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- The Urban Institute studied surveillance systems in three cities—Baltimore, Chicago, and Washington, D.C.
- Results varied but overall, actively monitored cameras reduced crime cost-effectively.
- The report offers lessons for installing or expanding camera systems.

Evaluating the Use of Public Surveillance Cameras for Crime Control and Prevention—A Summary

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A growing number of cities are using surveillance cameras to reduce crime, but little research exists to determine whether they're worth the cost. With jurisdictions across the country tightening their belts, public safety resources are scarce—and policymakers need to know which potential investments are likely to bear fruit.

To fill the knowledge gap, the Urban Institute studied surveillance systems in three cities—Baltimore, Maryland; Chicago, Illinois; and Washington, D.C.—to document how they were being used and analyze how much they were affecting crime, if at all. The theory is that surveillance cameras will deter potential offenders, alert police to dangerous situations, generate evidence to help identify suspects and witnesses, and foster the perception of safety, encouraging people to use public spaces. We evaluated each city's system to learn whether it was effective and cost-beneficial and drew on the sites' experiences to offer lessons to other jurisdictions.

Results varied, with crime falling in some areas and remaining unchanged in others. Much of the success or failure depended on how the surveillance system was set up and monitored and how each city balanced privacy and security. Baltimore virtually saturated its downtown area with cameras and assigned police to monitor live video feeds around the clock. Chicago installed an extensive wireless network of cameras and allowed access to all officers. Washington, having

the fewest cameras of the three sites, placed them strategically in high-crime areas; the site also restricted live monitoring to protect the privacy of people being recorded.

Baltimore, Maryland: Crime Falls in Most Areas after Cameras Are Installed

The public surveillance program in Baltimore grew from a pilot project of five cameras to more than 500, installed downtown and in high-crime neighborhoods. The bulk of the cameras span a 50-block area in downtown Baltimore and are monitored around the clock from a central control room by a team of trained retired police officers. Detractors argued that criminals would just move to new locations, away from cameras, but police anticipated vulnerable areas and placed patrol officers in those spots.

Does It Work? Roughly four months after cameras were installed downtown in 2005, crime dropped by more than 30 incidents per month on average. By 2008, the lower numbers were holding steady, with 30 fewer incidents of crime in March 2008 than in March 2007 and half the

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number in April 2008 than the year before. We found significant declines in total crime, violent crime, and larceny downtown from January 2003 through April 2008. Also, we found no evidence that crime was being displaced to nearby areas and, in fact, observed some signs that crime prevention benefits extended beyond the cameras' specific viewing areas.

The cameras' effects on crime were mixed in other Baltimore neighborhoods. After cameras were installed in Greenmount, crime declined by an average of 13 fewer incidents per month. After controlling for crime reductions in a matched comparison area, the estimated reduction in crime associated with cameras was more than 10 percent. In Tri-District, crime fell by nearly 35 percent after controlling for crime reductions in a matched comparison area. Thefts inside buildings and robberies declined by roughly two incidents a month. The North Avenue area, however, experienced no reduction in crime after the cameras were installed.

Police, public officials, and other criminal justice stakeholders considered the surveillance program an effective crime control tool. The cameras recorded crimes in progress, captured images of getaway vehicles, helped police retrieve weapons used during a crime, and compelled witnesses to cooperate with police.

Lessons Learned. Despite Baltimore's success, its surveillance system did have limitations. The cameras, which pan on a programmed tour when they're not being monitored, didn't always capture criminal events from start to finish. Visibility was poor at night and in bad weather. Prosecutors encountered the "CSI effect," whereby juries have unrealistic expectations of seeing advanced forensic and technological evidence, so their verdicts are influenced by the absence of camera footage. Ongoing maintenance, including repairing vandalized cameras, ended up costing more than the original system. Early problems led officials to purchase new cameras with protective domes, cover electrical lines with metal bands, and lock electrical access conduits—but the new cameras weren't always compatible with the old ones or with the monitoring equipment.

Is It Worth the Cost? Even accounting for the lack of results in the North Avenue area, the

monthly benefits of Baltimore's surveillance system outweighed the monthly costs. We estimated the total cost of Baltimore's surveillance program at \$8.1 million as of April 2008 (or roughly \$224,000 a month for 36 months), with most of the money going toward start-up costs.

The estimated benefits of averting crime by considering the savings in criminal justice costs (police, court, and corrections resources) and victimization costs (out-of-pocket costs and pain and suffering)—came to about \$12 million, or \$334,000 a month. In other words, for every dollar spent the city saved more than \$1.50.

When considering just the savings that directly affect government budgets (leaving aside victimization costs), the benefits from reduced crime were roughly equal to the cost of the cameras—\$1.06 for every dollar spent. Overall, we found that Baltimore's surveillance system was effective and worth the expense.

Chicago, Illinois: Savings from Reduced Crime Rates Far Outweigh Surveillance Costs

Chicago leveraged federal and state funds and committed their own resources to support a multimillion-dollar surveillance program with more than 8,000 cameras, including police, transit, and public school cameras. We focused on a subset of the 2,000-some cameras (called police observation devices, or PODs) operated by the Chicago Police Department in two neighborhoods, Humboldt Park and West Garfield Park. These cameras are highly visible, with signs and flashing blue lights, and connected by a wireless network that allows officers to watch real-time camera feeds from their desktop computers.

Does It Work? In August 2003, when the cameras were installed in Humboldt Park, the area experienced a brief spike in crime, with nearly 500 reported incidents in a single month. The crime rate dropped 20 percent the next month and stayed low on average. To weed out other factors that affect crime trends, we compared Humboldt Park with a similar neighborhood (matched on historical crime rates, demographics, and land use) and determined that the cameras alone were likely responsible for a nearly 12 percent drop in the crime rate.

Average monthly crime counts for drug-related offenses and robberies fell by nearly a third (or over 30 fewer drug-related offenses and three fewer robberies per month). Violent crime was down 20 percent, with six fewer incidents per month on average. The numbers suggest that the cameras did their job in controlling crime, with no signs that criminals moved elsewhere as a result.

However, our evaluation of cameras in West Garfield Park found no change in the crime rate. Why did the cameras deter crime in one area but not the other? While both areas fell in the same police district, residents in West Garfield Park believed police weren't consistently monitoring their neighborhood's cameras. Also, Humboldt Park had a much higher concentration of cameras (about 53 per square mile) than West Garfield Park (about 36 per square mile), which could have influenced officers' ability to interrupt crimes in progress, intervene, make arrests, and deter potential offenders.

Lessons Learned. Two particular lessons from Chicago's experience stand out. First, get public input. Officials involved in setting up the surveillance system said they could have benefited from early input from the mayor, law enforcement, and the community. Second, train prosecutors and defense attorneys on how to use and present camera footage as evidence in court.

Is It Worth the Cost? While crime did not measurably change in West Garfield Park, the reductions in crime in Humboldt Park alone were enough to justify the cost of cameras for both areas. Chicago spent about \$6.8 million total (or \$190,000 a month) on its surveillance system in Humboldt Park and West Garfield Park as of August 2006, with most of the cost related to personnel.

By installing the cameras, the city saved a sizeable \$815,000 a month on criminal justice costs and victims' financial and emotional costs. The crimes prevented in Humboldt Park saved the city \$4.30 for every dollar spent on the surveillance system. Even taking the victims' costs out of the calculation, the benefits of the cameras far outweighed the costs, with \$2.81 in savings for every dollar spent. Our results

provide compelling support for Chicago's use of public surveillance cameras.

Washington, D.C.: Residents' Privacy Concerns Lead to Limited Monitoring

The District of Columbia was an early adopter of surveillance technology, installing several cameras in 2002 that were used to monitor special events. In 2006, following a spate of 14 killings in the first 11 days of July, cameras were installed in specific locations with a high volume of violent crimes. The cameras were marked and clearly visible but didn't boast the flashing blue lights found in Baltimore and Chicago.

District residents were outspoken about their concerns that neighborhood cameras would be misused and that they threatened citizens' right to privacy. The city council held open hearings for the public and interest groups and designed camera guidelines based on their input. Those guidelines prohibit monitors from viewing flyers that are being distributed or targeting cameras on people based on their race, gender, sexual orientation, disability, or other characteristics. The cameras can only be monitored from one control center and a police officer at the rank of lieutenant or higher must be in the room. Up to two officers serve as monitors on each shift, with one usually watching four or five cameras at a time while the other works with crime-alert technology in the room.

Does It Work? Cameras alone did not appear to have an effect on crime in D.C. The number of violent crimes and assaults with a deadly weapon fell, but theft went up. Those changes, though, could be attributed to other factors besides the cameras. Indeed, when those factors were controlled for by comparing crime trends with a similar area that did not have surveillance cameras, the declines in violent crime and assaults disappeared. Given the absence of a statistically significant impact of cameras on crime, we did not analyze the cost-benefit trade-off of camera use in D.C.

Lessons Learned. District police officers said it was hit or miss whether a camera captured a crime, but when it did, the footage was a powerful tool in investigating and prosecuting the offense. Police felt the cameras were a crime

deterrent and, at the least, raised community awareness and the perception of safety, though they questioned whether criminals simply moved to areas that didn't have cameras.

Recommendations across Study Sites

Overall, the cameras—when actively monitored—were effective at cutting down crime. And the savings and benefits of fewer crimes outweighed the cost of the surveillance system. Police, policymakers, and others involved in criminal justice largely viewed the cameras as a useful tool for preventing crimes, aiding in arrests, and supporting investigations and prosecutions.

Our interviews and analyses yielded lessons for other jurisdictions planning to install or expand their own camera systems:

- **Balance utility with privacy.** Cities and neighborhoods that saw no change in crime may not be actively monitoring their cameras or may have had too few cameras to render the system a useful crime prevention and investigation tool. When deciding how to monitor the cameras, jurisdictions must balance privacy and utility—guidelines that are too restrictive can limit what the system can do, but residents must be protected against invasion of privacy.
- **Involve the community at the outset.** Stakeholders emphasized how important it is to get community input and explain the surveillance system to the public before it's put in place. Developing and disseminating written policies on how the footage will be used and secured can go a long way toward building public support.
- **Don't underestimate costs.** Stakeholders at all three sites stressed the cost of installation, maintenance, and monitoring—which turned out to be much higher than the cost of the cameras themselves. Jurisdictions investing in a public surveillance system should do their own research rather than rely on the advice of vendors, who may not detail all the associated costs.
- **Anticipate technology upgrades.** Camera technology is constantly evolving, offering greater resolution and more useful features

with each new version. But a higher-quality image means larger files to store. Planners need to anticipate and budget for such upgrades.

- **Start small.** Installing cameras in one or two areas first lets police figure out how best to place cameras and monitor them before going to scale.
- **Consider location.** While camera locations should be guided by high-crime hot spots, practical concerns will also play a role—such as how close the camera needs to be to a power source and what natural and man-made barriers will have to be accommodated.
- **Invest in live monitoring.** Officials in Baltimore said they got the most from their surveillance system by actively monitoring the cameras and intervening in real time. Active monitoring allows police to zoom into a scene to capture important details of a crime that may be missed if the camera is simply programmed on an automated tour, panning back and forth. But active monitoring takes a lot of time and resources and raises public concerns about privacy.
- **Prioritize training.** Detectives and prosecutors need to be trained on how to use camera footage and how to retrieve it. They should also learn the limitations of video evidence and how it typically enhances, rather than serves as a substitute for, witness testimony.

While the results of this evaluation are promising, it's important to keep in mind that surveillance cameras alone are not enough to prevent crime—they're simply another crime control and investigative tool and are by no means a substitute for sworn officers. And like any tool, cameras are only as good as the way in which they're used and how well they're integrated into the larger strategy of policing and public safety. ■

For the full report and methodology, see "Evaluating the Use of Public Surveillance Cameras for Crime Control and Prevention" by Nancy G. La Vigne, Samantha S. Lowry, Joshua A. Markman, and Allison M. Dwyer at <http://www.urban.org/url.cfm?ID=412351.html>.

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