove the data storage from the camera box in the form of a VCR or DVD / DVR disk. According to POST technicians in XPD, none of the cameras include night-vision technology, but this is contradicted by a number of news articles (Alias References 1, 2, 3). POST cameras have evolved; four subsequent generations have seen a number of changes,

including the size, the means of storage, transmission, access to images real time, and other features (See Table XX)

Static features. Despite the differences in the generations of cameras, there were some features that were included in all models. All cameras could be rotated 360 degrees, were made to capture images within 330 feet in any direction, and had a pan-tilt-zoom function (often referred to in the industry as PTZ) that allowed the camera to be pointed in nearly any direction at a variety of focal lengths. Cameras could be manipulated by an individual viewing the live feed, but also came installed with a "pre-programmed tour," meaning that if no one manipulated where the lens was pointed, the camera was programmed to rotate, going up, down, around, in and out, in a specific pattern. Cameras were not equipped with night vision technology and did not include the most highly defined technology available. Therefore, if an event occurred within the cameras view, it was not always captured by the camera. In fact, POST cameras could have been pointed away from any event, regardless of whether they were on a pre-programmed tour or if it was being controlled by a user. Cameras could have been aimed at an intended event and zoomed to full capacity, but the quality of the images may not have provided information useful to investigations (for example, faces may not have been clear or license plates easily read).

Table XX SUMMARY XPD POST CAMERA GENERATIONS

	Wireless					Marked		
	Transmission	Internal				with Police	Top-	
	for Image	Video		Cost	Size	Department	Mounted	
Generation	Storage*	Recording	Access to images	(Approximate)	(Approximate)	Logos	Lights	Ballistics
First	No	72 hours	1) Via a portable terminal	\$42,000	36" x 24"	Yes	Blue	Yes
		of	with sole user to monitor				Light	
		recording	cameras.					
		time	2) By request after the fact.					
Second	Ves	72 hours	1) Via a portable terminal	\$36,000	36" x 24"	Vec	Blue	Ves
Second	105	of	with sole user to monitor	ψ30,000	50 X 24	105	Light	105
		recording	cameras				Light	
		time	2) Via a desktop computer					
			application.					
			3) By request after the fact					
			<i>5)</i> By request after the fact.					
Third	Yes	72 hours	1) Via a desktop computer	\$24,000	Two	Yes	Small	No
		of	application.		components		Strobe	
		recording	2) By request after the fact.		box 30" x 30",			
		time			camera 9.5 x 8"			
Fourth	Yes	None	1) Via a desktop computer	\$12,000	9.5 x 8"	No	Optional	No
			application.				Small	
			2) By request after the fact.				Strobe	
Fifth	Yes	1) 80 GB	1) Via a desktop computer	\$11,300	36" x 12"	No	Optional	No
		(approx. 5	application.				Small	
		days)					Strobe	
		2) 500 GB	2) By request after the fact.					
		(approx.						
		15 days)						

* While not all areas of the city have wireless signals available, the technology is housed within the camera.

All generations of cameras have allowed access to recorded images by placing a request to the unit with responsibility for managing the POST program. As long as the image request was within 72 hours of the time to be reviewed, technicians would retrieve the stored data. In the early generations, this meant dispatching an officer to the physical location of the POST camera to remove the internal image storage media. This required a lot of personnel support, but became easier when images were transmitted wirelessly to central storage where retrieval could be done remotely. Approximately 3 years after the program was first initiated, the image retrieval requests were automated, allowing the police department to electronically collect and track requests for retrievals with justifications for such requests. This improved the efficiency of the request process and thus allowed for more timely access to requested footage.

Subsequent changes – physical features. To date, there have been five generations of POST cameras. The features are summarized in Table XX, which was created with the help of a POST technician at XPD. The first two generations were very similar, and all first generation cameras were eventually retrofitted to have the same features as the second generation cameras. The cases have gotten smaller, with smallest cameras less than a foot in any dimension. The third generation cameras had the lens separate from the image storage box. The first three generations were clearly marked with graphics that indicate the XPD owned the cameras, but the last two were not. The flashing blue light on top of the cameras became smaller in the third generation, and then optional in the fourth and fifth generations.

The first two generations of cameras were constructed using bullet-proof materials. The XPD included this feature because they anticipated that POST opponents would shoot the cameras in order to prevent police surveillance. However, according to an XPD technician, there was no evidence that any camera was ever damaged from gunfire. Therefore, the feature was

dropped from the third generation. Costs also varied widely from generation to generation, which will be discussed later in greater detail.

Subsequent changes – data transmission and storage. Only the first generation lacked wireless transmission; all subsequent generations had wireless capability to transmit data. The first three generations had internal recording on either VCR or DVD with a 72 hour capacity, and the fourth generation had no internal recording. The fifth generation used smaller portable storage devices that had greater capacity and could record either 5 or 15 days of footage.

Subsequent changes – monitoring. The first generation of POST cameras limited the officer's ability to view remotely to just a few blocks. Only one officer could view the feed from a given camera at any one time. Subsequent generations allowed officers to control and monitor POST cameras from a remote desktop computer using custom software. Theoretically, the multiple monitors of a single camera feed could be located anywhere the software was installed, including another state. The remote desktop software allowed an officer to manipulate the camera and use the technology in any manner consistent with the department's policy. With a mouse, the user could control where the lens was pointing and use PTZ features. If multiple people wanted to control the cameras lens, the highest ranking officer was given control. If two officers of the same rank wanted to use the same camera, the one who started manipulating the lens first was allowed to continue. The lens stayed exactly where the user pointed it remained unmoved for ten minutes from the last manipulation, at which time that camera was opened for another officer to use. No officer manipulation defaulted the camera lens to a pre-programmed tour. Monitoring will be discussed in more detail in the "resulting data" section of this chapter.

Expansiveness.

The XPD program started with 30 cameras controlled remotely via personally operated terminals. In early 2009, the mayor stated his goal was to have "a camera on every block" by 2016 (Alias Reference 18). Since inception, the program expanded and changed significantly. As of this writing, the program incorporated cameras from many different public and private sources. Live camera feeds were "federated" or unified to a single agency outside of the police department, responsible for emergency management. In order to document the number of cameras owned and operated by XPD, a review of local news articles was conducted. While this method does not make it entirely clear how many POST cameras were used by city agencies, it revealed interesting information about the program's life course. By some accounts, the XPD owned at least 2,000 POST cameras, with close to 15,000 publically owned cameras on the POST feed network (Alias Reference 8, 9, 10, 16).

The first 30 XPD POST cameras were installed in the summer of 2003. The first felony POST arrest was made two weeks later: officers monitored an individual in a vehicle and believed the 22 year old man was smoking marijuana. Officers approached the vehicle and found \$20 worth of marijuana and \$60 worth of MDMA ("Ecstasy"). An XPD spokesperson said, "We are looking at potential criminals who affect the quality of life. Sitting in a car smoking reefer sounds innocent enough, but you don't know what he plans to do from there" (Alias Reference 33). The offender's mother was quoted as saying, "This isn't fair. It's not like he was dealing drugs. I don't see how they could arrest him for just sitting there smoking weed. Most young people do that" (Alias Reference 33).

The XPD increased their POST cameras by 50 in early 2004. In the fall of 2004 City X announced that would link 2,000 publically owned POST cameras into a central federated

network (Alias References 19, 20, 21). The XPD reportedly were to include their 80 cameras as well as another 250 to be purchased, and the federation project was planned for a 2006 completion. POST cameras on the central network were owned by a number of different interests. Included public agencies were police, airports, schools, transit, housing, and emergency management agencies. The mayor's vision was to also include privately owned camera feeds into the public network. All federated cameras would submit feeds to the "911" emergency call center allowing emergency call takers and dispatchers to view live video of the area near the requested service location (Alia References 17, 19, 20, 21). Owners of privately held cameras that were included in the federated network were asked to pay an undisclosed amount of money to submit their live feed, "so that 911 operators would have access to those cameras should something go awry in a private building" (Alias Reference 19). This could have implied that special consideration for dispatch services were for sale, although no articles were found that made that connection explicit.

In 2006, city council debated a proposed law that would have required local businesses open 12 hours a day or more to purchase and install security cameras in and around their businesses (Alias Reference 33). The mayor supported the proposal, and was quoted as having said, "The cameras really prevent much crime. The cameras also solve a lot of crime. The terrorist attacks in London were solved by cameras." Ultimately, the proposal was rejected, mainly because council members believed the cost would be too burdensome. Another article from 2006 noted that City X had more than 2,000 POST cameras feeding onto the public network, of which XPD owned 100 (Alias Reference 22). An article from a few months later announced that XPD would be adding 70 more POST cameras (Alias Reference 23). In the fall, 100 more cameras were added bringing the total owned by XPD to 300 (Alias Reference 24).

An article from 2007 (Alias Reference 38) noted that XPD had 559 POST cameras and were to add another 100. A newspaper article from 2008 noted that 4,500 cameras owned by the schools were being added to the network, which included more than 10,000 cameras (Alias Reference 25). Local media reported in 2009 that POST cameras were being installed at 144 transit stations in addition to what had already been placed in 50 stations using a \$17.9 million grant from the Department of Homeland Security (Alias Reference 26). Also in 2009, a newspaper report stated that there were a total of 4,800 cameras inside public schools and another 1,400 watching the exterior properties (Alias Reference 27).

In 2010, a newspaper article noted that there were 1,657 POST cameras at 73 public transit rail stations (Alias Reference 28). Another article notes that there are well over 10,000 publically owned POST cameras in the city, and that the transit authority would have more than 3,000 by year's end (Alias References 17, 30, 31). The highest estimate of the number of publicly owned POST cameras included in the federated network was nearly 15,000 (Alias Reference 25). The total number of publically owned cameras on the federated POST feed is unknown. No one disputes that City X was heading in that direction. The last mention of POST cameras being installed in the city was May 2010 (Alias Reference 30), but in the fall of the same year, the mayor is again quoted as saying he wants more cameras (Alias Reference 31). "Expansion of cameras citywide is one of the highest priorities that will help us here in the city [X]. Cameras are key. They are a deterrent. They solve crimes. It deals with terrorism. It deals with gangs, guns and drugs in our society" (Alias Reference 31).

Multi-agency ownership and coordination. An undated XPD PowerPoint presentation obtained through a Google search stated "We're data rich and information poor" and that they "need analytics engine for enhanced situational awareness" (Alias Reference 11). The solution

XPD advanced in this document was a "layered solution" that included facilities and transit management systems, automated license plate readers, video analysis tools including facial, behavioral, and pattern recognition capacities, gunshot detection technology, and "predictive analytics."

The POST network included many more cameras than just those owned by XPD. The XPD is reported to own at least 2,000 cameras and it is thought that a total of at least 10,000 are in place in City X. The local public housing agency recently received a federal "stimulus" (American Recovery and Reinvestment Act) grant to install some 3,000 private security cameras in their local developments. These cameras will be tied into the existing network, although it is unknown if police will have access to these cameras. Schools, transit, and emergency management departments in the city have also been awarded grants to implement and expand POST programs. Cameras were purchased by multiple agencies and were manufactured by multiple vendors. As a result, cameras on the network had different software tools as means of accessing the live feed. Aside from the agency that purchased the equipment, many of the cameras could not be viewed by XPD personnel without permission.

In 2003, the mayor and police chief began emphasizing curfew enforcement, created a central intelligence hub (sometimes called a fusion center) within the police department, and deployed specialized police team to high-crime areas. The teams were to saturate small areas with large numbers of police visually emphasize that they intended to "clean up" the area. All resources that could be deployed in these small areas were to be used to force crime out. Early local media reports talk about POST cameras as a tool in a larger "hot spot" strategy (Alias References 1, 29, 34, 51). POST cameras were installed in "what police call a crime 'hot spot' – what ordinary citizens call a 'bad neighborhood'" (Alias Reference 51). A high-ranking XPD

official stated, "This will help us as a strategy to be able to build relationships in the community." The larger strategy was collaboration within XPD and with outside agencies. The POST cameras were to be part of this larger strategy. City X experienced an unprecedented drop in murders from the year the strategy was deployed to the next year: murders had been decreased since they peaked in the early 1990s, but the drop from 2003 to 2004 was nearly 25%. Murders have continued to decline, but no single year experienced that magnitude of a decrease in murders. Overtime, it seems that the POST cameras were no longer being used as part of a comprehensive strategy or seen as a single tool to be used in conjunction with others. Rather, it seems that POST was seen as a stand-alone technology.

Demonstrative of a lack of a coordinated strategy, a single agency could have been funded by different sources and cameras purchased from different vendors. For example, the public schools purchased cameras that can be viewed by the school officers on computers in the schools, but not via computers in police precinct stations (that utilizes different software). Conversely, the network of police cameras cannot be viewed by police officers working within the schools, even though those officers are police employees. Adding to the complexity, grant funding has been provided by the state for the police department to purchase cameras for use on external school property only. Those camera feeds were viewable by police at precinct stations but not by officers assigned to work within the schools. As City X continued to develop a federated camera network, they worked with vendors to develop a system that would allow all cameras to be viewed using a single software package. However, the lack of a coordinated strategy from the beginning led to a costly and time consuming effort to correct these problems.

Additional technologies. City X and XPD experimented with combining POST with other types of technology. For example, the first generation cameras were equipped with gun

detection sensors. However, the department was not satisfied with the success of the technology and discontinued its use, although sensors were left in place. In 2009, XPD announced the results of their six month test of the gunshot detection technology, during which time it only worked once. Based on this outcome, XPD concluded the technology was not worth the cost of \$200,000 per square mile, which would have cost the city nearly \$6 million to install with all POST cameras (Alia Reference 35).

The police department strongly believed that POST could be combined with biometric and behavioral recognition technology systems to increase impact (a category referred to as "intelligent CCTV"). As early as 2004, local media reported on the XPD's intention to incorporate this technology (Alia Reference 35), although a high ranking police official reported that those technologies were similarly not ready for implementation. This has been confirmed by reports on how POST combined with other forms of surveillance detention has worked. For example, one of the earliest trials of biometrics and POST was conducted in 2001 in Tampa, Florida both within the airport and in public spaces in two neighborhoods. The ACLU (Stanley & Steinhardt, 2002) obtained records that revealed that the system had never correctly identified a face in its suspect database, that it had made many false positive identifications (often incorrectly identifying gender which most humans can do correctly most of the time), and was suspended the same year. Introna and Nissenbaum (2009) reviewed available evaluations of facial recognition technology using POST and found a pronounced lack of evaluations outside of controlled environments (of which, there are also very few). Du Sautoy (2012) notes that computers tend to read pictures "pixel by pixel" and have difficulty integrating that information. Jenkins and Burton (2011) find that neither humans nor machines can establish or verify identity using a photo of a face, arguing instead for the use of "image averaging" to improve outcomes

for biometric technology. Nonetheless, the potential benefit of coordinating these technologies is that it would cut the need for (and associated costs of) personnel to actively monitor POST feeds. New technologies are constantly emerging, and given the city's dedication to POST conceptually, it is likely they will continue to experiment with the ways in which POST systems can be enhanced.

Policy and training.

The written policy on the use of POST is an appropriate reference to understand the department's expectations of employees. In this case, there were two policies regarding POST: one an overarching policy on video surveillance generally, and the second specific to the use of POST cameras. The overarching policy on the use of surveillance technology (not specifically POST cameras) stated a number of appropriate uses for surveillance technology, most of which were also found in policies from other national POST programs. The overarching policy touched on the uses for video surveillance, and instructed officers to be mindful of the rules of professional, legal, and ethical conduct. In the policy specific to the use of POST cameras, the XPD did not provide expectations for camera use. Instead, the policy focused on the operation of the technology. The "purposes" section of the POST camera policy indicated that the contents of the policy were to: establish the program, procedures and responsibilities for the placement and movement of cameras; identify responsibility for evaluating effectiveness of camera placement and exit strategy plans once camera is no longer required; and establish a committee to oversee the placement and evaluation of cameras. The general policy statement said that the use of 24 hour video surveillance is an anti-crime strategy to target gang and narcotics activity in public places. It further indicated that the analysis of certain types of data and information will identify areas in the greatest "need" of police POST programs. The data elements identified

were: 1) levels of violence; 2) calls for police service (9-1-1 calls) regarding narcotics; 3) community input; and 4) police-gathered intelligence (not necessarily in that order). The directive did not make further reference to the purpose of the program or how the technology should be used.

According to internal XPD documents, the department initially required that any person that monitored POST cameras must have successfully completed training on First and Fourth Amendment rights. No additional training or explanation of program expectations was provided to officers. In subsequent years (starting approximately three years after program inception), the XPD posted a POST training "class" on their internal website that could be viewed by any interested employee. All sergeants were required to complete four hours of training on using POST. However, the sergeant's training, like the policy, only covered how to use the POST software with a brief discussion of First and Fourth amendment issues. No training in the range of possible uses or the most favored or effective use was provided. At the time of this writing, newly hired police officers received training in the technology of the POST program during the initial job training phase of their careers. However, that training closely resembled the original training that only included information on how to use the viewing application, how to electronically request retrieval of images, and an overview of the First and Fourth Amendments with applicability to the program interpreted by the department's legal staff. Training and policy on the POST program did not discuss the best uses of POST, but rather focused on the operational aspects. No training was provided to precinct chiefs or supervisors above the rank of sergeant on how POST should be use, other than how to use the software. Absent specific training and direction from supervisors, field officers were often left to apply the available technology as they saw fit.

Multiple individuals interviewed referenced an internal policy that required precinct chiefs to run daily POST missions. This requirement was not documented with official XPD policies. Interviews suggest that it may be the case that one-time orders were issued (perhaps with the use of the phrase "until further notice") and then institutionalized without ever being recorded into official policy. The widespread belief that chiefs were required to run missions seems to have resulted in the completion of tens of thousands of POST missions in a single year (Alias Reference 55).

Accountability.

Regardless of how POST was used, officers had wide discretion about when and how to use the cameras, and in determining to which incidents police responded. This meant that lesser offenses such as j-walking, littering, etc. could have been ignored, just as they could have been ignored by an officer who observed the same behavior in-person.

Many people reported that the precincts were "required" to run "missions" using the POST. The XPD, like many modern law enforcement agencies, held regular "accountability" meetings, where precinct chiefs were called on to explain the activity in their precincts in relationship to crime – often referred to a "CompStat". At these accountability meetings, if crime was increasing in a particular area, precinct chiefs had to justify their use of resources in light of increased crime. However, in the XPD the accountability had become what some refer to as a "numbers game" where the accountability office reviewed tables full of activity counts as a way to justify precinct activity without any significant challenge to or change in leadership or strategy as a result of the session. The result of accountability sessions where individuals are not truly held accountable was that officers were able to operate at their discretion – with or without direction from leadership – and no one was held accountable for officer or supervisor activity.

The XPD was not alone in this experience. Compstat-like accountability, despite early popularity, has received growing skepticism across the nation. In 2010, the Baltimore Police Department suspended accountability meetings because they "had grown 'stale' and 'laborious'" (Fenton, 2010). Also in 2010, a report of survey findings by Silverman and Eterno stated that respondents, who were retired New York Police Department officers, felt pressured to downgrade criminal incidents to improve the Compstat process. Accountability sessions typically only included an examination of the most serious types of incidents, and downgrading incidents created the appearance of reductions in serious crime – thus lessoning the pressure on command staff. While it is not clear if the Silverman and Eterno study is representative of the department at large, other police departments have also faced accusations of tampering with crime statistics, including Atlanta, Dallas, New Orleans, and Washington, DC (Rashbaum, 2010).

POST data, like data gathered from other police programs to fight crime, can be used to generate numbers for accountability purposes and therefore, the mission data may not be a meaningful way to understand how the technology was used. An interview with an XPD detective confirms that the POST cameras were used to get arrests for accountability purposes. And in some precincts where crime may have been "slower" than others, officers used numbers to justify their placement in that precinct. For example, an officer may have increased the number of petty arrests as the accountability sessions were approaching, knowing that these numbers may have helped them appear as hard working, keeping them from being transferred to other precincts. The detective stated that POST cameras were used mostly at the end of the month, to ensure the district did not have the fewest arrests in the city. During the few days at the end of the month, police would "look for anything" they could use to arrest an individual.

The detective admitted that the arrests were for such petty incidents that most of them never led to anything other than giving their precinct credit for activity.

Finally, accountability is not limited to individual officers. From the first announcement of the POST project, the media asked questions about privacy rights. There were several reports of the mayor saying there were not privacy concerns with POST. "We own the sidewalk. We own the street, and we own the alley...You could photograph me going down the street. You do it every day. You have that right," (Alias Reference 20). About a year after the implementation of POST, a state senator complained that the POST program was racist and submitted a proposal to limit the number of cameras the police could install (Alias Reference 19). The senator saw value in the program generally, but felt there were too many cameras in minority neighborhoods. The senator contended that the program was racist because it was substituting POST cameras for officers. The senator believed that communities should have representative levels of police personnel, and the city was intentionally short-changing minority neighborhoods. "We can have police protection without spying on people who are doing nothing wrong" (Alias Reference 19). The senator's concerns were covered by the media but City X and XPD did nothing to address those concerns. The POST program moved forward without creating any safe-holds or considering disproportionate impact.

Costs and financing.

There is some confusion about what the cameras cost. According to the press release announcing the program and a number of newspaper articles (Alias References 4, 5, 6), the first generation cameras cost \$16,000 plus \$7,000 for the remote viewing terminal. These same articles indicate that 30 cameras were installed in 2003 and 50 more in 2004 for a total of 80 first and second generation cameras. However, according to the XPD sources, the first generation of

cameras cost \$42,000 each. Furthermore, in April of the following year when the second set of camera purchases – 50 – were announced, a newspaper article (Alias Reference 7) noted that the expansion and upgrades (first generation upgraded to second generation) would bring the total project cost to \$3.5 million. If the estimate is correct, then the first 80 cameras purchased cost an average of \$43,750 which is much closer to the costs as provided by the XPD interviewee. It is unclear why XPD employees are quoted as saying the costs per camera are nearly half. Regardless, as new technologies have been invented, the cameras have gotten smaller, with the last phase of the cameras costing just over \$11,000 – a reduction of almost 75%.

An XPD PowerPoint presentation slides located through a Google search (Alias Reference 11) detailed the year one costs of the cameras (generations 3, 4, and 5) that were available for purchase by local city council members. Year one costs for the three cameras were listed as approximately \$13,250, 24,350, and \$31,000 including installation, optical network share, and allowing for one move. There is no estimate for subsequent year costs, but by removing the cost of the camera itself from the year one estimate, the amount left is approximately \$5,800. This document was created sometime between 2008 and 2011.

Officially, the total costs associated with the POST program are unknown. One report stated that the city spent \$6.8 million in the first two years of program implementation (Alias Reference 8), much higher than the above-referenced estimate of \$3.5 million. At least another \$60 million in grant funds have been spent on POST programs in the city (Alias Reference 12).

Since no official account of POST program costs is available, an estimate was created using a variety of data (See Table XXI). Costs of cameras and maintenance used the first and second generation costs provided by the XPD officer (\$42,000 and \$36,000) and the average of the 3rd, 4th, and 5th generation cameras according to the XPD PowerPoint (approximately \$21,700). Subsequent year maintenance costs were \$5,800 as derived from the PowerPoint. Estimates for XPD owned cameras are at least 2,000. Media accounts report that the first phase of the project in 2003 included 30 first generation cameras and 2004 saw the addition of 80 cameras. The remaining 1,890 cameras installed evenly over the next 7 years (270 per year) would put the total cost of the project since inception at cost approximately than \$80 million. It is likely that costs would be much greater if personnel time were included, as the XPD employs a number of people who work on the POST project full time. And if these cameras represent only one fifth of the total cameras in City X, then the total project costs could be more than \$400 million.

ESTIMATED COSTS XPD POST PROGRAM USING PROJECTED DATA New Number Cost of Cameras **Est.** Total Year 1 to Annual Installed Year Cost Maintain Maintenance Cost 2003 30 \$1,260,000 0 \$0 \$1,260,000 2004 80 \$2,880,000 30 \$174,000 \$3,054,000 2005 270 \$5,859,000 110 \$638,000 \$6,497,000 2006 270 \$5,859,000 380 \$2,204,000 \$8,063,000 2007 270 \$5,859,000 650 \$3,770,000 \$9,629,000 2008 270 \$5,859,000 920 \$5,336,000 \$11,195,000 2009 270 \$5,859,000 1,190 \$6,902,000 \$12,761,000 2010 270 \$5,859,000 1,460 \$8,468,000 \$14,327,000 2011 270 \$5,859,000 1,730 \$10,034,000 \$15,893,000 2,000 \$43,400,000 \$37,526,000 \$80,926,000

 Table XXI

 ESTIMATED COSTS XPD POST PROGRAM USING PROJECTED DAT.

Year 1 Cost, 1st Gen	\$42,000
Year 1 Cost, 2nd Gen	\$36,000
Year 1 Cost, Avg. 3rd - 5th Gen	\$21,700
Yearly Maintenance	\$5,800

The estimate described above is based purely on media reports. Secondary data on the number of cameras owned and installed by XPD indicated at least 1,240 POST cameras were purchased and installed between 2005 and 2010. These data represent only the number of cameras that were installed and never moved; there were another 684 installations and removals of an unknown number of cameras. Therefore, the number of cameras owned was more than 1,240, but the actual number is unknown. Table XXII details a second estimate of POST costs using secondary XPD data, although the actual costs of the camera purchase and maintenance are unknown. Also, these data only include part of 2005 through the full year 2010, at least 3 years less than the length of the program.

Install Year	New Cameras Installed	Year 1 Cost	Number to Maintain	Cost of Annual Maintenance	Est. Total Cost
2005	23	\$499,100	0	\$0	\$499,100
2006	96	\$2,083,200	23	\$133,400	\$2,216,600
2007	305	\$6,618,500	119	\$690,200	\$7,308,700
2008	489	\$10,611,300	424	\$2,459,200	\$13,070,500
2009	118	\$2,560,600	913	\$5,295,400	\$7,856,000
2010	209	\$4,535,300	1,031	\$5,979,800	\$10,515,100
Total	1,240	\$26,908,000		\$14,558,000	\$41,466,000
Camera C Yearly M	Cost, Avg. 3r aintenance	d - 5th Gen	\$21,700 \$5,800		

Table XXIIESTIMATED COSTS XPD POST PROGRAM USING ACTUAL AND PROJECTED DATA

This method of calculations yields estimated program costs near \$41.5 million. The preceding exercise of trying to estimate costs underscores that program costs are not knowable without more information from City X or XPD.

Cameras were financed in multiple ways. City X provided funding for the first phase, but several media reports stated that asset forfeiture funds were used to pay full program costs (Alias Reference 5, 13, 14) and one reported they were used to pay for "some" of the cameras (Alias Reference 15). The XPD police chief is quoted in one news report saying, "That means the drug dealers are paying to have their own surveillance put on them. I find that very ironic" (Alias Reference 15). Additional funding mechanisms were identified over time. Grants, mainly for homeland security, and school and transit safety purposes, were used to pay for both infrastructure and hardware. In some cases, private funding was provided to tie privately held cameras into the police-built network and it is unknown for what those funds were used (e.g.: to supplement camera purchase or infrastructure costs). The city council members were also allowed to use money from their corporate budgets to purchase as many as two cameras per year for use within their geopolitical boundaries, as long as there was no conflict as assessed by XPD. After wading through the varied information about POST camera costs and implementation, it is likely that there is no known dollar figure that would include the full cost of the POST program in its entirety.

Implementation issues.

Interview subjects were asked if they were aware of any POST program implementation issues. Most interviewees reported that they were unaware of any, however one interviewee talked about the unexpected costs that came with the program. For example, first, second, and third generation cameras required someone to physically remove the storage device from the camera box within 72 hours in order to keep the footage, so many units of removable storage were required, as were staff to do the work. Maintenance costs were underestimated as were the cost of storing video images for which retrieval requests were made.

As noted above, the popularity of the program led to significant changes from how the program was initially planned. During the conception of the program, the city intended for the cameras to be mobile, to be used to break up specific areas of high-visibility public disorder – mainly narcotics sales. After these areas were cleared, the cameras were to be moved to other areas. However, within the first months of implementation, it appears that community feedback and input from local political representatives (who got feedback from their community), led the department to reconsider this strategy. In fact, the first cameras that were implemented were never moved and at the time of this writing were still in the same locations where they were installed in 2003. Regardless, media accounts consistently referenced XPD comments that the cameras *were* mobile and being moved.

Interviews also revealed that as the program was immediately popular and grew rapidly, this expansion quickly taxed the system. For example, the department needed to get more antennae because of saturation problems and limited wireless access. It was difficult to find building owners who would allow antennae or related equipment to be placed on their property. As the program changed and developed over time, camera placement became dependent on where a wireless signal was available or where a camera could be installed without overburdening the system and kicking another camera off the network. In 2010, City X announced they were going to build a number of 150 foot wireless communication towers to improve radio communications for POST cameras (Alias Reference 40). A city council member "acknowledged that the 150-foot towers 'are not going to be pretty." But she's willing to tolerate

the eyesore if it paves the way for surveillance cameras at schools and parks that can't get them." As of this writing, there were still places in the city that did not have a wireless signal, although this will likely be resolved in the coming years.

The vision of the mayor when the project was initiated was to create a system that allowed any and all POST cameras – whether publically or privately held – to be shared on a single network that public safety workers (mainly police) could access, should it be necessary. However, people interviewed about this vision noted that this was a near-impossible task, if not entirely impossible, given the amount of space that would be required to handle the volume of storage, as well as the physical network requirements (e.g.: bandwidth) to allow such to happen. Several interviewees reported that the poor quality of the video images captured was frustrating for users, but the high quality systems (often employed by retail or financial institutions) were expensive and the city did not have funds for better systems. One detective reported that he would regularly ask McDonalds, 7-11 or a bank to allow him to look at footage which may have captured a face, car, or license plate, etc., but that he would rarely waste his time looking at the images captured by the department as they were "useless" (Inv E). A published third-party evaluation of the system found image quality to be the greatest limitation to the project (Alias Reference 8).

Finally, captured image volume far exceeded the resources available to review it. If a request to preserve video images was not made in time, it was destroyed without first being reviewed. There did not seem to be a detailed understanding of or plan for the impact of the massive amount of data available through the ever-expanding POST project. Rather, a blind belief on the part of XPD and City X officials that more POST cameras meant less crime. The
lack of demonstrated impact led some to question the need for yet more POST cameras (Alias

Reference 41).

...even though we have all these cameras, there isn't any systematic method for the police to make use of the information that's recorded. While there are news stories all the time about surveillance cameras assisting investigations, the fact is that, for the most part, nobody is watching all those cameras in public places that are watching you. (Alias Reference 46)

And:

Falling electronics prices and rising public anxieties have spawned an unprecedented proliferation of security cameras in urban areas, but police have found their effectiveness limited by an inability to quickly search through mountains of video. New technology has changed that, suggesting both a new security enhancement tool and a further erosion of privacy is at hand. (Alias Reference 47)

Regardless, there were always enthusiastic supporters that wanted to see the number of cameras increased without an understanding of the outcome of collecting so much data, often generalizing a few anecdotal cases that implied success to the project as a whole (Alias References 42, 43). An XPD spokesperson said, "What we know is that where the cameras are, the crime decreases" (Alias Reference 49).

A media-initiated poll conducted by a local market research firm (n=700, me +/- 4) found that "eight out of 10 respondents favor the video security network" (Alias Reference 22). The article didn't provide the actual poll questions. A quasi-experimental outcome evaluation of POST in City X found impact in one area but not in another (Alias Reference 8). The report suggested that the concentration of cameras and the perception of camera monitoring may have been an important variable in POST project impact. In both cases, the reports suggested that citizen perceptions could have made the difference in effect. The XPD program did not include community perceptions in project design, as previously mentioned. The XPD could have included the community in the early planning phases which may have benefitted project implementation.

Deployment locations and distribution.

According to department employees, there have been far more requests for POST camera placement by police precinct chiefs, public officials, and citizens than can be satisfied with the number of cameras owned by the department. This claim was reinforced by local media reports (Alias References 20, 22, 44). Decisions about where to place cameras may take into consideration a number of factors. According to the department's policy on the use of POST, the department must consider the crime environment (with input from precinct chiefs and public) when selecting locations to install POST cameras as well as specific types of indicators of violence and narcotic-related activity. To determine the extent to which these criteria influenced installation locations, data provided by XPD included calls to report narcotic sales and POST mission completed by precinct for the 48 month time period July 2008 ending June 2012. Unfortunately, installation information was not available for the same time period, so three full years of data 2008 – 2010 are compared to three full years of calls data – 2009 – 2011.

The XPD data demonstrate that installations were not entirely in line with calls for narcotics activity or violent crime. First, were the locations with the highest levels of violent crime and calls about narcotics activity the same places where POST cameras were installed? Approximately 34% of all calls for service to report narcotics sales were from one precinct. That same precinct had the second highest a rate of violent crime, 2.8 times the city overall. This precinct had only 8% of POST camera installations. Conversely, the two precincts that made up the central business and entertainment district had about 31% of all POST camera installations, less than 1% of total calls for narcotics sales, and a violent crime rate about 0.6 times the city

overall. Decisions to implement a large number of POST cameras in the central business and entertainment areas could be due to other important considerations, like the volume of tourists or the number of potentially high-profile target areas in the city. Removing these two precincts from the analysis, the precinct that had the most POST camera installations (11.6%) also had the highest number of calls regarding narcotics sales and the second highest rate of violent index crime. The second highest precinct in calls for narcotics had slightly higher than average percent of POST installations, and slightly higher rate of violent index incidents than the city overall. The precinct with the highest rate of violent index crime (3.1 times higher than the city overall) had the third highest number of narcotics calls for service but less than the average number of POST camera installations.

As a follow-up question, did the places with the greatest number of POST cameras conduct the highest number of missions? Five precincts account for nearly 33% of all POST missions, but about 8% of all total camera installations. Conversely, the five precincts with the greatest number of POST installations represent nearly half of all installations, but account for only about 15% of total POST missions. One finding of particular interest, however, is that the vast majority of precincts (84%) completed an average of at least one POST mission per day. This seems to confirm interview reports that there was a widely held belief that all precincts were required to complete at least one POST mission per day.

As previously noted, environmental factors were considered in decisions about where to install POST cameras. Cameras had to be placed high enough that they have a "line of sight" to the wireless signal tower. Cameras were mounted on city property, which meant mostly light poles, and initially, the ability for the pole to support the weight of the camera box was an additional consideration for placement (although as the cameras have gotten smaller, this concern has diminished). The location also had to have the appropriate electrical requirements in place to support the installation.

When a location for installation is proposed, city employees who staff the POST program did a physical site analysis, where they visited the location to determine if the physical environment would support the camera (e.g.: line of site, availability of property on which to mount camera, etc.). Additionally, the department engaged in a "de-confliction" process during which they confirmed that no undercover operations would be compromised or negatively impacted by the presence of a POST camera.

As noted in interviews, a majority of the cameras installed since 2005 remain unmoved since installation. Data bears this out: between 2005 and 2010, just over seven in ten installations remained unmoved since their initial installation. In Table XXIII below, installations *do not* represent cameras owned and operated by the department. We know the department owned at least 1,240 cameras during this time period, the number of cameras installed that remain unmoved. The installations that have subsequently been removed used an unknown number of cameras (a total of 1,753 installations minus 1,240 unmoved cameras equal 513 installations and removals using an unknown number of cameras).

		P	_				
Year Installed	POST Cameras Unmoved	2006	2007	2008	2009	2010	Total Installations
2005	23	18	21	5	4	5	76
2006	96	28	60	26	17	12	239
2007	305		113	26	23	26	493
2008	489			37	18	10	554
2009	118				27	12	157
2010	209					25	234
Total	1,240	46	194	94	89	90	1,753

Table XXIIIXPD POST CAMERA INSTALLATIONS AND REMOVALS

As seen in Table XXIII, the greatest placement of cameras occurred in 2008 representing nearly 40% of unmoved cameras. Additionally, more than 88% of POST cameras installed in 2008 remain unmoved as of this writing, compared to about 70% overall. Of the cameras installed in 2010, nearly 90% remain unmoved. The number of installations fell since 2008, and informal feedback from department employees indicated that demand for camera placement from both within and outside the police department continued to exceed the budgeted allowance for their purchase. One person indicated that the city wanted to purchase cameras using the newest technologies available, but those cameras weren't available in the systems the city required. Therefore, no new camera purchases were made pending funding and desired technological features.

At least one POST cameras was installed in every community in the city. The policy on placement states that the areas of greatest need for POST will be identified using levels of violence, calls for service, community input, and police intelligence. Generally speaking, communities with high levels of crime have not always had a greater concentration of camera installations than those with lower levels of crime. The department did not provide information about community input or intelligence (presumably because no centralized data of this nature exists). Information about the committee that was established to oversee placement and evaluation indicated that it was an ad hoc committee assembled to review requests for placement that had been made by chiefs. During these meetings, the technology group provided a weighted score for neighborhoods in the immediate area of the placement request based on calls for service, incidents and arrests to committee members at the start of each meeting. If there were enough cameras to respond to each request, all requests were generally approved. If not, the committee tended to allocate available cameras based on the scores provided.

Many articles cite City X as having the greatest number of POST cameras in the United States. One 2010 article (Alias Reference 15) estimates about 11,500 cameras between the police, schools, transit, and airports. Subsequent information indicates 3,000 more were being installed by the public housing agency for a total of nearly 15,000.

The greatest concentration of cameras was clustered in the central / business district. Nearly 20% of all camera installations (2008 – 2010) were in the central / business district, which accounts for close to 4% of total land mass in the city. The three precincts with the highest rates of violence crime had 8% of all installations and accounted for about 8% of total city land mass. These three districts had a total rate of violent index crime nearly double that of the central / business districts and about 120% of the city rate. The requirement that every precinct run missions using POST may have limited the number of cameras available to be installed in neighborhoods with the highest crime rates. It may be the case that the central / business district had a much higher daytime population than their residential populations as that data is unknown. "[Deidentified location] is one of our largest tourist destinations. We want to provide the highest level of safety in those areas where we have huge amounts of people," said a high ranking police official in 2005 (Alias Reference 48).

Using POST and Resulting Data in Case Study City

There are two ways that video image data can be used: actively or forensically. Active uses mean that activity was observed by camera monitors in "real time" - as the activity was occurring. Forensic uses mean that monitors did not witness the activity as it was occurring, but that the captured data are reviewed after the fact for the potentially useful content.

Active use.

The first generation of POST cameras limited an officer's proximity for remote viewing to just a few blocks. In order to monitor a camera, an officer had to "check out" portable monitoring terminal from the precinct. Only one officer could view the feed from a given camera at any one time. This strategy allowed individuals or officers working in teams to use POST cameras to target local problems about which they had specific knowledge. However, the technology was cumbersome and impractical. Officers reported that they did not like the proximity restrictions and felt that the program design was inefficient.

Since that time, significant changes have been made to the monitoring technology and processes which have greatly expanded the ability for individuals to actively monitor POST cameras. Subsequent generations allowed officers to control and monitor POST cameras from a remote desktop computer using custom software. Theoretically, multiple individuals could monitor a single camera feed from any remote location where the software was installed. The remote desktop software allowed an officer to manipulate the camera and use the technology in any manner consistent with the department's policy. With a mouse, the user could control where the lens was pointing and use PTZ features. If multiple people wanted to control the cameras

lens, the highest ranking officer was given control. If two officers of the same rank, the one who started manipulating the lens first was allowed to continue. Ten minutes after the last manipulation of the lens, that camera became available for another officer to manipulate. If no one used the software to control the camera, the lens was sent on a pre-programmed tour.

Software for viewing video feeds was available on many department computers, as well as within the specialized unit that were responsible for real-time crime prevention, and the central organizing agency. Given the number of cameras available and the resources that would have been required to actively monitor all of them, not all cameras are actively monitored. To illustrate, a non-leap year has 8760 hours in it. A person who works 40 hours a week works 2,080 hours a year with no vacations or sick time. Therefore, it would require 4.2 people with no overlap, vacation, or sick time to have a single person present in one location 24 hours a day, seven days a week. Even assuming an individual could monitor more than 1 camera at a time, the National Institute of Justice found that individuals have difficulty concentrating on monitoring cameras for more than 20 minutes at a time (Dadashi et al, Forthcoming). It is apparent that the total monitoring of surveillance equipment would require an unrealistically large investment in personnel costs.

The employment of dedicated of staff to actively monitor POST cameras has changed over time. At the end of 2004, an undisclosed number of retired police officers were hired to work as part time contractors in a central monitoring room (Alias Reference 36, 37). These officers worked for less than a year before the money allocated to pay their salaries was recaptured by the city. The bulk of the active monitoring was done by officers in districts who were largely self-directed in how and when they used POST (discussed in "Observation" section). The city was very interested in allowing officer to use POST watching software on laptops or blackberries issued to officers in the field. To date, this has not been implemented.

In 2010, however, a program was established to use officers who were not on active duty (on long-term medical that did not allow for field patrol, for example) to monitor cameras from a central control room. A maximum of six and a minimum of four per watch were assigned as monitors on a rotating basis. In order for officers to be eligible for the assignment, they had to complete a nine hour training protocol. According to an internal XPD document, the training was designed to change operations from "strictly reactive monitoring of the city streets to an aggressively proactive law enforcement tool using a minimum of personnel resources" (Alias Reference 39). Monitors in the central monitoring room had access to tools that were not available to officers using the desktop software. Monitors were assigned the areas and POST cameras that they would be monitoring by the XPD's central intelligence hub. In addition, monitors were required to listen to the radio zone in the area they were monitoring in order to be aware of police activity.

The XPD has experimented with allowing citizens to monitor cameras. The community policing program initiated a volunteer program where citizens received basic training on how to monitor cameras. During the pilot phase of the program, the POST cameras the volunteers viewed were pointed mostly at public parks. No documentation on this program was obtained for this research, but in informal discussion with an individual directly involved in the project said that citizen volunteers were quickly fatigued (after no longer than 45 minutes). Also, because the department had to select non-controversial areas for citizens to monitor, the areas they selected did not have a lot of activity which. This work was both not very interesting for volunteers, and also of little value to the XPD. The program ended after a few months, but as of

this writing, the XPD had begun o reimagining ways to involve citizen monitors. One interviewee stated he would like to see open feeds available on the internet to anyone who wished to watch, with instructions for those volunteers to contact the dispatch center if they observe what they believe to be actionable activity. Such a program could result in a great deal of additional work for the XPD because citizens would not all be in agreement about what would constitute actionable activity. To date, such a program has not been implemented.

Active monitoring of the POST cameras were conducted in three general areas within City X. First, each geographic precinct had at least one desktop computer where officers could monitor and control cameras. Officers, at the direction of their supervisor or at their own discretion used the monitoring and control capabilities to simply watch live feeds and deploy resources through the standard emergency dispatch process. Officers also worked in teams to target locations for an intervention, if necessary. Obviously, these methods of monitoring did not require full time monitoring resources.

Second, full time monitors were employed (on and off over time) by City X's emergency management agency. These monitors watched not only the POST cameras owned by XPD but also those on the federated public network. The emergency management agency briefly employed an undisclosed number of retired police officers to monitor POST cameras in the center control. There were far more cameras than monitors were able to observe, so they were expected to use their prior policing experience to select appropriate areas to watch. Due to the declining economy, however, those monitors were laid off after less than one year. After a period of time in which there were no full-time monitors, the police began providing officers who could not perform regular field duties to monitor the cameras in shifts, switching individuals out after 28 days. Third, within the XPD, a centralized intelligence unit had access to monitor any event at any time. Individuals employed by this unit had responsibilities greater than monitoring cameras, so they were not full-time monitoring resources. In sum, full-time monitoring of the cameras was not possible in XPD and a small number of monitors (relative to the number of cameras) were not stationed in the emergency management agency full time until 2010.

Several people interviewed about the camera program reported that precinct-level units were required to run camera "missions" in which they targeted illegal activity via POST cameras on a daily basis. No such requirement is documented within the police department. Nonetheless, the widespread believe that missions are required has led to many missions involving POST being conducted, even if they are conducted only to generate an activity report and do not result in a fruitful outcome. In 2004, local media reported that video of incidents had been provided to detectives 32 times since program inception (Alias Reference 45). A 2005 magazine article stated that images from POST cameras had been used in "over 200 investigations" (Alias Reference 50). An internal XPD document obtained through a Google search stated that approximately 20,000 missions are conducted each year (Alias Reference 11). A request for information from the XPD revealed that there were almost 120,000 missions run using POST in the 48 month time period starting July 2008 and ending June 2012, which averages to almost 2,500 a month. The three full years of data shows about 30,000 missions each year. When looking at the daily average, only one precinct failed to average one mission per day in the first six month of data provided, and four precincts failed to average one per day for the entire time period. This lends support to the belief that precincts were required to run a mission every day.

Observations of active use. In order to understand how POST cameras were actively used by XPD, observations of officers using POST in four different settings were completed. In

all three cases, police officials were aware that the purpose of the POST session was for the researcher to gather information. Observations were interactive, with police officials and researcher engaging in a dialogue throughout the process.

The simplest use of the POST was a single officer in a precinct station that manipulated one camera at a time, switching between multiple cameras, in order to find something that would have required a dispatch. During my observation of this strategy, no activity that required a dispatch was observed. However, the officer related that if an activity had been observed that required a dispatch of police resources, it would be handled by radioing the centralized dispatch center to send an available officer to the scene. This type of use required the smallest number of police resources – one – but also consumed the officer's time without accomplishing anything. In this scenario the officer waited for activity significant enough to warrant an intervention, although the threshold was undefined by department policy and could not be articulated by the officer. The chance of an officer finding a significant violation by randomly looking at camera feed represents the metaphorical "needle in a haystack." Had this officer been on the street rather than sitting at a computer monitor, it would have been easier for them to accomplish some measurable activity even if it was a "low level" activity, such as writing a ticket for a vehicle parked illegally or stopping a car that had run a stop sign. While police dispatchers do receive calls to ticket vehicles, it would be fruitless to dispatch a car to the scene of a location where a stop sign violation had occurred. After all, the vehicle is unlikely to be at that location when police arrived, since calls about traffic violations are in the lowest call priority category for dispatching. In this case, the officer was an "administrative" officer meaning he/she did not have patrol responsibilities and was not taken from street duties to use the POST system. The department eventually replicated this model on a larger scale, using officers on medical or other

restrictions that kept them from patrol, although more specific guidelines were provided to those officers who were also located at the dispatch center.

During a second observation, tactical officers gathered at a precinct station at the beginning of their shift to develop a POST mission strategy. The tactical officers, working with an officer monitoring from a precinct station, went to an agreed-upon location near one or more of the POST cameras. The location was selected based on the tactical officers experiences during previous shifts that indicated illegal activity might occur in a particular location. During this observation, the area surrounding a park was targeted, mainly for illegal sales (the officers believed an individual was illegally selling stolen merchandise – shoes – on the sidewalk and another was selling drugs in the park). The officer in the precinct used the software application to move the cameras to look for illegal activity near the agreed-upon location. If illegal or even suspicious activity had been observed, the tactical officers would have been notified by the officer in the station to intervene and perhaps make an arrest. No illegal activity was detected during the observation.

The tactical officers eventually made contact with the individuals being watched during which time the officer in the station continued their observation in order to enhance officer safety. After the informal contact with the officers, the subjects left the area. In this scenario, the use of POST did not appear to be directly beneficial, but officers report that they appreciate the "extra set of eyes" when they know other officers "have got my back." Furthermore, the subject of surveillance felt uncomfortable enough to leave the location. This may or may not have been an intended outcome, but may be an example of POST contributing to social exclusion (discussed in Chapter VII).

A third observation of POST missions revealed a use for POST that has not been documented elsewhere and was not reported in interviews. An officer in plain clothes, working with officers at the precinct station, alternately placed a bicycle and a rolling utility cart in a location that could be viewed by POST cameras, and that had been selected by the team. The officer exited the scene, leaving the conveyance with a duffle bag hanging from the handle bars or on the top of the cart. Additional plain clothes officers waited near the location where the object was left. Visible within the duffle bag without it being touched were potentially desirable items (e.g.: a carton of cigarettes, an iPod box). Officers in the precinct station watched via the POST cameras until an unknown individual approached the duffle bag and took the items. When this occurred, the POST monitor dispatched the other officers to intervene, which lead to the individual being arrested. During these observations, two individuals were apprehended. The first was detained fairly quickly, taking the duffle bag within about 15 minutes of it being placed. The second individual took much longer, about 45 minutes after the bicycle was placed. During this time, many individuals passed the placed items, a fair number of which looked at the abandoned items.

The police officials who participated in this mission stated that it was an acceptable use of technology, reasoning that only "criminals" would take the items. They reported that they had used this method often, and that the people they apprehended often had outstanding warrants. Further, they related that they were conducting these kinds of operations because they were "required" to use POST every day, and thus were trying to find uses for the existing technology. During the observation, there was one person in the station and four more on the street. It may not be the case that all POST missions of this nature use five people, but the efficiency of the POST cameras strategy was questionable compared to having the officers working regular patrol responsibilities.

As discussed previously, formal interviews and informal conversations with police officers in City X revealed a widespread belief that POST missions are used to make any arrest in order to boost numbers for accountability sessions, particularly at the end of the month. Thus, POST became a tool in the arsenal of strategies used to achieve numbers within Compstat-like accountability systems. The observations could be used to strengthen that contention in that they were neither more effective nor efficient than having officers in the field.

Forensic use.

As discussed above, active monitoring of POST cameras was used to disrupt an offense in progress or to locate an individual that passed the camera in "real time." Other uses for image data captured by POST cameras are called "forensic" uses.

The Oxford English Dictionary definition of forensic (adjective) is: "Pertaining to, connected with, or used in courts of law; suitable or analogous to pleadings in court." More broadly, "forensics" is also used as shorthand for "forensic science" in which different "scientific" perspectives are used to answer questions pertaining to the legal system⁹. Included under the umbrella of forensics is the use, mainly by law enforcement, of relevant methodologies and technology, including surveillance and biometrics systems as well as DNA research, fingerprint and other identification techniques, autopsy, toxicology, and others methods.

As noted earlier, it is difficult if not impossible for most POST programs to actively monitor all cameras full time. Therefore, the vast majority of images captured by POST were

⁹ According to The Forensic Sciences Foundation, "Forensic science is science used in public, in a court, or in the justice system. Any science used for the purposes of the law is a forensic science." The Sam Houston State University states that forensic science is "the application of science to the law."

not actively monitored, but were stored to be used as tools after the fact, should they be needed for investigative purposes. Given the sheer volume of data captured, POST data are much more likely to be used forensically than actively. In order to understand forensic uses in City X, formal interviews with two detectives were conducted to document their impressions of the POST program. Additionally, data on requests for image retrieval were analyzed and informal conversations with a number of individuals were used to fill out this description.

Both detectives during separate interviews indicated that they had used POST images in criminal investigations, and both explained that the video images they used were most often privately owned. Both detectives noted that the POST images from the publically-held police cameras were not very useful. They explained that images were not suitable to identify people because of their poor quality. The image capture was especially bad during dark hours, the time of day when a large percentage of violence occurred. Another problem with XPD images noted by the detectives was that the camera lens rotates randomly, thus minimizing the chances of them being pointed in the right place at the right time. The detectives agreed that privately held video images are often more useful for their investigations due to better image quality and static camera lenses pointed at the areas with the most potential for problems. Even so, there were complications in retrieving private images from commercial locations like a convenience or liquor store. Often, the employee did not know how to retrieve the images, or the taping loop was short so that potential evidence was deleted before officers had a chance to review it.

Both detectives were enthusiastic about the usefulness of *good* video images (from any source: private or public POST cameras, cell phone or other hand-held devices, etc.). They agreed that good quality images are priceless when conducting investigations, interviews, interrogations, and in getting the prosecutors to file charges. One detective stated, though, that

video evidence from POST cameras had in some ways become problematic, in that prosecutors seemed to "add it as a threshold" for accepting a case for prosecution. This is part of what is known as the "CSI Effect": society's raised expectations of police based on TV shows (such as "CSI: Crime Scene Investigation") that use "high-tech" equipment (that are sometimes completely fabricated for the program) to investigate and solve crimes. When people get used to seeing video evidence on criminal justice dramas on television, they may develop unrealistic expectations about actual investigative processes and evidence collection. Alternatively:

A photo used to be so unique that it would capture a pretty wide audience," [a former police officer and prosecutor] said. Now there's the question of whether there "is a point at which people kind of get overloaded with pictures and they don't pay attention any longer," [he] said. "The risk is that by putting too many photos out into the public sphere, you may end up dampening public interest. (Alias Reference 52)

The advantages of POST programs for supporting investigations, according to one detective, is that it can be a smoking gun, but even if the images don't show the crime, you can "usually get something" (license plate very rare but possible, vague descriptions at a minimum). The other detective said that the police POST images had never been useful in capturing the details of a crime, but that they have been useful "in some cases" in corroborating or refuting a complainant's account of an incident, for example. One of the detectives, as well as a high-ranking police official, noted that suspects are more likely to plead guilty if video evidence is available. When asked about disadvantages, one detective said there were none: that worse case is that the images don't show anything, which causes no harm. However, the other detective reported that the cameras raise expectations "unrealistically" in that victims of minor incidents will expect that POST camera, even at a great distance, will have captured all the relevant information about the incident. This is part of the "CSI Effect," and, of course, requires additional time on the part of the detective to either explain that the images won't be revealing *or*

will result in the detective "wasting time" reviewing recorded images that do not have any value. Further, both detectives agreed that POST images on their own would very rarely, if ever, be enough evidence for putting together a case for prosecution.

When asked to identify the "biggest challenges" of using POST images as evidence, both detectives agreed that image quality and the rotating lenses were problematic. One detective said it was getting the images from privately held cameras. Absent a subpoena, owners of privately held cameras are not required to provide video images. A subpoena might take two days to obtain, at which time the evidence may have been erased. Reluctance to cooperate was sometimes due to lack of knowledge about how to retrieve data or when they had no personal involvement in the incident. These issues were often compounded when detectives tried to retrieve images at night, if for no other reason than people don't want to get out of bed just to retrieve for the police without benefit to themselves.

Both detectives complained about the use of POST images in investigating property crimes because there was almost never evidence captured by cameras, but they have to spend time retrieving and reviewing the video anyway. Property crimes are often not reported until days after the fact, which decreased the likelihood of obtaining actionable evidence. However, the presence of cameras made some citizens feel that they had the right to access video images. POST images were captured and stored with publicly-funded equipment, and accessible by public employees. But there is no clarity about image ownership and police largely saw the images as belonging to the XPD without citizen's right to access. Even a former police officer described being unable to get images reviewed when his personal property was damaged. Perhaps the XPD personnel didn't feel it was a good use of public funds, but the question remains unanswered: what rights do citizens have to access POST images? An XPD officer who worked with POST cameras reported that requests to review video had become burdensome. For example, a detective requested access to POST images for a burglary case. The start and end time of the images that the detective wanted to review were four days apart because the victim had been out of town for four days and didn't know when the home had been burglarized. The officer stated that such requests were not a good use of limited staff time as the detective would have to review four days of video images on the off chance that cameras captured something useful (the lens may have been pointed in the wrong direction, for example). Even if the POST camera had recorded an image of the offender that did not guarantee that the image could be used for identification (poor image quality). In this case, the detective tried to recover the footage and another officer denied the request based on their conception of the appropriate use of officer time. There was no defined standard for who can review what and for what reason.

The detectives had a few recommendations to improve the POST programs. First, detectives should be educated on the importance of dealing professionally with store owners (or other owners of privately held cameras) in order to obtain voluntary compliance. Second, the city should pass an ordinance that would require business to provide video evidence to police when requested without a subpoena (although this would have to be thought through in some detail). Finally, higher quality systems were strongly endorsed by detectives, as was the idea of pointing the camera lenses in a single direction, where activity has the greatest likelihood of occurring, rather than rotating randomly when not controlled remotely.

Data.

Assume that the XPD owns 2000 cameras on the network that are each recoding 24 hours a day, then there would be 17.52 million hours of images recorded in a single year, an average of 1.46 million hours per month or 48,000 hours per day. Although it would be impossible to document all the forensic uses for POST images, the XPD began documenting all requests to look at POST images in an electronic database in 2007. Three years of data were reviewed in order to understand how forensic images were used. Table XXIV shows the breakdown of POST cameras, index crimes¹⁰, retrieval requests, total arrests, and those that were categorized as related to POST cameras.

	# Cam Insta	of 1eras alled	Index Inc	cidents	Retr Requ	ieval ıests	Total Ar	rests	PO Arr	ST ests	Arrests as % of Total Arrests
		% of		% of		% of		% of		% of	
	#	Total	#	Total	#	Total	#	Total	#	Total	
2008	587	57%	169,548	35%	3,277	34%	195,690	36%	1,364	43%	0.7%
2009	169	16%	156,576	33%	3,344	35%	180,867	33%	891	28%	0.5%
2010	275	27%	152,438	32%	3,015	31%	167,302	31%	886	28%	0.5%
Total	1,031		478,562		9,636		543,859		3,106		0.6%

Table XXIVXPD POST CAMERAS, INCIDENTS, ARRESTS, AND RETRIEVALS

During the 3 year time period examined, most arrests related to POST cameras were made in 2008 (43%) with 28% made in both 2009 and 2010. Index incidents, total arrests and retrieval requests are fairly even across the years, but the greatest number of arrests that were noted to be related to POST were greatest in 2008, with about a third fewer arrests in 2009 and

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¹⁰ The Federal Bureau of Investigation Uniform Crime Reports program collects offense information on eight types of crimes, known as "index crimes": murder, rape, robbery, aggravated assault and battery, burglary, theft, motor vehicle theft, and arson. These types of incidents are considered serious crimes that occur with some regularity (compared to serious crimes that occur infrequently like kidnapping). Index crimes are the types of incidents most likely to be reported to the police and are used as a basis for comparison among jurisdictions.

2010 than in 2008. The proportion of arrests made as a result of POST cameras, were consistently very low – from 0.7% in 2008 to 0.5% in 2009 and 2010.

Between 2008 and 2010, there were more than 9,500 requests for retrieval of images, which were nearly evenly distributed among those years (34%, 35% and 31% respectively). Although not shown in the table, nearly 14% of the requests were associated with investigations of complaints again police employees. Almost three quarters were associated with reported criminal incidents. Approximately 7.5% were associated with an event that did not generate a report or arrest (at the time of the retrieval request), and only 2.5% resulted in an arrest.

Of the retrieval requests that were associated with a reported criminal incident, more than three in 10 were for robberies, almost 1 in 4 were for batteries, and fewer than 1 in 10 were for murders. To put the requests into perspective, the total number of murders during the time period accounted for one tenth of one percent of all reported incidents, robberies four percent and batteries about 18% percent, which indicates that the department was using the forensic retrievals for the most serious types of incidents.

The number of cameras installations (not unique cameras, but including cameras that are moved from one location to another) ranged from about 170 to about 590 between 2008 and 2010, with most installations (57%) in 2008. Crime and arrests decreased between 2008 and 2010. Index incidents decreased each year, and were down 10% in 2010 compared to 2008. Arrests during the same time period also decreased each year, and by 14.5% from 2008 to 2010. Retrieval requests increased slightly (2%) from 2008 – 2009 and then decreased by 10%. Finally, arrests attributed to POST decreased by 35% from 2008 – 2010^{11} .

¹¹ There are many factors that impact the number of arrests made by any police department, so no causal relationship is suggested.

In their internal data, the XPD made a distinction between arrests made as a result of active monitoring of POST versus after the fact with forensic retrievals. Of the arrests that were coded as POST arrests, almost 99% were the result of active monitoring and just over 1% were due to forensic POST images (See Table XXV). Of those that were the result of active monitoring, the majority were for "miscellaneous" offenses (approximately 45% between 2008 and 2010), drug abuse violations (approximately 23%) and disorderly conduct (approximately 18%). By statute, 21% for criminal trespass (a misdemeanor offense), 16% of the arrests made were for drinking alcohol on the public way (a municipal charge), 11% were for soliciting unlawful business (used for prostitution, a municipal charge), and 6% for distributing cigarettes from a sealed pack (used to conceal small drug transactions, a misdemeanor). The arrests that were made as a result of active monitoring were low-level offenses. The nature of these arrests suggest that field officers could have done the same, leading one to question how the expense of active monitoring could be justified.

Table XXVXPD ARRESTS AS A RESULT OF POST

	2008	2009	2010
Arrests from Actively Monitoring	1,354	880	872
Arrests for Drug Abuse Violations	285	226	211
Possess <10g cannabis	66	84	81
Possess <15g cocaine	44	30	9
Possess <15g heroin	82	14	12
Arrests for Disorderly Conduct	244	107	210
Drinking on Public Way	223	99	174
Arrests for Miscellaneous Offenses	669	375	342
Criminal Trespass	434	138	68
"Soliciting Unlawful Business" & "Certain Transactions Prohibited" (Prostitution)	98	133	102
Arrests after Forensic Review	10	11	14
Total Arrests as a Result of POST	1,364	891	886

A very small number of arrests (less than 40 over 3 years) were after forensic POST review, of which almost 9% (3 total) were for murder, battery, theft, and possession of 2.5-10 grams of cannabis. Coding an arrest as occurring because of forensic review does not mean the offender was captured because of the video images stored. The images could have been used for court cases and the arrest noted as being related to POST whether it was instrumental in identifying the individuals or not.

It should be noted that analysis of XPD data was impacted by data collection integrity. "Garbage in, garbage out" describes this reality; the integrity of the data are uncertain, and therefore, could result in unreliable findings. Many departments have problems with data integrity and as such, analysis should always be considered in this light. This is not to suggest that problems with data integrity are related to intentional manipulation of data to reduce reported serious incidents. The XPD was audited by the Federal Bureau of Investigations, the agency with responsibility for Uniform Crime Reporting, and found to be in compliance. Issues of data integrity in the XPD have to do with internal consistency and data coding outside or beyond the crime classification (such as location or other types of coding). Nonetheless, even assuming underreporting, these numbers are very small in comparison to the amount data captured as well as the overall activity of the police for which POST could have been used.

Table XXVI illustrates the low number of POST activity compared to overall activity. POST missions were occurring during the time period examined at a rate of about 83 per day (which would be about one per shift for each of XPD's geographic patrol areas), but arrests made from active use of POST averaged less than 3 per day. Similarly, there were an average of about 9 retrieval requests per day compared to very small numbers of arrests made as a result of forensic review. Again, data integrity may be an issue, but clearly, compared to the overwhelming amount of data being captured (48,000 hours per day if 2,000 cameras were being used) and the total activity of the XPD.

	2008	2009	2010					
Active Uses								
POST Missions	30,948	30,067	30,017					
POST Active Arrests	1,354	880	872					
Forensic Uses								
POST Retrieval Requests	3,277	3,344	3,015					
POST Forensic Arrests	10	11	14					
XPD Activity Data								
Total Arrests	195,690	180,867	167,302					
Total Reported Incidents	425,505	391,696	368,834					

Table XXVIACTIVE AND FORENSIC POST USE, 2008 – 2010

Data available only for July – December, therefore, this is a rough estimate, doubling the July - December number (15,474)

In summary, the preceding chapter included a detailed description of one POST program, from program inception to public reaction. The idea for the XPD POST program was to target narcotics sales and gangs in the city's most violence-prone neighborhoods. The initial plan to install cameras in "hot spots" for short periods of time as part of a coordinated strategy to reduce violence was quickly replaced with a massive blanketing strategy due to political pressure that superseded any evidence-based decision making. Initial public reaction was mild and significant protests about POST in City X never developed, perhaps in part because of the strong endorsement by the mayor and local media.

Policy and training in XPD were not comprehensive, focused on the technology and briefly mentioned Constitutional protections. No formal accountability mechanisms were addressed in either policy or training. The expansion of the program to include XPD cameras in a federated system complicated police access to POST data as City X agencies had implemented their own POST programs without coordination of hard or software technology. Program costs were unknown but were certain to be in the tens of millions, if not higher.

Cameras were not always deployed in neighborhoods with the highest levels of narcotic and gang activity, as originally planned. The change may have been the result of the change in focus, away from mobile to static locations. It may have also been due to the desire to introduce surveillance in "high value" locations for potential terrorist attacks, like the central business and entertainment districts (as was the case in Manhattan). Other forces affecting the decision likely included political pressure from local politicians.

Rapid program expansion taxed the system capacity, and POST cameras could not always be placed where wanted due to "line of sight issues" (lack of wireless signal to transmit live feed). The volume of data captured by POST cameras far exceeded the XPD's ability to actively monitor cameras. The number of arrests made as a result of POST cameras were very small relative to the number of arrests made in a year and the amount of data captured, and the amount of footage that is useful forensically is even smaller. The types of incidents for which POST data were reviewed involved the most serious types of violent crimes, but the arrests that were made using POST were for low-level crimes. This suggested that investigators reviewed video in the course of investigating serious offenses but when actively monitored, they most often observed offenses were petty, as would be expected because of their greater frequency.

VI. NATIONAL POST PROGRAMS AND THE MEDIA'S USE OF POST

Many cities in the U.S. have implemented POST programs for a variety of purposes. A large-scale analysis of U.S. POST programs has not been published so similarities and differences among program design and implementation are unknown. The preceding case study information illustrated POST in a single city. Additional data was gathered from large U.S. cities that have implemented POST programs and were examined to contextualize the City X POST program. Furthermore, the preceding chapter included information about how one city uses POST data internally. POST data is used for different purposes by different types of agencies. Police use of POST may include investigations and prosecution or to obtain public information about a particular incident. In a less forthright manner, the police may use POST images as a way to build support for the use of POST. POST images have been used by the media for different reasons and in different ways, and those uses likely have impacted public perceptions of the usefulness of POST.

The information included in this chapter was gathered from publically available sources (newspapers, websites, etc.), original interviews, and secondary data analysis. What follows is a comparison of POST programs in several large U.S. cities, and an examination of high-profile cases that involved the use of POST, either in their investigation or simply as a reporting tool by the media. The purpose of this chapter is to develop an understanding of the extent to which POST programs vary nationally and the ways that POST data is provided to the public. In this analysis, I will address research questions regarding the factors that influence the decision to implement POST, the extent to which empirical research is incorporated in the consideration and implementation of POST, and how the public often learns about the data collected through POST.

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National POST Programs

In order to contextualize the case study city, as part of this research, the author reviewed publically available documents about police POST programs in major U.S. cities. Some additional information was collected from original interviews of police employees in some of the cities, but largely, the survey strategy was not fruitful (as referenced in Chapter III – Methodology). Many people contacted did not want to participate because they could not speak officially for the department and in those cases where "official" responses were obtained (by providing a list of written questions in advance), further respondents to contact were not provided. In all, interview data was collected from six cities (Chicago, Indianapolis, Las Vegas, Los Angeles, Philadelphia, and San Francisco). Additional secondary interview data from the Baltimore Police Department were made available. These data were combined with publically available information from other major U.S. cities, including peer-reviewed published evaluations of police POST programs. In total, data from ten major police departments was used to contextualize the study city (the six above plus Baltimore, Denver, New York, and Washington, DC). Baltimore has by far the most information about their use of POST available publically. The willingness of Baltimore leadership to participate in the Urban Institute's evaluation of POST (La Vigne et al, 2011), as well as corporate-sponsored webcasts that discuss the program and practices, suggested that Baltimore was confident in their use of POST.

New York was the first major U.S. city to begin using POST, starting in the late 1990s. Las Vegas was the latest department to use POST, starting in 2008. The number of cameras employed in police POST programs in 2010 ranged from about 10 in Las Vegas to about 5000 in New York, with a mean of about 725 but a median of 250.

Influence.

Given that law enforcement agencies are prone to influence each other, this research sought to understand factors that contributed to the escalation of POST innovation. The idea to use POST in policing was not an original idea. Many of the national departments cited London, Chicago, and Baltimore as important influences in developing their POST program. Chicago and Baltimore cited London as being influential, Washington DC cited Chicago and Baltimore, Philadelphia and Los Angeles cited Chicago and New York, and Denver and Indianapolis cited Chicago. Police executive often meet to share ideas and discuss problems and strategies to address them. William Bratton was credited with bringing POST to Los Angeles, and he was the former chief of police in New York, where POST had been deployed previously. Only Las Vegas did not cite another agency in being influential in their decision to develop a POST program.

Policy and Purpose.

Not all U.S. police departments with POST programs had written policies to govern the use of the technology (Brown, 2008). In some cases, cities developed policies that were approved by the city council, while in other cases police departments developed internal policies. To understand the intended purpose of the POST program, this study reviewed department's written policies on the use of POST cameras, or publically available information, and/or collected interview data from staff. The cities for which a police department written policy was obtained included Baltimore, Chicago, Denver, and New York. Both Los Angeles (L.A.) and New York have separate written policies for the use of POST cameras depending on the program (New York provided one of those policies for this analysis while L.A. did not provide any). The cities for which a city council approved policy were obtained included San Francisco and

Washington, DC. A representative from the Philadelphia Police Department stated that there was no written policy governing POST, and it is unknown if Indianapolis and Las Vegas had written policies.

Two of the ten departments did not have a stated purpose for their use of POST (Philadelphia and San Francisco), and one department reported that the stated purpose was different for each program or station (Los Angeles). However, with reference to Los Angeles, Cameron et al, (2008) noted that the POST program was a tactic under William Bratton's strategy that relied on "broken windows" policing. This suggested that Los Angeles intended to target minor crimes (including incidents of drug dealing) using POST, which made them unique among departments studied. With regard to San Francisco, King et al (2008) documented what they believed to be the goals of the city in incorporating POST; that information is included in this analysis rather than official police department information. New York also had multiple programs using POST, but provided a single written policy specific to a public / private partnership to share video surveillance data in Manhattan to target terrorism activity.

The remaining departments' stated purposes were to reduce / deter / prevent crime (seven of eight – New York not included because the policy provided was focused on "homeland security / terrorist prevention"). Three policies explicitly stated homeland security or anti-terrorism efforts in their policies, and one used language "respond to major critical events" which could certainly be homeland security events. Four departments intend to use POST to investigate crimes and gather evidence; San Francisco also stated an interest in using that evidence for adjudication. Three departments stated the purpose: to identify / apprehend suspects; detect / identify crime; and reduce fear of crime. Other stated purposes in department policies included reducing response time, improving allocation of resources, and reducing the

cost of crime to a community. Two departments had a stated purpose of documenting police actions, and one department stated a goal of creating a common technological infrastructure to support future technology projects. Finally, one department stated a purpose of observing "prescheduling public events for approved investigative purposes." Again, while San Francisco's program did not have stated goals, according to King et al (2008), secondary goals of the program included fostering community participation in, facilitating oversight and accountability for the POST program, and minimizing intrusion on personal privacy. These secondary goals differed from other departments in that King et al constructed the goals with interview data gathered from a variety of stakeholders both within and outside the police department.

Monitoring. With the exception of San Francisco (which is prohibited by local statute), all departments engaged in some active monitoring of cameras, although the amount varied widely. For example, Baltimore and Chicago both had dedicated monitors working at all times (although in Chicago, full-time monitors were not part of the program for a number of years). Baltimore indicated that active monitoring was a priority of their program. And while the reduction in violent crime was seen as an important goal for the program, monitors reported that it was uncommon to see violent crime occur within the view of the cameras. Narcotics activities were the most commonly monitored crime in Baltimore. In New York, there were many different programs that incorporated POST cameras, and according to operating policy, all were monitored. Even with a small number of cameras, basic math demonstrates that any program, regardless of how many cameras were deployed, required an enormous amount of personnel costs to monitor all locations at all times, well beyond what any police department could likely

afford¹². Philadelphia implemented two different kinds of cameras; those that were installed in a particular location and those that were intended to be portable. The installed cameras were monitored but the movable cameras were not.

Community involvement.

The level of community involvement in POST program design and implementation varied by city. Baltimore included the community in planning efforts through open meetings while Chicago took community comments via the offices of the local political representatives. In Washington, DC, the city council approved the guidelines for use of POST cameras, which allowed for public input as part of that process. Los Angeles police received community input through public meetings during the planning phase. Los Angeles representatives also stated that the community continues to have input into where cameras are located. Las Vegas partnered with the University of Nevada, Las Vegas (UNLV) to coordinate with "special interest groups" within the communities where the program was initiated. They also held several community meetings before camera implementation and UNLV students distributed surveys to garner the opinion of citizens and business owners. Philadelphia "informed" residents about program decisions at regular community meetings. Indianapolis did not have a formal role for the community in their planning process and did not give the community input on where the cameras were located. By ordinance, the Police Commissioner in San Francisco was required to conduct a public hearing to determine if a camera should be installed in a particular location. The ordinance also required the issuance of an annual report regarding the city's use of the POST

¹² As noted earlier, a person who works 40 hours a week works 2,080 hours a year with no vacations or sick time. Therefore, it would require 4.2 people with no overlap, vacation, or sick time to have a single person present in one location present 24 hours a day, 7 days a week. Even assuming an individual could monitor more than one camera at a time, the total monitoring of surveillance equipment would require an unrealistically large investment in personnel costs.

cameras. For this research, I corresponded with a number of individuals in the San Francisco Police Department and the Mayor's Office of Criminal Justice (the unit that has responsibility for oversight of the POST program) in an effort to obtain the annual reports. Eventually, correspondents concluded that no annual report had ever been prepared, since those contacts were unable to locate any such report.

Image storage and visibility.

One department – Los Angeles – stated that the amount of time the images were stored before deletion varied by station, although any image deemed useful to the department (in identification, as evidence, to record officer action, etc.) was kept indefinitely. Of the remaining nine departments, one deleted images after 7 days, two after 10 days, and one after 12 days. Two departments kept images for 28 days and four keep them for 30 days. At least six departments used some type of indicator to alert people to of the presence of POST cameras (either lights or signage indicating the presence of surveillance cameras). At least four departments had some process to notify the public before a POST camera was installed. Chicago, Washington DC, San Francisco, and Denver all published the locations of their cameras on their official websites. At least three cities (Chicago, Philadelphia, and New York) allow privately held cameras to feed their video images into their network.

Response.

Community response to POST programs, as perceived by representatives of the law enforcement agencies in Indianapolis, Chicago, Las Vegas, and Philadelphia were positive. The public's reaction to the Baltimore and Los Angeles programs were perceived as having been initially negative and shifted over time to mostly positive. Indianapolis and Chicago both indicated that community complaints were received only when cameras were removed. At least two departments had programs where citizens were allowed to act as monitors of POST cameras in some capacity. No information was available about the outcome of these programs and no media reports on the topic could be located. However, including citizens in the project as monitors could be a good way to garner positive support for the project.

Evaluation.

Eight of the ten departments had some sort of third-party evaluation of at least one part of their POST program, although not all were peer reviewed or published – and one report covered three cities (La Vigne et al, 2011). Multiple sites in each of the cities were examined. Of these eight departments, statistically significant reductions in some type of crime were found in at least one site in four of the cities. Denver had statistically significant reductions in auto thefts, while Baltimore, Chicago, and Philadelphia showed reductions in violent crime (in at least one site). While Philadelphia saw reductions in four of ten sites, the reduction were not statistically significant. Reductions in sites in Baltimore and Chicago were significant. Sites in Baltimore and Chicago also demonstrated no displacement of crime and some diffusion of benefits, while Los Angeles showed some non-significant reductions in crime and some displacement.

A number of similarities among POST programs in the U.S. were found, but there was no one model. Local context was important for program acceptance and thus impact, and as such, the differences between programs were often explained by cultural considerations. There are some places in the U.S. that have decided against POST as a policing strategy. Oakland, CA has twice rejected POST project proposals and Philadelphia, PA is questioning the value of POST given the cost. Overall, though, there seems to be wide acceptance of POST programs in the U.S. There are a number of factors that may have contributed to public acceptance of surveillance, including major global events, terrorism, transnational crime, and advances in technology (Bloss, 2007). One factor that was certain to have contributed to the widespread acceptance of POST in the U.S. was the media.

POST and the Media

Television is a visual medium. CCTV is a visual medium. They were made for each other. Add one other ingredient, crime, and you have the perfect marriage. A marriage that can blur the distinction between entertainment and news; between documentary and spectacle and between voyeurism and current affairs. (Norris and Armstrong, 1999)

Media reports, from the earliest mentions of POST programs in the U.S. and to the

current day, regulary connect Big Brother to POST programs. A few local headlines to illustrate:

Big Brother Daley's got designs on our private lives (Chicago Sun Times, February 12, 2006);

Thank you, Big Brother (Chicago Sun Times, March 23, 2007); Big Brother aids in Scott case

(Chicago Tribune, November 26, 2009); and Big Brother will get smaller, more secretive on the

streets (Chicago Sun-Times, February 16, 2010). The association of Big Brother and POST by

the media may just be a simple way to grab attention. Regardless, the media has played a role in

the proliferation of POST in that attitudes and beliefs have likely been shaped by media coverage

using POST images.¹³

Impact evaluations demonstrated that crime-reduction effects of POST on crimes were *not* the same by crime type (consistent findings of impact on auto-related crimes in parking lots, mixed finding on violent crimes). POST crime prevention theory posits that the *installation* of POST itself will prevent crime. It is very difficult to know if POST accomplishes this goal,

¹³ One could argue that the increased demand for information, the rapid advances in technology that support those demands, and the creation of the 24 hour news cycle by profit-motivated media companies have also contributed to POST proliferation.

especially with high-profile crimes like terrorism. POST has not been consistently shown to have an impact on violence or drug dealing, but to empirically demonstrate the conditions under which POST may impact different types of crime is very complicated. Nonetheless, it seems to be widely held that POST can prevent crime. This concept may be perpetuated by the public's exposure to POST images, regardless of the utility of those images in preventing crime.

As previously discussed, active uses of POST involve an individual monitoring events as they occur within the view of the camera lens. The goal of active monitoring could be either intervention or investigation, random or targeted, and could focus on locations or individuals. Random monitoring is likely to be the least effective use of the technology over time (may "get lucky" in a single case), and is unlikely to happen unless by design; an officer would likely choose to monitor areas for some reason, such as prior knowledge that the area is a drug spot. It is much more likely that active monitoring will be targeted at specific locations or individuals. However, research has established that monitors are likely to target groups of individuals, whether they intend to or not, which can lead to social exclusion (Goold, 2004). And monitoring individuals without a warrant for extended periods has been deemed unconstitutional. The images used by the media are unlikely to have been actively monitored.

POST data used by the media will most likely be retrieved after an event has already occurred. Forensic review of POST data could be used in the aftermath of a known incident for investigation, such as following the movements of a specific individual. For example, in 2009, the Chicago Public School Board President was found dead near the Chicago River. In order to ascertain if his death was the result of a suicide or criminal activity, the police reviewed POST footage from around the time of his death, and used it to reconstruct the path he drove through the city to the location of his death. The goal of forensic review of POST data was to
investigate, to identify offenders and/or witnesses, and to gather evidence to use in prosecution of crimes. Data from Chapter V revealed that the use of forensic POST data is infrequent relative to the amount of data is captured and the number of arrests made without POST data.

Recorded POST images are made publically available on an ad hoc basis. Police have frequently made still images from POST video footage available, asking the public for assistance in identifying a specific person (victim, witness, offender, etc.). But images have also been made available by unofficial sources, such as anonymous internet posts. For example, in 2004, footage capture by a police-owned camera of a 22 year old man killing himself with a 9 mm firearm in a public housing building in the Bronx was posted on an internet site with the title "Introducing: The Self-Cleansing Housing Projects." The foster mother of the man had previously asked police to allow her to view the footage of the suicide but was denied. The security and misuse of POST images is a concern, but much more common is the use of images by the media to tell a story, ostensibly to assist police in investigations, or even to influence public opinion about POST programs.

Scholars have argued that the media influence a variety of perspectives through the use of POST images. The media's use of POST images: increase fear of victimization (Cordner, 2008; Fussey & Coaffee, 2012; Hier et al, 2007; Mathiesen, 1997); perpetuates the belief that POST can be useful for prevention (Fussey & Coaffee, 2012, Heir et al, 2006; Norris and Armstrong, 1999); impacts the intensity of POST proliferation (Fussey & Coaffee, 2012, p 202, Lyon, 2003, Norris, 2012; Norris and Armstrong, 1999); and defines social problems and threats (Hier et al 2007; Norris and Armstrong, 1999). A brief review of a few incidents follows in which POST data was widely used by the media in order to illustrate potential impacts.

As discussed in Chapter I, the killers of two year old James Bulger were identified by individuals who saw POST footage of them. The still images of the boys were made available to the media and widely circulated, resulting in numerous people coming forward to identify the offenders. This case is widely acknowledged to have touched off the proliferation of POST in the U.K.; the technology was already being used on a small scale and this incident was the catalyst (Hempel and Topfer, 2009; "Someone to watch", 1996, "Big Brother", 1997). When POST programs spread in the U.K., there was wide acknowledgement that POST was useful for forensic purposes like catching James Bulger's killers.

The reporting of the U.S. terrorist attacks of September 11, 2001 used still and video footage from many different sources. Aside from the mass casualties, the availability of images of the incident and its immediate aftermath provided media material that was immediately iconic. POST images in this case were useful for connecting the dots after the fact, allowing officials to build a narrative of what happened, and investigate those involved. The footage used by the media may also have been responsible for increasing fear of terrorist attacks (Cordner, 2008; Doyle, 2006), and certainly played a role in allowing POST programs to proliferate in the U.S. It could also be argued that the use of POST images in portraying the brutality of the attacks contributed to defining terrorism as a major social problem. POST cameras were not useful in preventing the incident (POST cameras were first installed around the World Trade Center after the bombing in 1993), but the proliferation of POST cameras after the incident and public opinion polls suggested that the public believed that POST can be preventive.

In the case of the D.C.-area sniper (2002), massive amounts of privately and publically owned POST data were reviewed to reveal information that may have been useful to investigators. The POST data was not directly related to the identification or apprehension of the

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offenders, but its importance during the investigation was well publicized. Fussey and Coaffee (2012) noted: "...surveillance cameras consistently play a more ancillary role that traditional policing and intelligence strategies in counter-terrorism operations..." In this case, the media used POST images to tell a story, to set the scene, which may have contributed to fear of victimization among the general public. This fear could have been heightened by the recent memory of the September 11th terrorist attacks the year before.

The massive numbers of POST cameras in London captured the images of four men who detonated four bombs on London transit lines in 2005, killing 52 including the bombers and injuring more than 700. POST images of the bombers were broadcast internationally, and the police used the enormous quantity of images to track the movements of the bombers leading up to the event. Independent Television News, a British-based news and content provider later reported that ITV1 coverage of the bombing aftermath was its longest uninterrupted broadcast in its 50 year history. Television coverage included videos of the aftermath from cellular telephone cameras and live images from traffic cameras. Two weeks later, four other men boarded four different transit lines and attempted to detonate four more bombs. Faulty ignition mechanisms prevented casualties as none of the bombs exploded. In this case, police were able to use POST images to capture and prosecute the attempted bombers. POST in this case as in the earlier bombing was useful in investigation and prosecution, but not in prevention. After this even, there was some acknowledgement leads that POST cannot prevent terrorist attacks. If POST were able to prevent terrorist attacks, it seems likely that London, the most highly surveilled place on the planet, two weeks after a major terrorist bombing that killed more than 50 people, would be the place that POST prevention might work. Nonetheless, the belief that POST protects the public is common.

Lost in the recent London bombings, along with innocent lives, was any illusion that today's surveillance technology can save us from evildoers. Britain has 4 million video cameras monitoring streets, parks, and government buildings, more than any other country. London alone has 500,000 cameras watching for signs of illicit activity. Studying camera footage helped link the July 7 bombings with four men — but only after the fact. The disaster drove home some painful reminders: Fanatics bent on suicide aren't fazed by cameras. And even if they are known terrorists, most video surveillance software won't pick them out anyway. (Yang, 2005)

In 2007, in what was believed to have been coordinated attacks, car bombings were attempted in London and at the Glasgow airport within 24 hours of each other. POST was useful in investigating these two incidents, but not preventing them from occurring. In the London attempted incident, POST images revealed the would-be bombers exiting the vehicle outside a busy night-club and walking away, without intervention from law enforcement. If the bomb had detonated, many people would have been hurt. The following day, two men attempted to drive a Jeep Cherokee loaded with propane canisters into the Glasgow International Airport terminal. If the vehicle had gotten into the terminal as intended, there might have been mass casualties as a result. POST footage showed the vehicle speeding toward the terminal, but it was stopped by bollards. POST was useful in this case for investigation (eight people were arrested in connection with this and the previous day's incident), but "target hardening" strategies were actually useful in preventing casualties.

In 2010 Faisal Shahzad drove a car filled with explosive materials (gasoline, firecrackers, propane, fertilizer, and gunpowder) into Time Square with the intention of committing an act of terrorism. The car was set ablaze but the bomb failed to detonate. Street vendors saw the vehicle smoking and reported it to police. Media reports included images of the car being driven through Manhattan as captured by numerous POST cameras and an unidentified male figure changing his shirt and looking over his shoulder near the vehicle (which later, it was determined, was not the offender). Law enforcement officers reviewed footage from 82 cameras, but the

images that captured Shahzad driving were not clear enough to identify him. Nonetheless, in the coverage of the incident, those images were consistently shown as though they contributed to the investigation. Police located the registered owner of the vehicle, who had sold it to Shahzad, and from there used "old-fashioned police work" to track Shahzad down. Shahzad was apprehended and confessed to the attempt, and sentenced to life in prison about five months after the incident. The role that POST played in the investigation was minimal, but the media used POST images prolifically in their coverage, perhaps simply because they were available and made the report more interesting. Nonetheless, incidents of this nature may have led people to believe POST is instrumental in solving high-profile cases.

When POST data is provided to the public either by police or the media, it has an impact on perceptions of the value of POST programs. The brief discussion of media use of POST in a few of the high-profile cases illustrated that POST was not a prevention tool, at least not for these terrorist attacks. Yet there exists a popular conception that giving up liberties by allowing governmental surveillance will somehow result in increased safety. This perception is not simply the result of the public drawing its own conclusions. Rather, there is evidence that POST advocates helped to draws those lines, supported by the ready availably of POST images to illustrate.

To illustrate, a survey summary published by The CCTV User Group (a U.K. special interest group composed of individuals "most of whom are the Local Authority CCTV managers, and Police Officers dealing with CCTV issues") stated:

Since the tragic murder of Jamie Bulger...there has hardly been a day when the media have not shown CCTV Images which have either helped the Police gain a conviction for a crime or are seeking public support in identifying or tracing individuals of interest to them. The investigation into the London Bombings of 7th July 2005, and the failed bombings on 21st July 2005, illustrated to the world

the power and speed of public area CCTV post incident to 'develop a picture' of what occurred before and after the incidents. (RNS Research International, 2010)

In 2010, in a press release about adding POST cameras as an expansion of the Lower Manhattan

Security Initiative, New York City Mayor Michael Bloomberg stated:

We will take whatever steps necessary, regardless of cost in Federal or City funds, to protect New York from terrorists. Access to these cameras is a big step in providing the NYPD with the tools it needs to keep transit riders safe...(New York City Police Department, September 20, 2010)

In the same press release, Police Commissioner Ray Kelly stated:

As multiple attacks worldwide show, terrorists target mass transit systems for maximum casualties. In New York, we have thwarted plots in Times Square and Herald Square, and we know that the City remains in the crosshairs. The Lower and Midtown Manhattan Security Initiatives are part of our response to an evolving and persistent threat, and the camera feeds being integrated today significantly bolster our efforts to protect millions of New Yorkers and visitors who ride the subway each day. (New York City Police Department, September 20, 2010)

In summary, the dissemination of POST images is now common and POST projects

proliferate. POST images are used by the media to tell a story in high-profile cases, regardless of

whether the images themselves have any relevance to the investigation of the incident, therefore

reinforcing the perception of the efficacy of POST to the public (Doyle, 2006; Lyon, 2006;

Mathiesen, 1997; McCahill, 2012). The common usage of POST data by the media has been

explained as part of our "viewer society" (Mathiesen, 1997), in which mass media bring many

people to view a small number of others.

Media representations play an important role in shaping public perceptions of crime and the subsequent response to crime by the authorities. The use of images from panoptic surveillance in the news media provide the "spectacle" and "graphic imagery" beloved of new journalists and leads to an over emphasis on crimes such as robbery, murder and terrorism...These media representations in turn generate support for the introduction of further panoptic surveillance... (McCahill, 2012)

The proliferation of POST may also be supported by public disillusionment that the government can respond to crime (Weisburd and Braga, 2006; Norris, 2012); the availability of federal funds for cameras (Norris, 2012), and the desire for order maintenance or status quo (Norris, 2012; Doyle, 2006). Police may provide POST images to the media to seek help with investigations and because there is public demand for the images. But police may also provide the media with data in order to justify the cost of the technology and to publicize their own successes (Doyle, 2006). Perceptions of the usefulness of surveillance images may be held by the police implementing POST programs as well as by the public, and therefore part of the driving force behind the proliferation of POST programs.

However, the use of POST images by the media to tell a story, may also be contributing to fear of crime. Fear of crime can have significant consequence for communities:

Fear of crime is a social and political fact with concrete consequences for big-city life. The costs of fear are both individual and collective. Fear can confine people to their homes, and it undermines their trust in their neighbors and, especially, in their neighbors' children. Fear is a key "quality of life" issue for many people. Research also indicates that concern about crime has bad consequences for the neighborhoods in which we live. Fear leads to withdrawal from public life, and it undermines informal and organized efforts by the community to control crime and delinquency. It is difficult to organize activities in neighborhoods where people fear their own neighbors. Fear undermines the value of residential property and thus the willingness of owners to maintain it properly. When customers – and even employees – fear entering a commercial area, the viability of businesses located there is threatened. (Skogan, 2006)

The media's use of POST images may have a number of consequences including increasing fear of crime, serving to further legitimize POST programs, and defining social problems. This is not to suggest that media representation and public attitudes are perfectly correlated, but it is likely that there is a relationship. Using a different lens, it may also be the case that the media's use of POST could be beneficial in that it helps the public to process major events, "the amelioration of such atrocities" (Fussey & Coaffee, 2012). Most of the information that the public has about POST comes from the media rather than critical debate of the topic. There is little doubt that the media's use of POST is likely to continue to be an important to the perceived successes or failures of such projects.

VII. GOVERNMENT, PRIVACY, AND POST

A public debate has emerged among legal scholars, news reporters, criminologist, civil liberties experts, law enforcement advocates, community leaders, and politicians regarding the costs and benefits to society of public surveillance systems. This chapter reviews some of this narrative and captures key themes that will shed light on the value of POST for society. Arguments for and against the use of POST are openly debated but are also conceptual and easily dismissed by opponents. This chapter seeks to develop a thoughtful analysis of the issues surrounding privacy rights, privacy expectations, and the role of government in community life. The chapter begins with a discussion of privacy rights and case law relevant to POST programs, followed by consideration of arguments in support of and against POST.

Privacy Rights and Expectations

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances. (U.S. Const. amend. I)

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue, but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized. (U.S. Const. amend. IV)

No person...shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law...(U.S. Const. amend. V)

The Bill of Rights grants U.S. citizens the right of privacy of beliefs and freedom of

speech (U.S. Const. amend. I), privacy of persons and possessions against unreasonable searches

(U.S. Const. amend. IV), and privacy of personal information for self-recrimination and the

guarantee of due process (U.S. Const. amend. V). Most of the First and Fifth Amendment

protections have been discussed generally when considering the dangers of government

surveillance, but legal challenges to general government use of surveillance have been argued on Fourth Amendment protections. Case law established three boundaries under Fourth Amendment that would be relevant to public surveillance technology: citizens have a reasonable expectation of privacy (*Katz v. U.S.*, 1967); law enforcement cannot use invasive technology without a warrant (*Dow Chem. Co. v. U.S.*, 1985); and the potential for 24 hour surveillance created by technology necessitates that law enforcement have suspicion before placing someone under surveillance (*U.S. v. Knotts*, 1983). The *Katz* case is particularly important for Fourth Amendment protections because it defined a "search" as an action by the government that infringes on the expectation of privacy that individuals in our society would recognize as reasonable, called the "reasonable expectation of privacy" standard.

The Bill of Rights protections are not simple to interpret or apply to any situation. For example, there is no single test to determine if an action violates a "reasonable expectation of privacy." Kerr (2007) argued that the Supreme Court has used *four* different models to test for violations of the Fourth Amendment: a probabilistic model, a private facts model, a positive law model, and a policy model. This complicates appropriate uses of POST by police. No direct challenges to the use of POST by government as a violation of First Amendment guarantees have been brought forth. However, arguments about potential for First Amendment violations focus on the "chilling effect" government surveillance has on an individual's right to speak freely, including demonstrating against the government.

On the face of it, POST does not violate the U.S. Constitution or federal or state statutes and thus any challenge to the government's use of POST would have to be in regard to specific incidents. There has been no legislation specific to POST that outlines government use of public surveillance technology in the U.S. Governmental agencies using POST believe that the Constitution does not prohibit police use of POST, nor do most states and local legislatures, clearing the way for public surveillance. The government's use of data gathered by privately held corporations has not been tested as a violation of Fourth Amendment protections. Therefore, voluntarily connecting privately owned cameras onto a network for police use provides greater flexibility for police. The *Katz* and *Jones* decisions offer the most relevant albeit indirect cues about how POST might be regulated, and some additional cases provide direction as well.

Katz v. United States (1967) was important for few reasons.

For the Fourth Amendment protects people, not places. What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection...But what he seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected. (Justice Potter Stewart, 1967)

First, *Katz* established that "The Government's activities in electronically listening to and recording the petitioner's words violated the privacy upon which he justifiably relied...and thus constituted a 'search and seizure' within the meaning of the Fourth Amendment." *Katz* further established that a conversation is protected from unreasonable search and seizure under the Fourth Amendment regardless of the location of the conversation, if it is made with a "reasonable expectation of privacy." As a result, most law enforcement agencies do not include audio recording as part of their POST programs. The *Katz* decision also clarified that Fourth Amendment protections are of people and not of places.

Another outcome of *Katz* was to establish that information is considered private when an individual takes action to shield that information from others. If the general public does not have access to information, then neither should the government have access unless they obtain a warrant. Generally speaking, the government cannot use technology that is not easily available

to members of the public to gather private information¹⁴. To do so without a warrant would constitute unreasonable search and seizure. But this again is not easy to interpret. For example, in *Florida v. Riley* (1989), the Supreme Court held that police do not need a warrant to observe property from public airspace. The defendant in this case was growing marijuana in a greenhouse on his property. In order to see inside the greenhouse, the local sheriff used a helicopter to circle the property and since the roof of the green house was not obscured, was able to see the illegal activity. *Florida* argued that *Riley* had taken no action to obscure the property and therefore to access the information from public space was not prohibited. The rapid pace at which technology is being utilized by law enforcement and the new capacities that are available complicate our understanding of how surveillance can be used by the government. For example, like a helicopter, a POST camera can be mounted in high locations and used to view places where an individual on the street could not see.

Recently, *United States v. Jones* (2012) established that police prolonged *warrantless* surveillance using commonly available technology – specifically a Global Positioning System (GPS) tracking device – violated the defendant's expectation of privacy. The Government argued that using GPS technology to track Jones was no different than traditional, low-tech tracking methods used by police. The U.S. Supreme Court majority ruling noted that it was the attachment of the device to the vehicle for an extended period of time that violated Fourth Amendment protections. Interestingly, two opinions were written by the Court, arguing the GPS surveillance represented a Constitutional violation but for different reasons. The majority opinion written by Justice Antonin Scalia found the violation to be an intrusion into private

¹⁴ The USA PATRIOT Act of 2001 and Protect America Act of 2007 have created separate provisions for surveillance in cases that are being investigated for terrorism.

property, not of the reasonable expectation of privacy standard. The concurring opinion written by Justice Samuel Alito argued that the long-term monitoring by GPS violated a reasonable expectation of privacy rather than intrusion to private property.

The *Jones* case is one of many that underscore the difficulty of understanding the limits of government use of technology for surveillance based on the U.S. Constitution, a document that is hundreds of years old and written well before the conception of the capacities created by

technology we find ordinary.

But it is almost impossible to think of late- 18th-century situations that are analogous to what took place in this case....the Court's reliance on the law of trespass will present particularly vexing problems in cases involving surveillance that is carried out by making electronic, as opposed to physical, contact with the item to be tracked....In the pre-computer age, the greatest protections of privacy were neither constitutional nor statutory, but practical. Traditional surveillance for any extended period of time was difficult and costly and therefore rarely undertaken. The surveillance at issue in this case—constant monitoring of the location of a vehicle for four weeks—would have required a large team of agents, multiple vehicles, and perhaps aerial assistance. Only an investigation of unusual importance could have justified such an expenditure of law enforcement resources. Devices like the one used in the present case, however, make long-term monitoring relatively easy and cheap. In circumstances involving dramatic technological change, the best solution to privacy concerns may be legislative...To date, however, Congress and most States have not enacted statutes regulating the use of GPS tracking technology for law enforcement purposes. The best that we can do in this case is to apply existing Fourth Amendment doctrine and to ask whether the use of GPS tracking in a particular case involved a degree of intrusion that a reasonable person would not have anticipated. (Justice Samuel Alito, 2012)

Privacy is hard to define and holds different meanings to different people in different

contexts. The majority of Americans either actively or passively allow themselves to be surveilled: by the government (automatic electronic toll-deduction devices that track movement), by corporations (discount loyalty cards that track our purchases), and by other people (software

that tells other people where we are physically located at any given time). In contemporary

culture rapid technology changes challenge our expectations for privacy, which likely results in an ever changing – and increasing – threshold of for what is considered private.

Direct legal challenges to the government's use of POST have not been brought. The prevailing attitude in the U.S. is that POST does not violate constitutional rights. The cultural expectations of privacy also seem to be in flux, largely in response to the opportunities provided by technological advances. Prominent CEOs of technology firms have asserted that the world in which we live has no privacy. Scott McNealy of Sun Microsystems in 1999 stated in remarks to journalists, "You have zero privacy anyway. Get over it." Larry Ellison, CEO of Oracle Corporation in 2004 stated: "...the privacy you're concerned about is largely an illusion. All you have to give up is your illusions, not any of your privacy." In 2010, Mark Zuckerberg of Facebook talked about changing expectations of privacy over time: "People have really gotten comfortable not only sharing more information and different kinds, but more openly and with more people. That social norm is just something that has evolved over time." This sentiment is echoed in writings about privacy in contemporary culture. For example:

There is a general feeling now that the condition of privacy has become relegated to rather tiny islands of one's existence, few and far between, scattered across the vast ocean of accessibility that dominates so much of our lives. It's as if a distinct cultural climate change is underway...some private spaces and times and matters are fading into the realm of folklore – even legend... (Christena E. Nippert-Eng, 2001)

American novelist, literary critic, and essayist Walter Kirn (2010) wrote that "The invasion of privacy...has been democratized" with watchers and watched consisting of public and private, citizen, government, and corporations. He wrote that in Orwell's *1984*, the concept of privacy is left intact: once Big Brother was overthrown, privacy was restored, and argued that current culture has moved beyond that point:

In the new, chaotic regime of networked lenses and microphones that point every which way and rest in every hand, permitting us to train them on ourselves as easily as we aim them at one another, the private and public realms are so confused that it's best to treat them as identical.

While this may be the case, the average person continues to believe that privacy rights exist and should be protected. Privacy rights in the U.S. were intentionally addressed by the Framers of the Constitution and their existence distinguish the U.S. from many other countries. The potential for adverse consequences to society and individuals could be enormous if the current trend of increasing surveillance continues. Generally, the public appear to understand the potential for and consequences of the erosion of privacy, while it is actively debated among scholars.

GPS monitoring generates a precise, comprehensive record of a person's public movements that reflects a wealth of detail about her familial, political, professional, religious, and sexual associations... The Government can store such records and efficiently mine them for information years into the future... the Government's unrestrained power to assemble data that reveal private aspects of identity is susceptible to abuse. The net result is that GPS monitoring—by making available at a relatively low cost such a substantial quantum of intimate information about any person whom the Government, in its unfettered discretion, chooses to track—may "alter the relationship between citizen and government in a way that is inimical to democratic society." (Justice Sonia Sotomayor, 2012)

What follows is a summary of arguments in support of against police use of POST.

Arguments for POST

Scholarly articles and media reports arguing *against* the police use of POST are common, enumerating how it infringes on civil liberties. Arguments in favor of police use of POST are often printed as editorials or made verbally in the course of conversation. The most basic justification for the government to engage in surveillance is to enhance safety and security.

The ability to isolate the impact of the POST cameras from other strategies that may have an impact on crime has been difficult. The literature on the impact of POST has demonstrated crime prevention effects in some locations (especially in parking lots), but more importantly, law enforcement practitioners believe in its utility. The most common sentiment expressed about government surveillance is that if you've got nothing to hide than there is no reason to fear surveillance. This argument is often difficult to contradict since the opposite argument is complex and often theoretical. A number of scholars have noted that some people will submit to anything in order to feel safe whether or not it makes them safer (Rosen, 2004). However, Solove (2007) deconstructed the "nothing to fear" argument and found both merits and counterarguments (which are, of course, complicated). Solove's deconstructed "nothing-to-hide" argument:

...government information-gathering programs will result in the disclosure of particular pieces of information to a few government officials, or perhaps only to government computers. This very limited disclosure of the particular information involved is not likely to be threatening to the privacy of law-abiding citizens. Only those who are engaged in illegal activities have a reason to hide this information. Although there may be some cases in which the information might be sensitive or embarrassing to law-abiding citizens, the limited disclosure lessens the threat to privacy. Moreover, the security interest in detecting, investigating, and preventing terrorist attacks is very high and outweighs whatever minimal or moderate privacy interests law-abiding citizens may have in these particular pieces of information.

Stated in this way, the "nothing to hide" argument is formidable and response much more difficult to formulate. However, the "nothing to hide" argument in its simple or complex forms both rely on trust in government, that it will not use information inappropriately, either intentionally or unintentionally.

It appears to be widely accepted that POST camera data are useful in investigations to catch offenders after the fact, tracking movements for investigations. Clear images are considered useful to gather evidence, identify witnesses and offenders, secure confessions (avoiding costly adjudication), help to prepare witness testimony, and as evidence at trial. Furthermore, the well-publicized cases where video images were instrumental in solving a case may reduce fear of crime by communicating to the public that the government is vigilant in ensuring that criminals are brought to justice (although it has not been empirically established that POST reduces fear of crime). In the case of XPD, the amount of data captured relative to the amount that is useful, is very small. In some high-profile cases, POST data has proven valuable for investigations and subsequently contributed to developing counter-terrorism measures (as in the case of the 2005 London transit bombings). However, as we learned from the case study, the large majority of crimes are not captured by POST or viewed forensically.

Protection for police and the public is another argument in favor of POST. In theory, POST can allow officers to be watched by support teams who can intervene quickly, if needed. That same technology can be used to monitor the behavior of police in their interactions with the public, and can be used in internal police investigations (in XPD, a number of requests for POST images were made by the civilian authority that investigates complaints against police). It is unknown the extent to which POST has been used to protect officers from the public or vice versa.

An argument for POST made by a newspaper columnist in the U.K. is illustrative of pro-POST arguments. This account is discussed because it is a strong representation of POST advocacy outside of evaluations of impact and because, as previously discussed, pro-POST arguments not well documented. The Independent columnist Johann Hari wrote that he witnessed a well-dressed man harass and assault a homeless man (Hari, 2008). When the police arrived on the scene, the homeless man fled and the *attacker* claimed he was the *victim*. But there was a POST camera nearby, and the police checked the footage that revealed the actual scenario and led to the prosecution of the offender. (It may be the case, although it is not discussed, that the reporter's high-profile position as a columnist in a major newspaper may have contributed to the police department's willingness to review footage, but this was not addressed.) The experience caused Mr. Hari to ruminate on high profile cases where POST had been instrumental in solving cases by helping to secure the identity of offenders.

Hari asserted that POST *enhances* "human liberty" when repeat offenders are removed from the community, and thus cannot reoffend. He stated that POST cameras give people the freedom to use the public way and that the potential and amorphous threat from the government is much less than the threat of violence by other people. In the end, Hari argued that "a tiny infringement of liberty has to be weighed" against the threat of violence from other people so POST is no different from anyone appearing in public. This is much like the Solove deconstructed argument. In addition, Hari touched on a point that commonly noted on the prosurveillance side of the argument: when you walk in public, you are not only being seen by cameras but also many other people. The counter argument here is obvious: other people do not have fool-proof memories; their visual perspective cannot be electronically captured and permanently stored; and people don't have the advantages pole mounting, PTZ capability and 360-degree rotation.

Arguments against POST

Arguments against the use of POST are many. For example, "privacy does not end at the front door," meaning individuals have the right to privacy outside of their home. The First Amendment guarantees of freedoms of speech, association, and movement. Some argue that when individuals do not feel free, they will censor themselves when they know they are being watched. Therefore, POST cameras can be used by the government to enforce social conformity and prevent anonymity in violation of the First Amendment. The counter argument to this point is that an individual feeling "less free" is not a governmental restriction of freedom, and the courts have not interpreted the constitution in such a manner.

Other arguments against police POST are easy to come by. But since police POST programs were first implemented in the late 1960s (e.g.: Mt. Vernon, NY, Hoboken, NJ, Saginaw, MI, and San Jose, CA), the arguments have not changed much, nor has case law or government regulation. The conversation hasn't move forward perhaps because the "advantages" of police use of POST are taken to be "concrete and prominent" while the "disadvantages" are "intangible, amorphous and distant" (Belair & Bock, 1972; Rosen, 2004; Goold, 2010). The amorphous nature of "disadvantages" arguments created a very real challenge to developing appropriate uses and regulation of POST by police and in convincing the public that they should care about the loss of freedom that increased government surveillance may bring with it. The disadvantages of police POST systems may be "intangible, amorphous, and distant" but the threats that they represent are to the foundational freedoms granted to citizens of the United States. The arguments against POST often sound like worst case scenarios, which only have *the potential* to happen. This makes these arguments easy to dismiss by those who do not believe the outcomes are realistic or probable. In order to understand the arguments against police use of POST, some of the most common concerns about police POST were compiled and categorized. The arguments against POST listed in Table XXVII were sentiments that were commonly encountered when researching POST programs. In an effort to understand these concerns more broadly, I tried to place each to under a broader category of concern. The major themes that emerged about POST concerns were: lack of regulation, accountability, transparency, privacy, demonstrated impact, psychological and social well-being, scope creep, and data security. Privacy concerns and lack of demonstrated impact have been discussed in the preceding sections. Concerns are not mutually exclusive and overlap one another.

						Social /		
		Account	Trong		Demon-	Psycho-	Seene	Data
Argument Against POST	Regulation	ability	parency	Privacy	Impact	Being	Creep	Security
Police can do whatever they want (read documents in	X	X	X			8	X	
your possession, your lips, etc.).								
No state or federal regulation, only some local	Х	Х	Х	Х			Х	Х
regulation.								
Case law moves slowly & technology moves	Х	Х		Х			Х	Х
quickly.								
No safeguards against misuse or abuse	Х	Х	Х	Х				Х
Potentially used to monitor benefit recipients for	Х	Х	Х	Х			Х	
worthiness (social security, loans, special								
licenses, etc.).								
Can be used for round-ups; dragnet arrests; dossier	Х	Х	Х			Х	Х	
building.								
Images can be hacked and stolen by people outside	Х			Х				Х
police.								
When used with other emerging technologies, there	Х	Х	Х	Х		Х	Х	Х
is no telling how data can / will be used.								
You don't know when you are being watched.	Х		Х	Х		Х		
Cameras have not been proven effective.					Х			
Government has no interest in lawful behavior.	Х	Х	Х	Х		Х	Х	
Paternalism; loss of "participatory democracy."	Х	Х	Х	Х		Х	Х	
Produce behavior modification.				Х		Х		
Dehumanizing process.				Х		Х		
Ends spontaneity.				Х		Х		
Destroys anonymity – a protected right – no freedom				Х		Х		
if you are never anonymous.								

Table XXVIISUMMARY AND CATEGORIZATION OF SOME ARGUMENTS AGAINST POST

Lack of regulation and security.

Concerns for the lack of regulation mean that police can use POST cameras for any purpose. There are countless examples of abusive practices by police using POST. For example, New York Police Department (NYPD) officers in a helicopter recorded a couple in an intimate moment on an apartment terrace. No one would have ever been the wiser, had the nearly four minutes of footage not been turned over for a trial. The officers were supposed to be surveilling a protest. One of those protestors were charged and thus the helicopter footage was required for adjudication. The footage eventually made it to television news, and the subject of the video (Jeffrey Rosner) said, "it makes you feel kind of ill. I had no idea they were filming me - who would ever have an idea like that?" (Dwyer, 2005). Rosner also stated "I'm very happy about cameras in public spaces. If you're in a public space doing something inappropriate, I'm all for that. But if I'm in my house and you're using multimillion-dollar equipment to film me, not at all." The harm suffered by Rosner is difficult to define, but he interpreted the issue as "more the sensibility that the police think it's O.K. that they do that - it's about their own professionalism." Abuses like this one are not uncommon. Police officers get bored at work like everyone else and let their attention wander. The officer in this case likely did not mean to do anything wrong and certainly would not have known that the footage would ever be seen, let alone broadcast. But this is just the point – this kind of power in the hands of the government can result in unintended abuses and real consequences.

Many opponents of POST have also pointed to the possibility of electronically stored image data being stolen. For example, as referenced in Chapter VI, the case of the young man whose committed suicide was captured by NYPD POST cameras and later surfaced on the web. The Police Department responded that they did *not* believe one of their officers had posted the footage, but this implies that the Police Department does not have the ability to track who accesses video data. The other possibility is that the images were "hacked" which also points to concerns about security. Critics are not just concerned about how the government might use the captured images, but also what a thief might do with them. The data that is collected by POST can be extremely sensitive, especially from the perspective of the person caught on camera, and therefore data security is highly important.

Transparency and scope creep.

Lack of regulation and security concerns overlap with concerns about transparency and scope-creep. Scope creep happens when police begin using POST for one reason (e.g.: to prevent crime) but end up using it for entirely different purposes (e.g.: to see if a person receiving disability payments is honest in his/her claims of worthiness). A lack of transparency means that police are not forthright about what they are using POST for; this is a common complaint about police and other governmental agencies more generally. If police POST programs are not transparent, then the public cannot hold police accountable to stated rules and regulations.

POST systems are often put in place to address serious crime, but then used for lessserious concerns. While order maintenance activities facilitated by POST may have a positive impact on the community (Skogan, 1990), the movement from a stated mission to a general purpose means the government can create missions as they see fit. Also called net widening and function creep, it "...tends to operate in a localized ad hoc and opportunistic fashion" (Haggerty and Ericson, 2006). Scope creep can happen when police realize a possible convenience created by POST. For example, cell phones require a geographic technology to deliver a call signal. In 2011, cell phone carriers responded to more than 1.3 million requests from law enforcement for caller locations and other information (Lichtblau, 2012). In many of those cases, the police did not obtain a warrant for information. Add to this the fact that "smart" cell phones are more accurately described as hand-held computing devices that track huge amounts of information about our habits, including consumer information. The technology was not developed for this purpose, it has evolved over time.

The earliest POST programs in the U.S. were aimed at deterring crime, but as terrorism became a very serious concern for both the public and the government, POST program goals have been expanded. The use of POST to deter crime is different than the use of POST for counterterrorism. Police use POST to detect crime for intervention but also to deter crime (assuming potential offenders are rational actors). POST cameras are also used for investigation and prosecution, but when anti-terrorism is the purpose for POST, the uses are different. First, the addition of biometric and behavioral analytics is thought to be much more useful to combat terrorism than other types of crime. Second, the impact of POST footage in the investigation of terrorist acts (or attempts) has been ancillary (Fussey and Coaffee, 2012), but footage has been useful in designing and implementing new counterterrorism measures (Welsh and Farrington, 2009). Conversely, technologies that were created for anti-terrorism efforts have been implanted in crime control strategies (like biometric and behavioral analytics). This is an example of scope creep with POST. And as technology evolves we will surely discover new ways it can be implemented for new purposes and the achievement of new goals.

A lack of transparency in POST programs creates an environment where scope creep can easily happen. If the public does not know the policies and procedures of a POST program, they cannot interpret what the program means for them, nor can they know if the program is being administered properly. Many police agencies that use POST are ambiguous about their intended goals. Few U.S. POST programs have involved the public in planning and development, and fewer continue to include the public after the initial phases. The public doesn't know how the program works or how it might impact their lives, so they are left to their own ideas. This may be a desirable outcome from a law enforcement perspective, inducing self-regulation. Citizens do not have a right to their captured images in the U.S. (like they do in the U.K.). Furthermore, as noted above, officers may not be aware of inappropriate behavior when using POST (Goold, 2006; Slobogin, 2002), and transparency outside the department will give the public the ability to contribute to defining POST program goals and processes.

Related to transparency and scope creep are concerns about regulation and accountability. Individual officers or officers as a group may be enabled to use POST in many ways and without built-in regulations or supervisory oversight, accountability may be difficult. There are many cases that illustrate how police can misuse POST data to the detriment of individuals or the community. Again, the suicide recorded by an NYPD POST camera. It is possible that the video images were provided outside the department by an officer who had access to that data. "At this time we don't know who had possession of the tape," said attorney Charles Robinson. "These are all questions that we will find the answers to, and you can be sure that when we find out who is responsible for it we will hold them accountable" ("Abuse of surveillance", 2004). Unfortunately, no one was held accountable for this incident, and a civil suit against both the police department and the housing authority (where the suicide occurred) was dismissed by summary judgment in 2005.

Role of and investment by government.

The process of POST surveillance turns around the idea that the government should only have an interest in *unlawful* behavior. With the potential for constant surveillance, the

government is taking an interest in lawful behavior as well, by recording and storing it. Governmental budgets are limited and the acquisition of POST equipment comes at the cost of denying funding for other crime fighting strategies that have been demonstrated to have an impact on crime reduction (e.g.: street lighting or target hardening). The Home Office in the U.K. provided an enormous amount of funding for programs nationally, and in the U.K., the Department of Homeland Security and other federal agencies have invested large amounts of money into local POST programs. Norris (2012) noted that the proliferation of POST programs may not have been as rapid if local budgets had to assume all associated costs.

Social / psychological well-being.

There is a lot written about the potential negative psychological and social impacts from police use of POST. However, as Belair & Bock noted, they are indeed amorphous and distant, and they have not been empirically demonstrated. At the most basic level, arguments about social and psychological impact are those of the Panopticon: when people don't know if they are being watched but are aware of the possibility of surveillance, they regulate their own behavior. The process can be experienced as dehumanizing, in that there is no trust between the public and the government. The result is an unequal and paternalistic relationship. Individuals make decisions about who to trust with what information, but POST ends the right to make those decisions, which destroys anonymity and ends spontaneity. POST cameras may also diminish the role of community in self-regulation and place more authority in the hands of government officials, who may or may not understand and appreciate local norms regarding acceptable conduct by members of the community.

Many people have argued that POST leads to social exclusion. Certain populations have been demonstrated to be the target of camera monitors (Goold, 2004). POST monitoring of targeted populations, whether conscious or not, could have a disparate impact on that group. If one population is disproportionately watched, the likelihood of observing violations and intervening is higher for those groups simply because they are given more attention (Rosenbaum, 2006). Ultimately, targeted groups may learn to avoid certain areas to avoid police interaction. If, for example, homeless people are routinely targeted by police through the use of POST for loitering in public places, that may lead to a decline in homeless people who frequent the area. The issue underlying social exclusion is the notion of an individual's right to be in public spaces. If public spaces are available for occupation by the public, then is it acceptable to target "undesirable" populations to be excluded from those places? The technology is neutral, but the use of it has the potential to lead to social exclusion, whether the targeting is intentional or not.

Google Street View

Surveillance is everywhere in current U.S. culture and the government is not alone in their use of technology to watch public places. As a way to further explore privacy rights and data ownership, it is interesting to consider Google Street View.

Google is a publically traded leader and major innovator in internet and advertising technologies as well as cloud computing. Google's stated mission is "to organize the world's information and make it universally accessible and useful." In 2007, Google introduced technology that photographed street views from 360 degrees, allowing users to view a location (at one point in time) from their computer as if they were on the street. The images were gathered by vehicles equipped with custom technology driving public streets in desired locations. Complaints surfaced immediately about the types of images the technology was capturing and the fact that it could easily be seen by anyone with access to the internet: sunbathers in bikinis,

nose-pickers, details inside peoples' homes. Privacy advocates criticized Google and in response Google incorporated image blurring technology to obscure faces and license plates.

Google met stronger resistance in Europe where, as Streitfeld and O'Brien (2012) point out, the Nazi's and the Stasi used government data to systematically investigate unwanted groups of people. One protestor of Google's efforts asked "Who gives Google the right to do this? We were outraged that Google would come in, invade our privacy and send the data back to America, where we had no idea what it would be used for" (Streitfeld & O'Brien, 2012).

Uncovered during the investigation of Google's Street View practices in Europe was the fact that Google wasn't only capturing *images* as they drove the public streets, they were also collecting data that was being transmitted over unencrypted wireless networks. This is an example of scope-creep and the need for transparency. Privacy experts in the United States have pointed out that Google is useful and seen as necessary in information gathering, and that it's easy to overlook privacy issues when Google assumes no one will be hurt – or even know – their data has been collected (Streitfeld & O'Brien, 2012).

Google's posted privacy statement indicated that they were concerned with privacy rights and always considered the implications of new services before they are introduced, but they defended the technology: "Street View contains imagery from public roads that is no different from what you might see driving or walking down the street." Google also allowed "users" to request blurring: of people, their families, cars, and homes in their entirety, or "inappropriate content" such as nudity or violence¹⁵.

Anyone with access to the internet could view Google Street View images. The data were captured by a private company in public locations where, according to Google and many

¹⁵ http://www.google.com/help/maps/streetview/privacy.html accessed 23 May 2012.

governmental agencies, there is no expectation of privacy. However, the Fourth Amendment protects people not places. Therefore, the expectation of privacy would not be the same for every location. For example, an individual standing on a crowded street in an urban area would not have the same expectation of privacy as a person in a cornfield with no businesses or houses within a mile. The "no privacy in public" argument works for police POST in urban locations, but would not work for Street View were they held to account for violating constitutional rights. However, images collected by private individuals or companies are not subject to the same restricted uses, as the Fourth Amendment protects individuals from unreasonable search and seizure by the *government*.

Questions arise, then, about how the government could use privately collected image data. City X and others cities in the U.S. are federating their POST systems to incorporate privately held camera feeds. Google makes their images available to anyone, including the government, who would not be subject to the Fourth Amendment restrictions since *they did not collect* the images and those images were publically available. It is then theoretically possible that non-targeted individuals could be subsequently cited or arrested even though the government had no interest in those individuals before finding an image of a violation. For example, police could arrest an individual after the fact for public urination if they saw the image on Street View and were able to determine the person's identity.

Unlike Google, the government has an interest in protecting individuals from crime and other harms. Google, unlike the government, provide the images they capture to anyone who has access to the internet. In the U.K., the Data Protection Act (DPA) gives "subjects" the right to obtain copies of their image data. When an individual requests image data, the administering authority must provide that data with all third party images obscured. In the U.S., no such

requirement is in place and so public agencies do not typically provide image data to the public. And as previously noted, in the U.S. there is an escalating threshold for what merits POST review. There has not been a mass outcry to make the images public in the U.S. but in London, there was a social movement that encouraged people to ask the police for the images of them captured on the public way. The movement aimed to consume public resources in fulfilling image data requests and thus put an end to public recording when the agency can't comply with DPA.

Google does not use any image enhancing technologies like night-vision or magnification. Street View is meant to capture the view on the street had any individual been standing in that location at the time the image was captured. In this way, they argue, there is no invasion of privacy. However, people don't have the permanent memory storage and retrieval capability that is made possible by current technology. The average person, when asked to remember a scene at a specific location at a specific time, would not be able to describe the landscape or surrounding people in any way remotely close to an electronic image. Some people count on this kind of anonymity, for example when attending a rally or protest. The ability of anyone to capture this information at any time exists, but when enormous technology firms such as Google have those images and make them available from any computer anywhere in the world, some may see that as diminishing anonymity. Google does allow individuals to request that images be obscured but images are first posted before complaints and requests for removal can be made, which creates an opportunity for unintentional damage.

The collection and use of image data gathered in public spaces by different types of entities are complicated issues. Consideration of these differences is important given that technology has made it vastly easier to record images than even five years ago. And it seems likely that technology will continue to increase the ease of both collecting and viewing image data. The unprecedented and rapidly evolving access that technology provides, coupled with changing attitudes about privacy, are met with the willingness of many individuals to share copious amounts of data about themselves in forums that are open for all to see. Therefore, it is not just the police use of POST to capture images that is worthy of examination, but also what the access of publically available data means for policing and privacy.

In summary, a thoughtful examination of the benefits and costs associated with POST should take into consideration a number of factors: privacy rights and expectations; arguments advocated for POST or cautioning against it; and a consideration of the complications of privacy and surveillance by looking at private versus public data collection. Arguments for and against the use of POST reveal that opposing sides of the debate are telling different stories: the pro-POST arguments suggest that the government can be trusted, that there is no right to privacy in public places, and that POST cameras improve safety. Trust in the government is very subjective and open to debate, and while case law has not established that POST is a violation of constitutional rights, such practices may eat away at individual liberties within the boundaries of the law. Attempts to measure the impact POST has on public safety come up short because of many complicating factors, like the intended purpose and the context in which the programs are deployed. Anti-POST arguments suggest that the scope creep and the slippery slope are so fraught with peril that greater caution is necessary and more deliberate planning with due consideration for privacy and safeguards against misuse. POST critics point to real cases of abuse and misuse and point out that regulation of POST programs is non-existent, that programs lack transparency, and are used to monitor lawful behavior (a serious threat to daily freedoms). For these reasons, they argue, there should be no trust of government POST programs. Incidents of abuse can be used to illustrate the realization of negative outcomes from POST. However, it is unknown how common these misuses are, and police also can only provide anecdotal evidence of success.

Considerations of privacy should be central to consideration of any POST program and throughout the life of the program. Rosen (2004) discussed in detail four potential models for government deployment of surveillance technology. First, under the transparency model, both citizens and government have immediate access to images captured by POST. Second, under the controlled-use model, expanded surveillance powers granted to the government would be used only for enforcing "high-level" crimes. Third, under the judicial oversight model, judges would make determinations if surveillance technology is consistent with the aims of a free society. And fourth, under the political-oversight model, Congress would have the responsibility to strike a balance between liberty and security in government-funded and -run POST programs. All of these models have their promises and their problems and other deployment models have been discussed in the literature (Raab, 2012; The Constitution Project, 2007). Certainly context specific models should be developed, taking requirements and concerns into consideration in order to bring POST proponents and opponents closer together.

VIII. RESULTS, DISCUSSION, AND RECOMMENDATIONS

Statement of the Problem

POST schemes have been implemented in reaction to major public safety events, including the widely discussed James Bulger abduction and terrorist attacks in the U.K. There has been a massive proliferation of POST schemes in many countries, starting largely in the U.K. in the early 1990s, and later in the U.S. The POST programs are expensive, and will continue to consume public safety budgets as technology changes and the costs of up-grading and maintaining the systems continues unabated. This level of investment continues in the U.S. although empirical evidence is limited in finding that programs achieve stated purposes. Nonetheless, the public seems to be largely in favor of POST programs.

There are many unanswered questions about POST. Why are U.S. law enforcement and other governmental agencies investing in this technology at such a high cost? How is it being used? What can POST really do and what is it expected to do? How does the public feel about it? What are the implications for personal freedom?

Review of the Methodology

In order to document and better understand POST programs in the U.S. and the public's attitudes toward them, experimental and exploratory research was conducted using several methods. First, a thorough review of the literature was conducted to assess the current state of knowledge about POST programs. Next, analyses of two surveys from distinctly different populations regarding their attitudes toward the use of POST programs were compared. A scan of publicly available information about POST programs employed by major U.S. police departments was conducted to understand program purposes, policies, protections, and boundaries. An original survey was attempted with employees of major U.S. police departments

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where POST programs were used to gather detail about the ways in which programs were conceived, developed, and implemented. One POST program was examined in depth using both publically available information and police department internal data to document the process and perceptions of outcomes in a major city. The findings from the case study city were compared to data collected from other departments to understand similarities and differences of national POST programs.

Discussion of Results

The purpose of this study was to identify and provide some remedy to knowledge gaps in the literature regarding police use of POST, focused on: the adoption and proliferation of POST in the U.S.; the purposes for which POST data was used; the acceptance of and attitudes toward POST programs in the U.S.; and issues surrounding the use of POST in a free society, particularly concerns about privacy violations. The findings from this research can be used to inform and improve the policy, practice and research of POST programs.

The study of POST schemes in the U.S. and their origins revealed what appeared to be acceptance of police POST programs. Amid evidence of acceptance of police POST emerged simple yet also complex unanswered questions about the benefits to public safety compared to the financial and social costs. In order to create a frame that can be used to address these questions, one must consider first what POST can reasonably be expected to do and balance it against the freedom versus security debates.

A review of literature demonstrated no consistent and clear evidence that POST schemes lead to reductions in crime in the U.S. Evaluations of police POST demonstrated statistically significant impacts in some but not all sites. Many POST programs were implemented using funds intended for terrorism prevention, but eventually implemented programs that included crime reduction as a gold. Some departments favored investigative uses of POST, but given the amount of data that was captured relative to the amount that was reviewed, technology appeared very costly on a per-case basis. Detectives and prosecutors reported that video evidence could be incredibly useful when it was available, but anecdotal data suggested useful video footage was available in very few cases. The media used video images extensively which may have suggested to people the efficacy of police POST programs, regardless of the actual use of police image data. Privacy rights have been diminished over time as technological innovation has created opportunities for police surveillance that would not have been conceived of a short time ago. U.S. case law on police POST has not kept pace with technology and regulation of POST is minimal.

Literature review.

Welsh and Farrington (2002) were commissioned to evaluate POST through a systemic review of the evidence. Their findings of a small but insignificant impact on crime that varies slightly by location and context were confirmed later in the decade by Martin Gill and others. In subsequent research, Welsh and Farrington (2009) noted that POST programs have been shown to be effective in preventing vehicle-related crimes in parking lots, but "not very effective" in preventing crime in central urban areas, public housing developments, and transportation hubs. They found that street lighting improvement projects had a greater impact on crime reduction, with few social costs (if any). On the other hand they concluded that the social costs associated with POST programs were troubling. Nonetheless, POST programs continued "unabated in the United Kingdom, seemingly without attention to these research results" (Welsh and Farrington, 2009). A review of literature on the impact of POST revealed, in addition to uncertain effects, a surprising paucity of research on the processes involved in planning, implementation, and POST data usage patterns among law enforcement agencies. The literature review also revealed a lack of documentation on attitudes toward POST in the U.S. Laycock and Clarke (2001) argued that U.K. crime control policies are driven by research on crime prevention strategies, but not in the U.S.; the U.S. research agenda was designed to support existing policy and little governmental investment has been made in the study of situational crime prevention. Researchers and practitioners have often noted that POST was not a panacea and cannot be expected to be a single strategy that will lead to significant crime reductions.

Community surveys.

Consistent with the extant literature, survey respondents had largely positive attitudes about the use of public surveillance. However, findings from the community surveys were by no means easy to interpret and the differences between the responses to the open community survey and the public housing resident survey will require additional thought.

Based on the literature, I hypothesized that females, because of their higher levels of fear of crime, would be more likely to support POST than males. Analysis of data did not support that hypothesis; females in the open community survey were less likely to express support for public surveillance and gender was not found to be significant within the public housing resident survey responses. Females made up just over half of the open community survey respondents and nearly one third of the public housing resident survey respondents. Yet these samples may be different in composition than others in the literature. Public housing residents are not representative of the larger community, and the open community survey sample is drawn from persons with access to the internet. A second hypothesis based on prior research was that older residents would be more supportive of surveillance than younger respondents. Analysis of the public housing sample supported this hypothesis, but not the analysis of open community survey responses. It may be the case that higher levels of crime in public housing settings than in the general public was caused older residents may feel more vulnerable and therefore more likely to endorse crime prevention strategies, including POST. However, it was unclear why older respondents in the open community survey were not more likely to support post surveillance than younger respondents. Again, the sampling strategy may have been contributed to these unexpected findings: just over half of respondents in the public housing resident survey were age 61 years or older compared to just under 10% in the open community survey. The U.S. Bureau of the Census reported that 19% of the U.S. population was age 60 or older just over 16% was age 62 or older in 2010¹⁶. Additionally, according to the 2010 Census, the City X population age 60 and older was almost 15% and those age 62 and older was almost 13%.

Race was not hypothesized to have an impact on attitudes toward police surveillance. Nonetheless, it is interesting to note that race did not have much impact on community support for POST. Being African American was not significant in the open community survey (where African Americans constituted about 16% of the population) and was only marginally significant (p<.1) in the public housing resident survey (where the sample was about 70% African American).

Fear of crime, prior victimization and levels of violent crime in the residential beat were hypothesized to be associated with attitudes toward POST. Support was found for the "threat" hypotheses in the open community survey analysis, but not in the public housing resident survey

¹⁶ http://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf accessed 2012
analysis. The difference in outcome may have been due to the greater variability in the community sample on the independent variables. The public housing sample was largely comprised of African Americans who were likely exposed to higher levels of threat (victimization risk) for extended periods than the general population, which may have contributed to optimism and enthusiasm for new programs intended to alleviate that threat. Also, the public housing sample exhibited a more nuanced response pattern by expressing both more and less support for POST. The difference in outcomes may have been due to the greater variability in the community sample on the independent variables. The public housing sample was largely comprised of African Americans who were likely exposed to higher levels of threat (victimization risk) for extended periods than the general population, which may have contributed to optimism and enthusiasm for new programs intended to alleviate that threat. Also, the public housing sample exhibited a more nuanced response pattern by expressing both more and less support for POST.

The hypothesis that attitudes toward surveillance would differ between the public housing resident survey and the open community survey was confirmed: in the analysis of the combined survey datasets, public housing residents were significantly more supportive of POST than respondents to the open community survey. Welsh and Farrington (2009) wrote that POST is "not very effective" in preventing crime in public housing developments, but "in these areas the potential social costs are most troubling." In the public housing environment, residents may have a more nuisance understanding of surveillance systems. The cameras are clearly an extension of law enforcement, and the African American community in public housing has a long conflictual relationship with the police (Rosenbaum, 1993). Rosenbaum also found that African Americans living in high-crime areas were more willing to give up their civil liberties than other residents in exchange for greater public safety. It seemed that the public housing respondents had mixed feelings – they saw the benefit of cameras to improve safety, but also the negative side of enforcement for minor offenses. For example, more than two thirds agreed that "surveillance cameras will decrease loitering" (67%), that "surveillance cameras will cause a decrease in crime" (68%), and 54% *agreed* that "surveillance cameras will be used to target certain groups, such as young people."

In summary, respondents to the two surveys regarding attitudes toward POST were generally supportive of its use. Public housing residents differed from respondents to the open community survey in their attitudes toward POST. Terrorist acts or the fear of such attacks may have been responsible in part for the apparent acceptance of government POST programs, but that remains unknown. To my knowledge, there is no research that documents U.S. public attitudes toward government POST programs prior to the September 2001 terrorist attacks. Additional research is needed to better document and understand the attitudes toward POST. Generally speaking, feelings about POST are complicated. Individuals can easily approve of the technology but also be wary of privacy implications. It is not enough to say the public supports the use of POST and therefore its use can be unregulated and legitimated in any situation. Attitudes may be a balancing act for most people, and there should be some acknowledgement of public ambivalence toward police POST. As noted by many researchers, practitioners, and the public, the technology itself is not at issue here, rather it is the use of technology that has implications for the community and personal rights. Clearly, police agencies that use POST would be well served by developing an understanding the desires of the community and including consideration of those desires during project development, implementation, and ongoing operations.

Case study.

Using exploratory and descriptive methods, this research examined the development and implementation of the POST program, as well as how data was collected and used by XPD, and resulted in a number of findings. First, there was no clear agreement on how cameras work to reduce crime or the most effective way to use technology. No clear agreement existed outside of XPD either, as the matter was debated in the literature. Both officers and the public were unclear on the causal mechanisms by which a POST program might improve safety.

In City X, there was a dramatic change from how the program was originally conceived to what it has become. Initially, the POST program was to be one part of a larger coordinated strategy. The XPD created saturation teams to target hot-spots, focused on curfew enforcement, and created a central intelligence unit to make daily deployment recommendations. POST cameras could have been used for different purposes within those strategies to contribute to a larger violence-reduction focus and initiative. Over time, the POST cameras came to be used in isolation, run as missions by a single officer or a small group of officers coordinating at their discretion. POST images were also used forensically for investigations, but it is not clear that the cost of the program can be justified by the small number of documented uses of the image data.

If the program had been implemented as originally developed, it would have included a small number of cameras that would have been moved approximately every 30 days. The financial costs of the program would have been significantly lower as it would not have required the hard costs associated with camera purchase. Further, a smaller number of cameras would have meant less cost associated with maintenance, and it would have created a greater capacity to upgrade equipment as technology advances. The potential privacy implications associated with an ever increasing number of cameras being placed in public and accessible by the city are also

higher than if the project had been implemented as originally planned. Finally, the permanent, stationary cameras represent a potentially larger privacy violation than moving cameras, as the latter are unable to keep records of individual behavior patterns for extended periods.

The placement of POST cameras in city X was limited to where the infrastructure would support the technology, rather than where they were most needed or wanted. The city had to place cameras either on publically owned property (such as light poles) or with the permission of property owners (such as the roof of an apartment building). If the available locations did not have the proper "line of sight" then the POST camera could not be installed. This may or may not continue to be a problem for the city, since infrastructure improvements are increasing the places that are accessible. Furthermore, it would have been a greater problem if the department had been faithful to the original concept of having a few cameras moved frequently. Instead, by blanketing the city with public and privately held cameras, the problem is likely of minor consequence.

Regarding the ways in which the POST cameras were used by XPD, the research questioned the effectiveness of the single officer use model, where one officer watched the camera feeds and called the emergency dispatch center if s/he believed an officer should intervene. The lone officer model may not be any more (or perhaps less) effective than having an officer physically positioned on the street. It is unknown how frequently this model was used, but data from XPD supports reports that precinct chiefs used POST cameras every day because they believe they were required to do so. Other models of POST use require more coordination among officers and thus more officer time. It may have been the case that resource strapped precinct chiefs used the lone officer model to fulfill the presumed requirement, since POSTrelated arrests were miniscule compared to the data captured (48,000 hours of images a day if there are 2,000 cameras owned by XPD, with an average daily arrest rate related to POST of less than 3).

The lack of high quality images and the randomly rotating lens design caused issues for investigators in XPD. Furthermore, investigators identified these limitations early in project implementation. While there would have been significant costs associated with upgrading equipment to improve image quality, it appeared that eliminating the pre-programmed tour could have been done much more easily with a significant impact. Many hours of footage that were reviewed revealed nothing of interest when the lens was not pointed at the incident in question. The lenses cannot see in all directions at once, but it seems that pointing the lens at the street would be more likely to catch criminal activity than letting it focus in the air above the street. Officers certainly should have the ability to manipulate the lens in any way they deem necessary when monitoring an area. However, the limitations of the preprogrammed tour could be improved with thoughtful planning of implementation locations and their potential to provide useful material.

The volume of data captured by POST cameras far exceeded the XPD's ability to actively monitor cameras. The total number of arrests made as a result of POST cameras was very small relative to the number of arrests made in a year, and the amount of video footage that was useful forensically was even smaller. The types of incidents for which POST data were forensically reviewed were the most serious types of violent crimes, but the arrests that were made using POST were for mainly low-level crimes. This finding suggested that investigators reviewed video for serious offenses but when actively monitored, the most often observed offenses were petty. The mere frequency of occurrence would dictate that serious offenses would be rarely observed and petty offenses would be observed much more often. Nonetheless, there was no compelling evidence that the POST program had significantly better outcomes for public safety than traditional policing or community policing strategies.

Overall, this research points to significant questions about the value of the POST program given the overall costs. Total financial costs associated with POST in City X are unknown, but there was wide agreement that there were many thousands of cameras on the network, of which the police owned at least 2,000. The unknown program costs were likely to have been in excess of \$100 million. A small number of arrests have been documented as resulting from POST cameras, but those arrests were considered low-level arrests. Crime was down in City X, but was also down nationally, and the limited empirical evidence of POST's impact in City X showed mixed results. POST was also being used in counterterrorism efforts, according to City X, but the methods or impact of POST on preventing attacks or securing the city were unknown. The effects on community residents and feelings of safety remained uncertain. While many residents welcomed the cameras, whether their presence was linked to improvements in fear of crime and residents' usage of the neighborhood, is a question that cannot be answered here. Also, there was the real possibility that the presence of cameras was viewed by real estate agents and potential home owners as a sign of danger to be avoided, and would eventually lead to disinvestment and neighborhood decline (Skogan, 1990). Only time and careful research can address these concerns.

Comparison Cities.

The research on police POST programs in the U.S. examined factors that contributed to the decision to implement POST programs. While there were a number of similarities among POST programs in the U.S., no single model was identified. The individualized approach to POST seems appropriate as local context was important for program acceptance and thus impact. "It's hard to generalize about CCTV systems," (Crossman et al, 2007). There were a number of published documents created to provide police departments with a template for project planning (Ratcliffe, 2011; The Constitution Project, 2007), but it is not known to what extent these guidelines are referenced.

However, while the nuances of any given program fluctuated among programs, a major influence on a city's decision to implement POST may have been its use in other large cities. In essence, the desire to innovate with POST seemed to be a "copycat" response rather than the result of a careful assessment of local needs. This may be due to diffusion of innovation, the process of social change: development and implementation strategies were initiated because other cities were engaged in that process. Rogers (1995) argued that innovation follows recognition of the need for change. The early 1990s saw an openness to innovation in American policing following a crisis of confidence in the ability of police to have any impact on crime (Weisburd, 2005; Weisburd and Braga, 2006). At the same time, London and other places in the U.K. were experimenting with POST and those programs were both popular and widely accepted as effective. Rogers also noted that the perceived need for change sometimes comes from industry or other interest groups and conversations within peer networks were important in the process of diffusion of innovation. Research has linked technology innovation and national economic prosperity (West, 2011). By one estimate¹⁷, the global market for POST equipment will reach \$23.5 billion by the end of 2014, an increase of more than 20% since 2012. There is certainly a market to support POST as well as the desire to experiment within the law enforcement community.

¹⁷ http://www.prnewswire.com/news-releases/global-cctv-market-forecast-to-2014-142456805.html

Although the first uses for POST in the U.K. were forensic, the idea that POST could be used actively to prevent crime quickly became part of the common understanding of POST capabilities. For example, Chicago was one of the first cities to implement a centralized POST program in the U.S. with the general purpose of reducing crime (New York used POST for many years before Chicago but each program was location specific and implemented in a decentralized fashion). News reports state that representatives from Chicago visited London during project development (for example, Chicago Tribune "Camera network to watch over city" September 10, 2004) and Chicago is widely cited by other police departments as being influential in the decision to deploy POST schemes. It also appeared that the terrorist attacks of 9/11 contributed to a perceived need for counterterrorism measures, which became a factor in local police decisions to implement POST programs. Unfortunately, most police departments did not address this issue in any detail.

Questions about the value of POST have begun to appear. According to numerous published interviews with the London Metropolitan Police Department's Detective Chief Inspector Mick Neville of the Visual Images Identification and Detections Office (VIIDO) unit (Hickley, 2009; Hope, 2009; Porter and Hirsch, 2009) 1,000 cameras were necessary to solve a single crime. In a BBC report ("Police 'not using", 2009), Neville stated that many smaller municipalities copied London in their POST implementation programs, but they did not learn from the mistakes made in London. Specifically, while money was spent primarily on the equipment necessary to implement POST, not enough money was spent on the staff to create processes and monitor the program. Neville was quoted in a BBC News report:

Unless there is a systematic way of gathering CCTV then it will continue not to be as effective as it could be. What I would say...is we've got enough cameras, let's stop now, we don't want any more cameras. Let's invest that money that's available and use it for the training of people, and the processes to make sure whatever we've captured is effectively used. ("Police 'not using", 2009)

Responding, Graeme Gerrard on behalf of the Association of Chief Police Officers (and lead author of the Home Office's National Strategy document) stated: "What is the value to London to have suicide bombers who failed in their first attempt arrested and detained before they were allowed to act again? How do you put a value on that?" ("Police 'not using", 2009).

Questions about impact of POST on crime were debated in some places in the U.S. The Oakland California City Counsel twice rejected POST program proposals, with then-mayor Jerry Brown stating "Installing a few or a few dozen surveillance cameras will not make us safe. It should also not be forgotten that the intrusive powers of the state are growing with each passing decade" (Schlosberg and Ozer, 2007). In 2009, the Cambridge, Massachusetts city council voted to stop progress on activating surveillance cameras in the community, adopting an order that said "the potential threats to invasion of privacy and individual civil liberties outweigh the current benefits" ("Cambridge rejects," 2009). Mayor Denise Simmons said:

The essence of this debate is that the council and I don't have enough information. We don't know how they're going to be operated. We don't know how they're going to be governed. We don't know who's going to have access to the information that they collect. "There has not been enough public discussion about these cameras, so City Council is not convinced that their proposed benefits will outweigh the potential risk. ("Cambridge rejects," 2009)

Also in 2009, protests were held in Lancaster, PA which received media attention for having the greatest number of POST cameras per capita. As discussed in Chapter II, the Philadelphia City Controller released an audit of the city's video surveillance project (Butkovitz, 2012) stating that the approximate cost of \$136,000 per functioning camera (47% of all deployed cameras) "appeared excessive" compared to cost projections during project planning.

Media and privacy concerns.

Consistent use of video images by the media in the U.S. may be contributing to POST proliferation, although images used are often not the result of successful use of POST. Additionally, representation of criminal acts and attempts may have contributed to an increase in fear of crime. Fear of crime has negative consequences on individuals and their communities.

The media has not contributed in any significant way to the debate about the potential costs of increased surveillance. There is wide acknowledgement among interested parties that privacy rights have been eroded over time, but the media has not brought forth the topic for debate in any significant way. Furthermore, popular media consistently reports on technology updates, including news about social media outlets, without mentioning the implications for privacy. Even when Google or Facebook make the headlines for privacy policy, those issues are usually reported as business news and often do not register with people who are using these tools.

Technology has created opportunities for law enforcement to conduct surveillance in ways that would have been many more times resource intensive or impossible a short time ago. As such, the threshold for engaging in surveillance has been significantly lowered. Technology is such that law enforcement agencies could use technologically-enhanced methods and analyses to select individuals to be subject to surveillance rather than the other way around. For example, government agents could combine datasets that include telephone records, travel habits, and credit card purchases to decide who poses "a threat" based on the picture that emerges. These opportunities come with the potential for significant challenges to privacy.

Fourth Amendment challenges that may have an impact on POST in the future are not well understood, but the *U.S. v. Jones* opinions are controversial and predict the need for serious

consideration of how technology impacts privacy. Regardless, the public is supportive of police POST and are not overly concerned with privacy implications. The absence of debate about the potential loss of privacy may be due to a lack of knowledge about how surveillance and webbased systems work, and thus the long-term implications for privacy. Furthermore, privacy losses are often the result of a subtle "chipping away" over time and may be easy to overlook until accumulated losses are obvious.

A Question of Balance

Arguments for and against the use of POST revealed that the two sides were telling different stories. POST advocates asserted that the government could be trusted, that you didn't have a right to privacy in public places, and that you were safer because of the cameras. Clear consistent evidence about POST creating safer communities was lacking because of complicating factors. A review of high-profile cases illustrated how POST data were not consistently useful in preventing or investigating incidents, but footage used by media may have bolstered support for POST. And a clear distinction between uses for commonplace crimes, high-profile incidents, and counterterrorism efforts was not addressed.

Anti-POST arguments suggested that the scope creep and the slippery slope are so fraught with peril that greater caution should be exercised and more deliberate planning with due consideration for privacy and safeguards against misuse. They pointed to real cases of abuse and misuse and pointed out that regulation of POST programs was non-existent, the programs lacked transparency, and were used to monitor lawful behavior (a serious threat to daily freedoms). For these reasons, they argued, there could be no trust of government POST programs. Anti-POST arguments could be augmented with real cases that illustrated the realization of fears, but it is unknown how common these misuses were. Meanwhile, POST innovations were quickly diffused in the U.S. with the media as key drivers. The U.S. public was largely silent on police POST programs, although there was evidence that people were concerned about privacy. A decade ago, the notion that the government could "connect the dots" among disparate data about individuals was conceptual. Technology has chipped away at structural limitations to combining massive data sets, and the government has developed legal justification (mostly though counterterrorism programs) to allow access to private systems, lending credence to concerns about "scope creep," "dataveillance," and "total information awareness." Police departments historically used low-tech methods; they would decide who to watch and then initiate formal surveillance. But methods that were once reserved for the most serious cases were routinely used in policing and vice versa, and massive amounts of available data could inform the police about who to watch and not the other way around.

Fussey (2008: 132) wrote, "Promoting liberty does not necessarily reduce 'security' in a commensurate fashion and vice versa." Solove (2008): "Far too often, the balancing of privacy interests against security interests takes place in a manner that severely shortchanges the privacy interest while inflating the security interests." Balance is a central issue of police use of POST that many researchers have tried to address. Given that government funds are spent on POST programs that were developed and implemented by governmental agencies, it seems that the balance is often tilted toward the government perspective. Yet these programs were funded with public money to record members of the public on the public way. Therefore, considerations of current and future POST programs should include mechanisms that provide for public input in all phases of planning, implementation, and evaluation.

While it is easy to be critical of the reality of POST use by XPD, some may care to defend a strategy that uses POST to intervene with less serious offenses. The "Broken windows" model (Kelling & Coles, 1996), for example, suggested that the enforcement of disorder and minor incivilities will prevent the occurrence of more serious crime. Unfortunately, there is little research to document the effectiveness of POST in reducing less serious crime other than vehicle-related crimes in parking lots. Perhaps if police cars were dispatched to minor offenses identified by POST, a larger effect would be observed. But this approach also raises questions about the use of limited police resources during times of economic scarcity, as well as potential harassment complaints currently being experienced by the New York City police.

Limitations

The research conducted for this dissertation was largely descriptive and exploratory. Neither of the two samples analyzed in Chapter IV were randomly selected. Therefore, caution should be exercised when generalizing beyond the samples included. Chapter V presented findings on the use of POST data by XPD. However, there is no comparable data set available to assess whether XPD is unique or typical of other police departments with POST programs. Data used in Chapter V cannot be validated and some caution should be used when interpreting findings. All findings in this research should be interpreted in light of these limitations.

Policy, Practice, and Future Research

As previously noted, manufactured POST products are inherently neutral; the technology is not in itself a threat to liberties. POST has already been implemented by police departments in municipalities of all sizes across the U.S. It seems logical that POST will be put to use and perhaps, if the past is any indication, will continue to expand. Therefore, police should focus on developing ways to use the technology well and responsibly. As Braga and Weisburd (2006) noted, the period of recent police innovation provides a basis to be optimistic about the future of policing. There is reason to believe, according to their research, that police can have an impact on crime and also improve community relationships. However, inevitably, the balance of power falls to the government in the public surveillance relationship: the government acts as the agent of surveillance and the public becomes the subject of such surveillance. Therefore, questions about the effect, appropriate use of surveillance technology and the social and psychological impacts often frame the government, especially law enforcement, in the defensive position. The government, though, may not be fazed by this placement and may choose not to respond to these challenges. However, that posture would be a mistake today as our society continues to demand more openness and transparency in government agencies seeking legitimacy. Governmental agencies using POST will benefit from inclusiveness in POST program development.

The development phase may be the easiest and most important time to influence the shape of the POST programs, but it is never too late to improve them, particularly when changes focus on policy or procedural operations rather than the technical aspects of hard and software. Policy and procedure changes are easier to implement than rebuilding a program in its entirety. Certainly, it is preferable to have POST project developed with balancing principals in mind, it is never too late to revisit POST program with the goal of improving impact on crime and the community.

Program development and planning have immense implications for privacy, as well as social and financial costs. For example, as we saw with XPD, the initial project plan would have included a relatively small number of cameras that would have moved frequently, but the stated vision of the mayor was to blanket the city, putting a POST camera on every block. A project that places all communities in a municipality under permanent surveillance is much more costly than one that does so temporarily, and only where the police determine it is warranted for a particular, stated reason.

Policy and practice.

The need for regulation of POST programs is widely accepted and discussed in the literature. There is no shortage of information on how regulation might occur. All of these ideas are grounded in the development of policy at a local level. Program-specific decisions should be made at a local level (in accordance with state and federal law, where applicable), and thoughtful policy can be developed to address social and financial costs.

Chapter VI ended with a summary of models for post oversight proposed by Rosen (2004). Raab (2012) discussed existing principals that were developed to regulate the collection and use of personal data. He summarized the requirements for the use of personal data: fair / lawful collection for a valid purpose; accurate, relevant, and not excessive for the intended purpose; retained only as needed; collected with knowledge and consent or under statutory authority; confidential unless meeting other requirements like consent; secured; and accessible to the individual for correction. Additionally, the organizations that collect such data must be transparent and accountable.

The Constitution Project (2007) echoed some of these principals with regard to regulating government surveillance, with some additions: use surveillance only to address serious threats to public safety (although that may be difficult to define); ensure technology is capable of accomplishing goals; balance financial costs to alternative means of accomplishing the program goals; asses program impacts on rights and scope to minimize negative impact; technological and administrative oversight; and discussions open to the public. All of these recommendations are sound, and local policy should be crafted with consideration of these issues. Some of the major themes that must be considered within policy and practice are: community input; community relations; the need for multiple perspectives; police rules and transparency; evaluation; implementation; training, supervision, and accountability; POST program messaging; and technical considerations.

It appears that major U.S. police departments that have implemented POST programs are thinking about privacy issues, if for no other reason than to protect themselves from litigation. Washington, DC and San Francisco, CA both included community input and city council approval in their project development processes. Policy development will be strengthened by community input. Communities concerns may be simple to address, and including the community in POST projects at any point along the way will lend legitimacy to the project that may generalize to the department. Community cooperation and support are linked to perceptions of police legitimacy (Tyler, 2004). The police need community cooperation to be effective. Community input and perceived transparency can only strengthen POST programs.

The demands on policing have changed as a result of the terrorist attacks of 9/11 (Braga and Weisburd, 2006). Role changes coupled with reduced funding for community policing initiative (in favor of homeland security programs) may have caused the police to step away from earlier commitments to strengthening community relations. The reduction in community-driven policing butts up against a police-driven strategy that has been seen as a threat to community control and individual well-being. POST programs need community participation in order to mitigate these contextual factors, and to build effective and appropriate programs.

Development and implementation of POST programs should include multiple perspectives. Members of the public must be included, as well as those who have expressed concerns about POST (e.g.: privacy advocacy groups). Inclusion will benefit all interests by creating carefully planned and fully considered projects.

Police POST program policy must focus on developing more explicit rules about when and how POST data will or will not be used. The public is funding these programs as well as acting as the subjects of surveillance. There should be clear and publically available rules that set community expectations of POST data. For example, under what conditions will the police access POST data at the request of a local resident? Will data be accessed for a property crime like graffiti? For violent crimes? Or only incidents with serious bodily injury? Additionally, what can the public expect the police to do with the images they collect and store? What is the threshold for the police to act on a criminal incident that has been accessed forensically (public urination example)? Police departments that use POST should think through these issues in detail, with public input, document them in department policy, and make that policy available to the public.

POST programs, like many technology projects, fail to review impact after implementation. Instead, assessments focus on technological aspects: the need for new equipment or software. Few U.S. police departments have engaged in projects to evaluate the impact of their specific POST program on either the stated goals or the community. There is a strong need for regular and comprehensive review of POST programs, considering best uses, what has been learned about POST, and the importance of privacy concerns. More importantly, POST programs should be developed with a plan for evaluation that includes the intended goal and the data that will be used to measure impact.

Even the best developed policy can result in poor implementation. The XPD example demonstrates that point: the project was developed with one goal in mind, and political

considerations quickly forced a change in direction that was not thoroughly considered. In effect, the XPD threw cameras up everywhere and hoped for the best, rather than sticking to a reasoned plan. A clear purpose plan should drive the POST program and not the other way around. Technology should not drive implementation nor should a desire to "keep up" with what others are doing.

Of course, policy is not useful unless it is understood by all relevant employees and they have the knowledge and skill to execute the policy properly. Therefore, police should develop comprehensive training programs around their POST programs. Training should go beyond the technical details or reviewing First and Fourth Amendment guarantees. Effective policy should result in a clear message about the reasons for using POST and the resulting data, as well as rule about its use and the consequences of misuses. Training should reflect those clear messages. Training should cover the varied ways in which the technology can be used and the difference between purposes, as well as information about some of the best uses for the technology. An officer should have a clear understanding of what uses are not only acceptable but have the desired result. The technology itself is neutral but humans have unconscious biases that unwittingly driver behavior. Knowledge gained from control room observations studies should also inform training. Dedicated supervisory staff will have to ensure that training results in appropriate usage, and that individuals are held accountable for misuse. Therefore, thoughtful supervisory training will also be required. Finally, accountability must be visible, both within the police department and the community, in order to reinforce the notion that the police are serious about the best interests of the community.

A few practical issues were identified as a result of the case study. First, police should carefully consider how best to publicize their POST program. This could include highly visible

notice of the presence of cameras in a particular area, as per Mazerolle et al (2004). Beyond physical indicators, departments should develop a clear and consistent message for the community. For example, police may wish to send the message that "if the camera sees you, you will be apprehended." This could be accomplished through repetition at regular community meetings. Meeting attendees might repeat the message to others in the community and it will spread. Police could also tell arrestees that they were caught on cameras or create flyers using surveillance images, all with the intent of letting the community know that detected illegal activity will not be tolerated.

Second, preprogramming cameras, like the XPD program, may be beneficial, but camera lenses should not be programed to focus on areas that do not have the potential to capture useful information (e.g.: at a tree). The programs are costly, while the extent to which forensic data has been useful to police is unknown, the best chance to capture useable data will be by pointing the cameras in places with the highest probability of providing that data.

Third, POST images quality is key to usefulness. Technology is expensive, but purchasing ineffective technology is not beneficial to any interest. Technological projects have been implemented by many police departments, so there should be a good understanding of the associated costs. Police departments should plan for high-quality projects and resist the urge to install technology for the sake of having a technology program.

Finally, rapid program expansion taxed the XPD POST system capacity, and POST cameras could not always be placed where wanted due to "line of sight issues" (lack of wireless signal to transmit live feed). The expansion of the city X program to include other privately and publicly funded POST cameras in addition to XPD cameras in a federated system complicated police access to POST data. City X agencies, not to mention private entities, had for the most

part developed and implemented independent POST programs without coordination of hard or software technology. In this case, the plan to blanket the city in cameras came after project planning and implementation had occurred, and the idea to federate the live feeds came after that. Other cities wishing to develop and implement POST programs should deliberately create carefully designed long-term goals and develop coordinated strategies across agencies, where possible.

Future research.

U.S. attitudes toward police POST programs have not been documented and are not well understood. It is widely acknowledged that attitudes toward surveillance are complex; while the population is generally supportive of government surveillance for improved public safety, there is still some discomfort with the privacy implications of increased surveillance.

It is also unknown how actual high profile incidents have impacted attitudes toward surveillance in the U.S. While there is no baseline measure of attitudes toward government surveillance before 2001, future research should attempt to understand how 9/11 or other real incidents have contributed to the current attitude of acceptance.

It is not clear that being subject to surveillance has any impact on attitudes about privacy violations. For example, the open community survey asked respondents if there was now or had ever been a POST camera in their neighborhood. Regardless of their response, about one third agreed that cameras were an invasion of privacy and about two thirds disagreed. Longitudinal research would be needed to provide a more definitive answer.

It is not clear how people perceive the cameras being used. About 15% of people who responded that a camera was or had been in their neighborhood agreed that police have made "many" arrests of people because of the cameras. Only slightly more agreed who had never or

do not now have cameras in their neighborhood (17% never, 22% not now). Overall, most responded "don't know." Respondents who reported having a camera in their neighborhood disagreed slightly more than responding "don't know" when asked if police watch the cameras, around 40% in both response categories. Research must be undertaken to develop an understanding of public knowledge. In research, we demand "informed consent" for subject participation. Is the public really "informed" of the ways that POST data are being used or could be used and the implications of POST data for privacy?

Research should attempt to document or estimate the proliferation of police POST programs in the U.S. There is no single source for the number of programs in the U.S. by city size and location, the cost of these programs, and the sources of these funds. Yet media accounts and scholarly articles site what little information is available. A national survey would greatly illuminate the extent and nature of police POST programs in the U.S.

The little information that has been documented suggests that data are being used infrequently as an active tool for making arrests, and less frequently in investigations relative to the amount of data being capture. Available information also suggests that POST images are very rarely used in prosecution, but it is not clear why this is true or what cases would be counted (POST images used to obtain a plea bargain versus used as evidence in a jury trial).

It is unknown what data, if any, U.S. police departments are collecting regarding their usage of POST data. Information about the use of POST data would be helpful to police departments, as well as for general knowledge. Such information could identify best practices and methods for improving POST efficiency. Research must be undertaken to document the current state of data collection, and then recommendations can be made for collecting and analyzing such information. The scale and dimensions of U.S. police POST proliferation are unknown. The estimated hundreds of millions of dollars that are spent on POST programs is money that is not being spent on other public safety projects. It seems unlikely that POST implementation will abate in the near future. Therefore, the many questions about POST programs raised in this dissertation should be taken seriously by governmental agencies that intend to implement or have implemented such programs. This consideration must be supported with careful, scholarly work on the many issues associated with POST. Fortunately, scholarly interest in this field appears abundant and growing. In this area as in many others, research and practice should be the protection of the public, not only from threats to public safety, but also from potential negative social and personal consequences of public surveillance.

APPENDICES

Appendix 3.1 – Open Community Survey Instructions and Consent

Instructions

You are being asked to complete a survey about the Chicago Police Department's response to crime in your neighborhood. The survey was developed by the University of Illinois at Chicago Criminal Justice Department, and has been submitted to you with cooperation from the Chicago Police Department. The purpose of the survey research is to learn what citizens think about the Chicago Police Department and its strategies. If you agree to participate, the survey will take approximately 20 minutes to complete. If you have any questions about the survey, you may contact Dr. Dennis Rosenbaum at (312) 355-2469 or the University of Illinois at Chicago's Office for Protection of Research Subjects at (312) 996-1711.

Things you should know before completing the survey (please read this information before continuing):

Your participation is voluntary.

- \checkmark If you start the survey, you may choose to discontinue at any time.
- ✓ If you do not feel comfortable answering a question, you may skip the question and proceed to the next one.
- ✓ Completing the survey does not involve any foreseeable risks, beyond those encountered in everyday life.

Your responses will not be linked to you directly.

- ✓ The purpose of the research is to provide summary information (combined responses from many participants).
- \checkmark The survey does not ask for any information that could be used to identify you.

- \checkmark Your email address will remain unknown to the research team.
- ✓ When submitting the survey, your Internet Service Provider (ISP) address may be sent along with your survey responses. Your ISP address gives only the host name (AOL, for example) with which you access the Internet.

Your responses will remain confidential.

- ✓ All responses will be kept in a secure location to which only University of Illinois at Chicago researchers will have access.
- ✓ Individual surveys will not be provided to the Chicago Police Department.
- ✓ Only summary information will be provided to the Chicago Police Department.

Your responses will give you an opportunity to voice your opinion.

- ✓ Sharing summary information with the Chicago Police Department may provide the police with new insights about your neighborhood.
- \checkmark The researchers hope to learn what citizens think about current police strategies.

Feel Free to Save or Print a Copy of This Form

For Your Personal Records

Clicking the Button Below Indicates That I Have Read the Information on This Form and Agree to Participate

Appendix 3.2 – Open Community Survey Questions

Eighteen questions about the police use of public surveillance technology were included in the survey instrument, prefaced with the following language: "Please give your opinion about the visible blue-light cameras installed by the Chicago Police Department throughout the city."

- 1. The cameras improve neighborhood safety
- 2. The cameras prevent criminals from committing crimes
- 3. Cameras are a cost effective way to improve safety
- 4. Cameras send a message that a neighborhood is safe
- 5. I would like to have (do like having) a camera in my neighborhood
- 6. Having a camera in my neighborhood would (does) make me feel safe
- 7. Cameras have a positive impact on property values
- 8. The police have arrested many people who commit crimes in view of the cameras
- 9. The police are watching what occurs within the camera's view
- The flashing lights on the cameras prevent crime because people know they are being watched
- 11. Cameras cause criminals to move to other locations to commit crimes
- 12. The presence of cameras sends the message that a neighborhood is dangerous
- 13. The cameras are an invasion of neighborhood privacy General
- 14. Cameras create a "big brother" feeling in the neighborhood
- 15. Cameras decrease home values
- 16. Cameras do not have an effect on neighborhood crime
- 17. I do not approve of having a camera in my neighborhood
- 18. Cameras work best when they are hidden

CODING

- 1
- strongly disagree somewhat disagree somewhat agree 2 3
- strongly agree. 4

Appendix 3.3 Public Housing Resident Survey

Public Safety Survey

	Very Safe	Somewhat Safe	Somewhat Unsafe	Very Unsafe	Don't Know	
How safe do you feel or would you feel being alone in your						
How safe do you feel or would you feel being alone in your						
neighborhood <u>during the daytime</u> ?						
				Yes	No	
Most communities have limited public safety resources. Should	l more resource	s be invested in	your			
community?						
In the past 6 months, have you or a member of your household been a victim of a crime?						
If yes , please describe the nature of the crime:						
Has anyone broken into your home to steal something?						
Have you found any sign that someone tried to break into your home?						
Has anyone stolen, damaged, or taken something from your car or truck?						
Have you had anything stolen that you left outside, including motorcycles or bicycles?						
Has anyone stolen something directly from you by force, or afte	er threatening y	ou with harm?				
Has anyone physically attacked you?						
Has anyone threatened to physically attack you?						
In general, do you think there is a crime problem where you live	ve?					
	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Neutral / Don't Know	
Please provide your opinion on each of the statements below if surveillance cameras were implemented in your neighborhood:						
Deeple will report more incidents to the police because the	Γ			[
surveillance footage could be used as evidence						
Police will respond to events more quickly if surveillance						
cameras were installed						
Surveillance cameras will make it look like my neighborhood						
has a crime problem or is dangerous.						
Surveillance cameras will decrease loitering						
Surveillance cameras will be an invasion of privacy						
Surveillance cameras will be used to target certain groups						
such as young people.						
Surveillance cameras will cause a decrease in crime						
Surveillance cameras in my neighborhood will make me feel						
safer.						
I approve of having surveillance cameras in my						
neighborhood.						
Surveillance cameras will improve neighborhood safety.						
Surveillance cameras will prevent criminals from committing						
crimes.						
Surveillance cameras will be a cost effective way to improve						
safety.						
Surveillance cameras will not have an effect on neighborhood						
crime.						
Surveillance cameras will send a message that the						
neighborhood is safe.						
Surveillance cameras will have a positive impact on property						
values.	1	1	1			

Please tell us about yourself

Gender: Male Femal	e
----------------------	---

What is your age?

- Hispanic or Latino
- □ Not Hispanic or Latino

□ Asian □ White □ Native Hawaiian / Other Pacific Islander

Please indicate the highest level of education you completed.

□ Did not finish high school □ High school graduate / GED □ Some college, but did not graduate □ Undergraduate degree

GED □ Further technical/vocational training □ Graduate degree

CODING

Items 1 and 2

- 1 very unsafe
- 2 somewhat unsafe
- 3 somewhat safe,
- 4 very safe

Items 3 through 12

- 0 No
- 1 Yes

Items 13 through 27

- 1 strongly disagree
- 2 somewhat agree
- 3 neutral/don't now
- 4 somewhat agree
- 5 strongly agree.

Appendix 3.4 Interview Protocols – Urban Institute CCTV Study

Protocol for Interviews with Investigators

- 1. Have you used CCTV in criminal investigations? Yes / No
 - 1.1. If yes, please explain:
 - 1.2. If no, why not? [If no, end survey]
- 2. Have your job responsibilities changed in relation to CCTV use? Yes / No
 - 2.1. If yes, please describe?
- 3. Have you received any formal training on using CCTV to support investigations? Yes / No
 - 3.1. If yes, what was the content of that training? How long was the training? Where did it take place? Who conducted it?
 - 3.2. If no, what training would have been useful?
- 4. What are the advantages of CCTV evidence in supporting investigations?
- 5. What are the disadvantages of CCTV evidence in supporting investigations?
- 6. How do you become aware if a case has CCTV evidence?
 - 6.1. Does the incident reporting form have a check box for CCTV? Do you record if CCTV evidence is used? Yes / No
- Do you know the locations of the CCTV cameras and the areas they cover? Yes / No
 7.1.If no, who would you ask to find out?
- 8. If you suspected that images recorded by a CCTV camera might assist in a criminal investigation, how would you request the images?
- 9. How is CCTV evidence extracted and documented? What is the chain of custody?
- 10. Who would review the CCTV images to determine if they possess video that could assist a criminal investigation?

11. What challenges have you encountered in using CCTV evidence?

12. How many hours did you typically work to investigate crimes before CCTV?

12.1. Violent crimes? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 12.2. Property crimes? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 12.3. Drug offenses? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 12.4 Other misdemeanors? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 13. Has CCTV use changed the amount of hours you spend on a case (cases that involve CCTV) Yes / No evidence)? 13.1. Violent crimes? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 13.2. Property crimes? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 13.3. Drug offenses? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24 hours 13.4. Other misdemeanors? less than 1 hour / 1 to 3 hours / 4 to 10 hours / 11 to 24

14. Has CCTV changed how you investigate a case? Yes / No

14.1. If yes, how so?

hours

14.2. In no, why not?

15. How is CCTV used in conjunction with other evidence to support an investigation?

- 16. When putting a case together for prosecution (warrant), is CCTV evidence alone enough?[Enough alone, Useable only in conjunction with other evidence, Depends on case]
- 17. Has CCTV reduced the number of cases that are returned from the prosecutor's office? Yes / No
 - 17.1. Please explain:
- 18. How useful is CCTV evidence for:
 - 18.1. Investigations?

18.2. Interviews?

- 18.3. Interrogations?
- 19. What suggestions or lessons would you want to share with other detectives looking to use CCTV evidence?
- 20. Are there any other comments you would like to make about your experiences with using CCTV?
- 21. Do you know any investigators who have used CCTV images during a criminal investigation? (if yes, who?)

Protocol for Stakeholder Interview:

- 1. Job title:
- 2. Brief Description of job: Were you involved in the initial decision to implement CCTV?

Yes / No

- 2.1. If yes, who were the key decision makers?
- 2.2. If yes, why were they interested in implementing CCTV?
- 2.3. If yes, were your views on the reasons for CCTV investment the same as other key

decision makers? Yes / No

- 2.3.1. If yes, how so?
- 2.3.2. If no, how did they vary?

Planning

- 1. Why were you interested in using CCTV?
- What were your THE DEPARTMENT'S reasons for wanting CCTV? [safety, crime prevention]
- 3. What was THE DEPARTMENT hoping to gain through the use of CCTV?

- 4. Who was involved in the decision to use CCTV technology?
- 5. Did the community have input in the planning process? Yes / No
- 6. If yes, which groups? What were their roles? [Describe the process/ type of input]6.1. If no, why not?
- 7. What type of planning took place before any purchases were made?

7.1. How long did this process take?

- Did you consult any other cities using CCTV during your planning process? Yes / No
 8.1. If yes, which ones? Why? Was the information useful?
- 9. Did you consult any publications or written literature on CCTV?
- 10. What was your initial expectation for hardware costs and operational costs of using CCTV? Where did these estimates come from?
- 11. How did you begin to identify or raise funds for CCTV use?
- 12. Was legal counsel consulted during the implementation of CCTV? Yes / No
 - 12.1. If yes, what was discussed?
 - 12.2. If no, why not?
- 13. Was legal counsel involved in the development of policy? Yes / No
 - 13.1. If yes, how so?
 - 13.2. If no, why not?
- 14. What challenges did you face during the planning stage? [Financial, logistical, community concerns]
 - 14.1. How were those challenges overcome?
 - 14.2. How long did it take to overcome these challenges?
- 15. (If installed already) When was the first set of cameras installed?

16. Have there been any discussions about adding/moving cameras? Yes / No

- 16.1. If yes, please describe:
- 17. Have any of the cameras been moved? Yes / No
 - 17.1. If yes, why?

Acquisition

- 1. What process was used to choose a camera vendor (or vendors)?
- 2. Why was this vendor(s) selected?
- 3. What funding mechanisms were tapped for camera purchases? (private, public, partnership)
- 4. Who was involved in the acquisition/funding process? [city council, community groups]
- 5. What types of cameras (fixed, pan & zoom, active, passive) were purchased and why?
- 6. Who was involved in the purchasing decisions?
- 7. How many cameras were purchased? Which agency did the purchasing?
- 8. Are the cameras intended for overt, semi-covert, or covert use? Or a combination?
 - 8.1. Please explain
- 9. What challenges are you aware of that occurred during the acquisition stage of the process?
 - 9.1. How were those challenges overcome? How long did they take to overcome?

Installation

- 1. How many cameras were installed?
- 2. Where are cameras installed?
- 3. How were camera locations selected?
- 4. What physical aspects of the location were considered? [lighting, buildings, aesthetics, environmental concerns]
- 5. Do you have signage and/or flashing lights "advertising" the cameras?

Monitoring

1. Are cameras being actively or passively monitored? Or a combination?

1.1. Explain:

- If cameras are actively monitored, is there constant supervision for the operation? Yes / No
 - 2.1. If no, why not:
- 3. If cameras are actively monitored, are they monitored 24-hours a day? Yes / No
 - 3.1. If no, why not:
- 4. Are all cameras linked to a central control room or are there cameras that operate independently of the system?
- 5. Who is responsible for monitoring cameras? [which agencies?]
- 6. Do they undergo any formal training? Yes / No
 - 6.1. If yes, please describe:
 - 6.2. If yes, is the training documented?
 - 6.3. If no, why not:
- 7. If the cameras are monitored by police do they use sworn or civilian personnel?
- 8. What types of incidents are reported?
- 9. To whom do the monitors report incidents (crime, tampering, etc.) to?
- 10. What is the protocol for reporting incidents?
- 11. To what medium is camera footage recorded (i.e., tape, digital)?
- 12. Who has access to the recorded images?
- 13. How long is camera footage saved? Where is it stored?

Policies/Procedures

- Were any legal or civil rights considered prior to CCTV implementation? Yes / No
 1.1. If yes, please describe:
- Did camera installation result in any civil liberties or other challenges being raised? Yes / No
 - 2.1. If yes, please describe:
 - 2.2. If yes, were they by organized groups, community groups, individuals?
 - 2.3. If yes, how were the civil liberty challenges addressed?
- 3. Are there established/written operation CCTV guidelines or policies? Yes / No
 - 3.1. If yes, please describe:
 - 3.2. If no, why not?
- Are there any written policies to prevent the misuse of CCTV images/footage? Yes / No
 - 4.1. If yes, please describe:
 - 4.2. If no, why not?
- 5. Who has access to these guidelines and are they publicly available?
- 6. What is the policy for the release of CCTV images?
- 7. Are there any state or local laws regulating CCTV operation? Yes / No
 - 7.1. If yes, please describe:
- Have any complaints been lodged regarding the agency's use of CCTV? Yes / No
 8.1. If yes, please describe:
- 9. Have there been any violations of the agency's CCTV policy? Yes / No
 - 9.1. If yes, please describe:

- Has HAVE YOU EVER HEARD OF anyone been disciplined for misuse of CCTV? Yes / No
 - 10.1. If yes, please describe:
- 11. Have any studies (internally or externally) been conducted to evaluate your agencies use of
 - CCTV? Yes / No
 - 11.1. If yes, by who and what were the findings?

Other

- 1. Do you believe CCTVs have had an impact on crime? Yes / No
 - 1.1. If yes, how so and for what types of crime?
- 2. Do you believe CCTV images been used successfully in investigations? Yes / No
 - 1.2. If yes, please describe:
 - 1.3. Prosecutions? Yes / No
 - 1.4. If yes, please describe:
- 3. What are the best things about the POD program?
- 4. What are the biggest downsides of the program?
- 5. Recommendations for additional interviews:
- 6. Anything else?

Protocol for Interviews with Prosecutors

- 1. Have you used CCTV in criminal prosecutions? Yes / No
 - 1.1. If yes, please explain:
 - 1.2. If no, why not? [If no, skip to question 2]
- 2. Do you know any local, state or federal laws that regulate the use of CCTV systems?
- 3. Do you know of any local, state or federal laws that regulate the use of digital images as evidence?
- 4. Do you think that the police department (or agency responsible for operating the CCTV system) have adequate controls in place to prevent misuse? Yes / No
 4.1. If no, please explain.
- Do you know the locations of the CCTV cameras and the areas they cover? Yes / No
 5.1. If no, who would you ask to find out?
- 6. Have your job responsibilities changed as a result of the use of CCTV? Yes / No6.1. If yes, please describe?
- Have you received any formal training on using CCTV to support prosecutions? Yes / No
 - 7.1. If yes, what was the content of that training? How long? Where?
 - 7.2. If no, what training would have been useful?
- 8. How is CCTV evidence prepared for use in prosecuting a case?
- 9. What are the advantages of CCTV evidence in supporting prosecutions?
- 10. What are the disadvantages of CCTV evidence in supporting prosecutions?
- 11. What challenges have you encountered in using CCTV as evidence?
- 12. Does access to CCTV images increase your willingness to accept a case for prosecution? Yes / No
 - 12.1. If yes, how so?
 - 12.2. In no, why not?
- 13. How many hours did you typically work to prepare a case for prosecution before CCTV?Would this change if the case went to trial?

- 14. Does CCTV evidence increase or decrease the time it takes to prepare a case for prosecution?
 - 14.1. If it increases, how so? How many hours?
- 15. Does the use of CCTV increase the likelihood of a case resulting in a plea bargain?Yes / No
 - 15.1. If yes, why do you think this is?
 - 15.2. In no, why do you think there has been no change?
- 16. Does the use of CCTV increase the likelihood of a case resulting in a trial?
 - 16.1. If yes, why do you think this is?
 - 16.2. In no, why do you think there has been no change?
- 17. Has CCTV evidence led you to decide to prosecute cases that you would not typically prosecute in the absence of CCTV evidence? Yes / No
 - 17.1. In no, why not?
- 18. Has CCTV reduced the number of cases that are closed due to insufficient evidence?Yes / No
 - 18.1. Please explain:
- 19. How is CCTV used in conjunction with other evidence to support prosecutions?
- 20. Is CCTV evidence enough to issue a search/arrest warrant to an investigator? Yes / No / Don't Know
 - 20.1. Please explain:
- How powerful is CCTV evidence in the courtroom? Very powerful / Fairly powerful / Neutral / Not powerful
- 22. Is it credible alone, or only in conjunction with other evidence? Or does it depend on the case?

- 22.1. Please explain:
- 23. What suggestions or lessons would you want to share with other prosecutors looking to work with a CCTV system like the one in [city name]?
- 24. Are there any additional comments you would like to make about your experiences with using CCTV?
- 25. Do you know any prosecutors who have used CCTV images in their cases? (if yes, who?)

Protocol for Vendor Interview:

- 1. Name of Company
- 2. Job title:
- 3. Brief Description of job:

Planning

- 4. When/How did you become involved with Chicago's CCTV program?
- 5. What phase of planning was the city currently in when you became involved?
- 6. Were any cameras in place at that time? Yes / No
- 7. What were the city's reasons for investing in CCTVs? [safety, crime prevention]
- 8. Were you involved in the decision to use CCTV technology?
- 9. What were your contractual responsibilities?
- 10. What type of planning took place before any purchases were made?
 - 10.1. How long did this process take?
 - 10.2. Were other cities' programs consulted for cost estimation? Explain.
- 11. What was your initial expectation for hardware costs and operational costs of using CCTV? Where did these estimates come from?
- 12. What was the timeline for installation?

- 13. When was the first set of cameras installed?
 - 13.1. Have any cameras been added since the original installation? Yes / No
 - 13.2. If yes, how does this affect your infrastructure:
 - 13.3. Have any of the cameras been moved since the original installation? Yes / No13.3.1. If yes, how does this affect your infrastructure?

Acquisition

- 14. Were there multiple options for the city to choose from? (type of mesh network, etc.) Yes / No
 - 14.1 If yes, what were the options presented to the city?
- 15. What types of cameras (fixed, pan & zoom, active, passive) were purchased and why?
- 16. Does the type of camera influence which of your products can be used? Yes / No
 - 16.1. Please explain.
- 17. Who was involved in the purchasing/product decisions?
- 18. What services and products did you ultimately provide to the City of Chicago?
- 19. What challenges are you aware of that occurred during the acquisition stage of the process?
 - 19.1. How were those challenges overcome? How long did they take to overcome?

Installation

- 20. How many cameras were installed?
- 21. Where are cameras installed?
- 22. What factors influence the type of product being used?
- 23. What physical aspects of the location were considered? [lighting, buildings, aesthetics, environmental concerns]
- 24. What type of infrastructure is needed for CCTV use?

- 25. Was infrastructure in Chicago sufficient in support the desired products prior to your involvement? Yes / No
 - 25.1. If no, how much did the update to their infrastructure cost? Did this delay your installation?
- 26. What other preparation was needed before your installation? Did you provide recommendations to the City?
- 27. Do you work with the other vendors and service providers?
- 28. How important do you feel security is for this system?
- 29. Is this the typical level of security for your product? Why would it differ?
- 30. What factors influenced the level of security you provide for the wireless traffic?
- 31. Are your products FIPS certified?
- 32. How is the wireless traffic secured?
- 33. What type of encryption are your products capable of using? What is being used in Chicago?
- 34. Does the system employ an Intrusion Detection System? (SNORT, etc.)
- 35. Have any of your mesh networks been breached?

Training, Policies, & Guidelines

- 36. Do you provide formal training? Yes / No
 - 36.1. If yes, is there an additional cost:
 - 36.1.1. If yes, is the training documented?
 - 36.1.2. If no, why not?
- 37. Are there established/written operation CCTV guidelines or policies? Yes / No
 - 37.1. If yes, please describe:
 - 37.2. If no, why not:

- 38. To what medium is camera footage recorded (i.e., tape, digital)?
- 39. How long is camera footage saved? Where is it stored?
- 40. Are there any state or local laws regulating CCTV operation? Yes / No
 - 40.1. If yes, please describe:

Maintenance

- 41. Are you contracted to perform maintenance on the CCTV cameras? Yes / No
 - 41.1. If yes, what are the terms of the agreement relating to maintenance?
 - 41.1.1. If types of maintenance have you performed on [INSERT CITY]'s CCTV cameras?
 - 41.1.2. If no, why not? Who maintains them?

Appendix 3.5 Recruitment script – Cold Calls

Hello, this is Rachel Johnston from the University of Illinois at Chicago. I'm conducting research on the police use of public surveillance technology. Are you familiar with your department's surveillance technology or CCTV program?

No - Could you connect me with someone in your department who is knowledgeable about your surveillance CCTV program?

Yes - [When connected with the most knowledgeable person]:

I am a graduate student at the University of Illinois at Chicago. I am writing my dissertation about police use of surveillance technology and I would like to interview you in your capacity as [role] in the use of surveillance technology so that I can better understand the factors that contribute to successful police surveillance projects. The interview will probably take 30 minutes and I'd be happy to schedule one or more times with you so that it is not disruptive to your schedule.

[Arrange best time to conduct interview(s)]

[If they can talk now, proceed to informed consent]

[If they arrange another time to talk, begin at beginning of script on subsequent phone call]

Appendix 3.6 Recruitment Script – Referred Contact

Hello, this is Rachel Johnston from the University of Illinois at Chicago. An individual I previously interviewed suggested that I contact you to see if you would be willing to be interviewed about your agency's use of public surveillance technology. Do you have a few minutes to talk?

[If no, arrange a time to call back]

[If calling back a second time, start at beginning of script, noting that this was the previously arranged call-back time]

I am a graduate student at the University of Illinois at Chicago. I am writing my dissertation about police use of surveillance technology and I would like to interview you in your capacity as [role] in the use of surveillance technology so that I can better understand the factors that contribute to successful police surveillance projects. The interview will probably take 30 minutes and I'd be happy to schedule one or more times with you so that it is not disruptive to your schedule.

[Arrange best time to conduct interview(s)]

[If they can talk now, proceed to informed consent]

[If they arrange another time to talk, begin at beginning of script on subsequent phone call]

Appendix 3.7 Structured Interview Guide – Original Data Collection Police Use of Public Surveillance Survey

NOTE: These questions are relevant to the use of police- or city-owned cameras in public places. We assume that most agencies work with owners of private security cameras to obtain video images from those cameras as needed. These questions are relevant to publicly owned surveillance cameras located in public places.

- In what year was CCTV first implemented in your agency? Please describe (e.g. first used only in public housing in early 1990s but expanded to more general public use starting in early 2000s).
- 2. Does your agency currently use CCTV (has it been discontinued)?

2.1. If you discontinued the program, why was it discontinued?

- 3. Approximately how many cameras were initially and are currently included in your scheme?
- 4. What factors were considered when making the decision to implement CCTV?
- 5. Does / Did your agency have stated goals for the use of CCTV?

If yes, what are they?

If no, what do you believe to be the unstated goal of the program?

- 6. What factors contributed to the adoption on CCTV? E.g.: Has it been adopted by other local agencies? Adopted by similar-sized agencies in other parts of the country? Research on effectiveness? Local community pressure?
- 7. What was the planning process? E.g.: why certain cameras? Why certain locations? Who was involved in the decision making process?
- 8. Where are your cameras deployed? E.g.: in residential neighborhoods, commercial areas, public housing, and parking facilities?

- 9. How are the data being used in residential areas? To what extent are they being used for criminal investigations and prosecution?
- 10. How are the cameras funded? E.g.: public, private, 1505 funds, combination, etc.?
- 11. How is the community involved in your scheme? E.g.: do they have input into where cameras are located? Did you have community meetings / forums, focus groups, etc. prior to the implementation of CCTV?
- 12. How would you describe the public reaction to the use of CCTV (positive, negative, neutral)? Have you done any surveys of community perceptions OR are you aware of any surveys that have been done of community perceptions in your community? E.g.: Does the community seem to approve of the program? Would they say it has been successful?
- 13. Are all or some of the cameras actively monitored?

If yes, how are cameras that are monitored selected to be monitored? Who monitors them? From a central location or from Precinct stations?

14. Have any studies on the effect of CCTV been conducted in your city? E.g.: internal or by outside researchers

If yes, what – generally – are the findings? Can I obtain a copy of the report? How?

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