

A Study of CCTV at Harvard

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1 Introduction

We studied London's closed-circuit television (CCTV) system and the feasibility of implementing such a system at Harvard, taking into account financial, technical, and public response factors. We examined CCTV as it is currently implemented in London and at Harvard, and we present our research in this document. We found that such a system would definitely be feasible, and we believe that Harvard will implement more CCTV systems in the near future. We examine the major barriers to the launch of such systems, and we present some suggestions for best practices for launching this future program. We also provide a few talking points for the campus Civil Liberties Union and other activists who might want to launch an anti-CCTV campaign at Harvard.

The recruitment, management, and use of user/third-party created content, ie videos from digital cameras and cellphones, is beyond the scope of this project. We chose to focus exclusively on CCTV in public areas and its applications in policing at Harvard.

2 London CCTV overview

2.1 Scope

CCTV has been used in London since as early as the coronation ceremonies of Queen Elizabeth II in 1953;¹ however, it was not until the early nineties that camera installation

¹Wood, David M., ed. A Report of the Surveillance Society. Surveillance Studies Network. September 2006. http://www.ico.gov.uk/upload/documents/library/data_protection/practical_application/surveillance_society_full_report_2006.pdf , p. 19.

became truly pervasive in London. Today, London is the most densely surveilled city in the world, boasting over 500,000 cameras.² It is estimated that there is one camera for every fourteen residents in the city,³ and the average Londoner is caught on tape up to 300 times on any given day.⁴

2.2 Cost

CCTV is the United Kingdom's most funded crime prevention method, claiming roughly 78% of the Home Office's crime prevention funding in the 1990's. Additionally, all federal Home Office money put toward CCTV is matched by local authorities.⁵ Over 500M (\$990M) in taxpayer money has been put toward video surveillance throughout Britain.⁶

2.3 Organization

Individual boroughs of the city are responsible for maintaining their own CCTV systems. While London authorities have access to these local feeds, the Metropolitan Police only owns a few, mobile CCTV units used for special events.⁷

2.4 Usage

In a study done on Putney High Street, 79% of CCTV systems were monitored in real-time. Of those, only 10% are monitored 24/7, while the others are watched only during daytime hours or irregularly. While monitoring the video feeds, 82% of the observers have additional duties to perform simultaneously, such as checking in visitors. In 63% of cases, a suspicious event noticed on camera triggers the deployment of building staff, security guards, or police officers to the scene (in descending order of frequency.)⁸

²Myers, Jill J. *Surveillance Cameras*. Encyclopedia of Privacy. Westport: Greenwood Press, 2007.

³McCahill, Michael, and Clive Norris. Estimating the extent, sophistication, and legality of CCTV in London, in Gill, Martin. *CCTV*. Perpetuity Press, 2003.

⁴Norris, Clive, and Gary Armstrong. *The Maximum Surveillance Society: The Rise of CCTV*. Oxford: Berg, 1999, p. 42.

⁵Armitage, Rachel. *To CCTV or not to CCTV? NACRO Community safety practice briefing*. May 2002.

⁶Wood, David M., *op. cit.*, p. 19.

⁷McCahill, Michael, and Clive Norris. *CCTV in London: On the Threshold to Urban Panopticon? Analyzing the Employment of CCTV in European Cities and Assessing Its Social and Political Impacts*. The Urban Eye Project, June 2002. http://urbaneye.net/results/ue_wp6.pdf, p. 11.

⁸*ibid.*, p. 15.

In recent months, local governments have begun rolling out talking cameras. The project was started in the city of Middlesbrough, and successes have prompted other municipalities, including London, to outfit existing cameras with loudspeakers. These cameras broadcast a warning through the built-in speaker when control center staff see somebody littering or engaging in other anti-social behaviors.⁹

2.5 Effectiveness

Studies have shown a 4% decrease in crime in neighborhoods where CCTV has been installed. CCTV is most responsible for deterring auto thefts and has the least effect on violent crimes.¹⁰ However, some credit the crime reduction to the increased lighting that cameras require for use.¹¹ While the 4% figure may not seem impressive, it only represents the cameras' ability to prevent crime. Surveillance feeds can be credited with retroactively helping to solve countless cases.¹² Additionally, studies have found that public discussion and awareness of the cameras are required in order for CCTV systems to remain effective. In one case, crime rates went down in a neighborhood while the camera system was being installed, but before it was actually functioning. This rate kept up for the first few months that the system was in place, but as people talked less about the cameras, the crime rate began increasing again.¹³

2.6 Legislation

The Data Protection Act 1998 (DPA) covers the collection, storage, and usage of personal data. The act covers both physical and digital forms of information, including the images captured by CCTV systems. Under the law, all public surveillance cameras must be registered with the Information Commissioner, and the following conditions must be met:¹⁴

- An appropriately sized (at least A4) sign must be present to indicate the presence of a camera.
- The sign must state the purpose of the camera system.

⁹“Talking’ CCTV Scolds Offenders.” BBC News. 4 April 2007.
http://news.bbc.co.uk/2/hi/uk_news/england/6524495.stm

¹⁰Welsh, Brandon C., and David P. Farrington. Study 252: Crime prevention effects of closed circuit television: a systematic review. Home Office Research, Development and Statistics Directorate, August 2002.

¹¹Painter, K. and Tilley, N. Surveillance of Public Space: CCTV, Street Lighting, and Crime Prevention. Criminal Justice Press.

¹²Welsh, Brandon C., and David P. Farrington. *op. cit.*

¹³Armitage, Rachel. *op. cit.*

¹⁴*ibid.*

- Information captured should only be used for its intended purpose.
- Cameras should be placed to avoid capturing irrelevant or invasive images.
- Individuals have a right to a copy of any data held about them.

While these mandates may seem reasonable, they are not followed as strictly as they should be. In a 2000 study in the Borough of Wandsworth, only 69% of cameras were accompanied by signs; of those, only 25% contained the statement of purpose necessary for full compliance with the DPA.¹⁵

3 How Harvard uses CCTV

3.1 Overview

We set out to determine how to bring CCTV to Harvard, only to find that Harvard already uses CCTV systems. Officer Steven G. Catalano of the Harvard University Police Department (HUPD) said that while he could not comment on specific security practices, he could tell us that CCTV was in use all over the Harvard campus.¹⁶ Cameras are installed and maintained by individual schools and departments in the university, not HUPD. HUPD has access to the feeds from the cameras, but only because the schools and departments have requested that they maintain that access. The only cameras that HUPD has control over are the ones installed in their stations and garage.

3.2 Camera placement

Catalano said he could not reveal the locations of the cameras, but he said that they tended to be installed in “very public areas, lobbies, sensitive areas... and labs that people are concerned about.” He emphasized that the main use of these cameras was not catching someone stealing, but for more mundane purposes. By way of example, he said that one school has very busy loading dock, and has a camera watching it. This camera is used mostly to figure out which truck banged into the building so that the repair bills can be sent accordingly.

¹⁵McCahill, Michael, and Clive Norris. *op. cit.*, p. 14.

¹⁶Catalano, Steven G. Telephone interview. 5 May 2007.

3.3 Monitoring

HUPD does not monitor any of the feeds, though security guards at the various schools do in some cases. In an emergency, HUPD can load the feeds live, but in general they don't have anyone watching. For the most part, Harvard's CCTV systems are passive.

None of the Harvard systems currently employ facial recognition, behavior recognition, people-counting, or any other kind of computer processing. The cameras go straight to tape, and the length of time that the tapes are stored varies from school to school.

3.4 Utility

How useful are the CCTV cameras? "We've had some instances where they've helped in ongoing investigations, or solving crimes," says Catalano. "We go back and look at tape and maybe we see a known offender on tape, or it helps us pinpoint a point in time." He stresses that CCTV is just one tool in an investigation, just as much as card-swipe access records in the case of a prank fire alarm. Catalano stressed that security has many pieces: police, guards, access control, and CCTV cameras. The cameras in and of themselves are not considered their own vehicle for security.

4 Barriers to implementation

4.1 HUPD reluctance

"I don't want a big brother," Catalano exclaims, "I want cops on the streets!" He points out that when civilians see police, we feel safe, even though we're not actually more safe. He worries that that sense of security will be lost. He also worries about the relationship between the police and the community. There's a cost benefit to cameras, he says, in that you can operate with fewer police officers. Catalano remains wary, however: "You can't put a price on that personal interaction." In a place like Harvard, where prior to ten years ago the police force had a mostly adversarial relationship with the community, one-to-one interaction between police officers and community members may be especially important.

But even so, Catalano is resigned to the adoption of CCTV: "In 15 years, this interview is going to be funny," he told us, "because cameras are going to be everywhere anyway."

4.2 Harvard slowness

Harvard is notoriously slow in implementing new programs, especially controversial ones. Because CCTV systems are a politically charged technology, it might take Harvard a long time to wade through its behemoth bureaucracy in order to approve such a such system.

4.3 Public backlash

There wasn't much public outcry in London when the CCTV systems were first installed, mostly because the rollout was quiet and small-scale at first. The announcement of the new systems also came right after the murder of a toddler by a 10-year-old was caught on CCTV tape. This horrific footage played and replayed on news channels for weeks, often with a passing mention of the new CCTV street-monitoring systems. Additionally, this was era of IRA attacks in London, so the public was more inclined to sacrifice privacy for additional security.

At Harvard, we expect that there will be some amount of public outcry. However, we've noticed that students are quite willing to sacrifice privacy in exchange for convenience. Accordingly, we would propose a few "CCTV case-study" campaigns in which the direct benefits that students can reap from CCTV installation are made to be crystal clear.

To take an example from our own residential building, the back gate of Lowell House can only be opened by Lowell student swipe cards between the hours of 7am and 10pm. Outside of those hours, students must walk around three sides of the block to go to the front gate. Many students have expressed both annoyance at this policy and safety concerns about having to spend more time outside of Harvard's gates late at night. The house administrators have responded that because no security guard monitors the back gate, and because it does not always shut by itself after someone has passed through, it is an unacceptable risk to implement 24 hour swipe access to that gate.

If a CCTV camera were to be installed to watch the back gate, the security guard in the office by the front gate would be able to watch the back gate just as much as he watches the front gate. He would also be able to see if the gate was stuck open. Students would be able to be granted 24 hour swipe access, and we anticipate that the CCTV system would be hailed as a hero for winning students this access where countless House Committee meetings and Lowell-Open flamewars had not managed to gain ground.

4.4 Deterrent threat fades over time

As we mentioned above, some studies of the London CCTV systems have suggested that part of the power of CCTV is in the deterrent threat that it poses to criminals. This effect fades to nothing after about 12 months, however, and crime rates return to their pre-CCTV levels.

One way to prolong the deterrent effect of CCTV would be to post signs declaring the presence of cameras, and then change the format and color of those signs periodically, perhaps every two months. This would help prevent people from becoming accustomed to the presence of the signs, and keep the threat in their minds.

Public backlash could actually augment the CCTV systems because it could ensure that the hype around CCTV continues beyond the 12 month mark, since Harvard student groups seem to have the ability to stay angry about issues for prolonged periods of time. Since it appears that the level of hype is what matters in CCTV's effectiveness as a deterrent, this would be very helpful.

Unfortunately, public backlash, even from a minority of community members, will still injure CCTV's reputation and make it more difficult for the community to accept use of the technology.

5 Implementation plan

5.1 Entrances to residential buildings

Recently, there has been much concern at Harvard over security within residential houses. On numerous occasions, a thief has piggybacked into a building and then stolen personal belongings from unlocked rooms. As it currently stands, it is difficult to track down the perpetrator after a crime has occurred because there is no swipe record and any identification relies on the memories of students who may have been around. Camera installation may not stop theft, but it will make identifying thieves much easier.

5.2 Active monitoring

Currently, few CCTV systems are actively monitored at Harvard. While stored footage is helpful in solving crimes, real-time monitoring is necessary if the cameras are to prevent

crimes from occurring.

5.3 Case study campaigns

Harvard will begin pilot programs to determine the benefits and costs to maintaining cameras at specific locations on campus. As in the Lowell back gate situation mentioned previously, these campaigns can show CCTV in a more positive light and help to win over acceptance of the technology. These trial runs will also help by generating discussion and drawing attention to the cameras, increasing the effectiveness of the systems, as explained earlier.

5.4 Facial recognition

While facial recognition still leaves much to be desired, hopefully the technology will soon be reliable enough for use with CCTV. The system will include a database containing information on undesirable people (registered sex offenders and people previously banned from Harvard buildings, for example) and will automatically alert authorities if a match is detected. Harvard could also use the system to help the larger Cambridge community by including wanted suspects in its database.

6 Mutability

In addition to their intended purposes, CCTV systems are sometimes obtain new usages and time passes. For example, in the early days of London CCTV, a nursery school installed cameras to record children playing for research purposes. However, the feeds are now also used to watch for safety hazards and to monitor the adults who drop off and pick up the children.

Norris and Armstrong describe three types of mutability that characterize the use of a CCTV system: intra-organizational, extra-organizational, and subjective. Intra-organizational mutability characterizes systems that are installed for one purpose but used for other purposes. Examples include the nursery school situation and stores that use cameras to watch for shoplifting but also to monitor employees. Extra-organizational mutability refers to systems that have taken on new usages that supercede their originally intended purposes. An example would be a police department that sells its video footage to crime television shows. Finally, subjective mutability describes usage of a CCTV system that is used for

the observer's own purposes, voyeuristic or otherwise.

While extra-organizational and subjective mutability should be avoided in Harvard's CCTV systems, there are many intra-organizational applications that, when sanctioned, could add to the cameras' usefulness on campus. Video feeds will provide valuable data that can be used for research. The psychology, sociology, and anthropology departments would doubtless find CCTV feeds useful. Engineers could study traffic patterns. Many departments would be helpful in contributing their research to optimize the CCTV systems' performance. As a police officer recently equipped with CCTV noted, the cameras could be used for "anything that your imagination could come up with."¹⁷

7 Conclusion

In the last two decades, London has become the most watched city in the world. CCTV cameras have helped to prevent some crimes, but have aided in solving many more. Harvard stands to benefit from the implementation of a similar system. Because Harvard already has CCTV systems in place, and because those existing systems are structured in much the same manner as London's much more extensive systems, Harvard could implement a London-style system without having to first commit significant resources to development. There will, of course, be obstacles - most notably in the public's response to new systems. However, we believe that the benefits of such a system - both in crime control and in general campus security - will outweigh the costs.

¹⁷Norris, Clive, and Gary Armstrong. *op cit.*, p. 58.

Appendices

A Threat analysis

What are the public's privacy-related fears about CCTV?

- Being tracked by the government (Big Brother effect)
- Feeling watched whenever in public
- Hacking of system could let information fall into the wrong hands

Who benefits from CCTV?

- Citizens: Reduced possibility for muggings and assault, perhaps increased access privileges to certain areas.
- Government: Reduced clean-up costs, reduced police force costs, lower crime rate, improved city reputation.
- Camera and equipment manufacturers: Increased business.

What does CCTV cost?

- Citizens: Loss of privacy. Increased taxes?
- Government: Costs of lots of cameras, viewing equipment, and labor. Potential public outrage.
- Manufacturers: Nothing. Increased revenue.

What does it give them?

- Citizens: Increased peace of mind.
- Government: Improved law enforcement. Data that can be used for other purposes.
- Manufacturers: Money.

Worth it?

- Citizens: Yes, if not too concerned about privacy.
- Government: Depends on effectiveness of cameras.
- Manufacturers: Absolutely.

B Privacy activist talking points

B.1 CCTV is people watching you

Harvard says that real people never watch the cameras, but this is a lie. As soon as they have any reason to wonder what happened at a certain time in a certain place, they're free to cue up the tape and go watch. HUPD and departmental security forces are getting an unlimited Tivo account to your life - they say they don't watch it on live TV but that's hardly the point. They're watching you.

B.2 CCTV means your life being sold and broadcast

In December of 2006 several clips from Harvard College lecture videos were posted on YouTube. These lecture videos were meant to be available only to students enrolled in the college, and while some technical precautions were taken (the videos are only available in streaming form), those technical barriers are easily surmounted by technically savvy students. How can we be sure that surveillance footage from Harvard's CCTV systems won't escape in the same way? It would only take one hacker to release embarrassing footage, and the college has more than its share of students who have the requisite skills and might be interested in making a quick buck by selling tapes of, say, a celebrity professor picking her nose, or a well-known student trying to avail himself of confidential services.

B.3 CCTV is social control

You act differently when you know they're watching. Maybe you don't go into that club, or maybe you don't stop to talk to a kid passing out flyers. You hesitate to stray away from social norms. CCTV has a chilling effect on actions and speech, and democracy suffers because of it.