



## An overview of the effectiveness of closed circuit television (CCTV) surveillance

### Background

During his visit to London in July 2005, Prime Minister John Howard witnessed first-hand the UK's response to the second of two bomb attacks on London's transport system. So impressed was he with the authorities' response that he declared 'I think of all the things that I have taken out of the few days that I have been in London, none has been more powerful than the huge value of surveillance cameras'.<sup>1</sup> In a subsequent interview, Mr Howard offered a more qualified assessment of CCTV when he said that surveillance cameras are 'a real plus in catching people' and that 'in certain circumstances' they can 'act as a deterrent'.<sup>2</sup>

As part of a raft of proposed new counter-terrorism measures, the Prime Minister announced on 8 September 2005 that the Government planned to develop a National Code of Practice for CCTV Systems.<sup>3</sup> A special meeting of the Council of Australian Governments (COAG) was convened on 27 September 2005 to consider Australia's national counter-terrorism arrangements in light of the new proposals. It was agreed at the meeting that all governments would conduct a review of 'the functionality, location, coverage and operability of mass passenger transport sector CCTV systems' as an initial step towards applying CCTV in support of counter-terrorism arrangements.<sup>4</sup>

The meeting also resolved to establish a COAG working group to develop a draft Code of Practice for CCTV Systems by February 2006 which will determine 'a policy framework, objectives, protocols and minimum requirements for the use of CCTV systems to enhance counter-terrorism arrangements...'.<sup>5</sup>

### Introduction

The effectiveness of CCTV surveillance in preventing crime and anti-social behaviour is still hotly-debated, and formal evaluations of its use in Australia

have always been scarce. According to a November 2003 study of CCTV in Australia, published by the Australian Institute of Criminology (AIC), there were only two evaluations of open-street CCTV in Australia publicly available at the time.<sup>6</sup> The paper notes that 'in both cases insufficient pre-installation data was available to assess the impact of CCTV on offending'.<sup>7</sup> The difficulty of reliably assessing the impact of CCTV on crime rates is widely acknowledged, and the AIC paper suggested there is scope for more extensive Australian research into the effectiveness of CCTV.

Whilst most agree that the use of CCTV in public spaces has had some impact on the incidence of street crime, it is not as big an effect as many had expected. Although CCTV continues to be installed as a general deterrent and means of crime prevention, a variety of research has indicated that CCTV is perhaps more valuable as a source of evidence. The remarkable efficiency with which CCTV footage was used in the investigation of the London bombings in July 2005 would seem to underscore this point.

Although CCTV systems have primarily been an initiative of local government, State governments have increasingly implemented CCTV systems in the central business districts of capital cities. The involvement of governments at this level has also seen the expansion of CCTV to public transport, taxis, public spaces and open areas of public buildings. The 2003 AIC study reports that as at October 2002, Sydney had 48 open-space cameras, Brisbane 44, Perth 105, Melbourne 23, Hobart 7, Adelaide 33 and Canberra 15.<sup>8</sup> Some regional and rural areas also have a similar number of cameras operating. With interest in CCTV showing little sign of waning three years later, the number of cameras in operation has probably now increased.

### Deterrent effect of CCTV

The effectiveness of any tool or practice intended as a deterrent is generally limited by the extent to which people believe that it represents an increased risk of detection and apprehension and the extent to which they care about the consequences of being caught.

CCTV is often assumed to be a powerful deterrent, but the results of most research into the impact of CCTV on crime prevention remain ambiguous. For example, a landmark 2002 study for the UK Home Office which examined 22 evaluations of CCTV use in city centres/public housing, public transport, and car parks in the UK and North America, reported that eleven of the evaluations found a decrease in crime, five found an increase in crime, five found no effect at all, and one found that there was unclear evidence of an effect.<sup>9</sup> The study also found that CCTV had no impact on violent crimes, but a rather more significant desirable effect on vehicle crime. The results of a similar study by the UK Home Office in 2005 were no less ambiguous.<sup>10</sup>

The overall reduction in crime attributed to CCTV was reported in the 2002 study to be a 'negligible' two per cent for the city centre/public housing environment, a 'non-significant' six per cent in public transport settings, and a 'statistically significant' reduction of about 41 per cent in car parks.<sup>11</sup> However, it was noted that other intervention measures (such as warning signs and good lighting) were also in operation in the public transport and car park settings, making it difficult to conclude with any certainty that the reduction in crime was wholly due to CCTV. This does not compare very favourably with the results of another study for the UK Home Office by the same authors which found that simply improving street lighting resulted in a 20 per cent overall reduction in recorded crime.<sup>12</sup>

A study conducted for the Crime Prevention Division of the NSW Attorney-General's Department in 2001 noted that the academic research literature suggests CCTV does not work as a crime prevention tool.<sup>13</sup> Furthermore, there are indications too of a displacement effect, whereby a decrease in the incidence of crime in areas covered by CCTV is associated with an increase in crime in areas with no cameras. There is, perhaps, also a related risk that any initial deterrent effect that might be observed immediately after CCTV cameras are first introduced to an area, will wear off over time if the CCTV system is not perceived by the community to be achieving results.

CCTV systems may themselves also be a target of vandalism or may be used to challenge or taunt police, unnecessarily tying up limited police resources. A recent example involved a motorcyclist who, for no clear reason, regularly rode his bike at speeds of over 200 km/h through the Sydney Harbour Tunnel with the registration plate obscured.<sup>14</sup>

It is clear that the presence of CCTV cameras does not always prevent incidents from occurring. Indeed, in expressing his doubts that more surveillance cameras would help protect Australia from terrorism, Chief Minister of the ACT, Jon Stanhope, said in relation to the July 2005 London bombings that 'Surveillance cameras, as seen in London, help after the terrorists have struck but the surveillance cameras in London did not stop the bombings'.<sup>15</sup>

Others too have been keen to emphasise this point. Despite the 5500 CCTV cameras in trains, stations and busways in South East Queensland, the state's Minister for Transport and Main Roads, Paul Lucas, warned at the launch of a new public transport security awareness campaign in August 2005 that, 'what must be understood, however, is that CCTV cameras don't provide prior warnings of an attack'.<sup>16</sup>

### **Perceptions of public safety**

Nevertheless, the presence of CCTV and its assumed deterrent effect has been found to contribute to a greater sense of safety amongst the community. CCTV appears to provide people with a degree of reassurance—if an area is being monitored by CCTV, then the area is perceived to be somewhat safer.

An evaluation of Sydney's 'Safe City' strategy in 2001 found that 85 per cent of people who were aware of the presence of CCTV cameras reported that the cameras made them feel safer.<sup>17</sup> In the western Sydney suburb of Fairfield where CCTV was introduced primarily to address drug-dealing, 61 per cent of those surveyed in a 2001 study reported feeling safer with the cameras operating.<sup>18</sup> Perhaps this helps explain the finding of a July 2005 poll, conducted after the London bombings, that some 87 per cent of respondents supported the use of more security cameras in public places.<sup>19</sup>

On the other hand, similar research conducted in 1998 in Melbourne found that the presence of CCTV cameras did not significantly impact on public perceptions of safety.<sup>20</sup> Police and local government bodies have also reported that CCTV tends to unrealistically heighten the public's expectation of police response times due to the belief that police are constantly monitoring the CCTV coverage.<sup>21</sup> Unlike police in Perth, for example, who are reported to monitor live CCTV feeds, police in Sydney, Melbourne and Canberra apparently do not (although they generally have access to live real-time imagery if necessary).<sup>22</sup>

### **Evidentiary value of CCTV**

However, CCTV appears to have had a largely positive impact on the investigation of crime. With the scope and nature of CCTV surveillance continually expanding, footage from sources as diverse as traffic cameras, Automatic Teller Machines, shopping malls, transport hubs, and carparks is increasingly being used as evidence and to assist investigations, particularly to track the last known movements of murder and abduction victims.

Notable examples include the 1993 Bulger case in the UK in which CCTV cameras in a shopping mall recorded the abduction of a small boy who was later found murdered; the 1997 Whelan case in Sydney in which CCTV footage recorded some of the last known movements of Kerry Whelan before she disappeared; Sydney street CCTV footage from New Year's Eve 2004 which recorded a man climbing into a wheelie bin when it had been assumed that his body had been dumped there; and Sydney railway station CCTV footage of murder victim Lyndsay van

Blanken recorded the day she disappeared in 2003.

Police have reported improved clear-up rates, a reduction in the number of 'not guilty' pleas and a higher chance of obtaining a conviction in cases where CCTV formed part of the evidence.<sup>23</sup> Furthermore, police also believe that the availability of CCTV coverage has the potential to contribute to a reduction in the number of complaints against officers, and to facilitate management of available resources by better coordinating activities.<sup>24</sup>

Faced with limited resources, however, there is perhaps a risk that police might come to rely on CCTV as a means of policing some parts of the community remotely. This is in fact the stated rationale of the waterfront network of over 220 cameras operated by the Australian Customs Service, which the Department of Transport and Regional Services says 'enables Customs to monitor port activity 24 hours a day without the need to maintain a physical presence around the clock'.<sup>25</sup> However, in a policing context, this could potentially exacerbate the social distance between police and the communities they serve, a situation which has previously been identified as one of four major deficits in Australian policing.<sup>26</sup>

Besides, reliance on technology is potentially fraught with problems. Anecdotal reports suggest that although CCTV has been found to have significant evidentiary value, its usefulness is largely determined by the quality of the equipment, the skill of the operator or monitor, the period for which routine surveillance tapes are retained, lighting or weather conditions, the vulnerability of the equipment to sabotage or vandalism, and the extent to which it is properly maintained.

Examples abound of equipment malfunctions and a failure to properly maintain or repair equipment. Indeed, despite the successful use of CCTV footage in the investigation of the 7 July 2005 London bombings, it was reported that the CCTV camera in the bus that was bombed had not worked since the month before the attacks.<sup>27</sup> Police investigating a hit-and-run accident in the ACT in July/August 2005 were denied potentially valuable CCTV footage from three cameras at the intersection where the incident occurred because the footage had not been

recorded due to 'a technical fault'.<sup>28</sup> Furthermore, the recently released national Airport Security and Policing Review (the 'Wheeler Report') noted, in referring to CCTV, that:

...it appears that all too frequently the effectiveness of this tool is underplayed, even undermined, at airports...Some cameras do not work, and have gone unrepaired for some time. Manning of monitoring screens can be hit-or-miss. Operating skills are not always high. No regulated standards exist for how and how long CCTV footage is to be retained.<sup>29</sup>

Various reviews of CCTV use have revealed that guidelines and inventories relating to the operation of existing CCTV systems either do not exist or are not always followed.<sup>30</sup> Presumably, the proposed National Code of Practice for CCTV Systems will address these types of issues.

### Cost

As the Australian Institute of Criminology noted in 2004, 'CCTV systems can be expensive to install, maintain and operate'.<sup>31</sup> Cost depends on a number of factors, but monitoring has clearly been shown to be the most significant expense. A review of Fairfield's CCTV system is reported to have revealed that the expense of employing staff to monitor the system accounted for 70 per cent of overall ongoing costs.<sup>32</sup> The table below outlines the annual operating costs of selected CCTV systems as at 2003:

Location	Annual Cost
Ipswich	\$444 000
Sydney	\$900 000
Fairfield	\$340 000
Melbourne	\$400 000
Adelaide	\$310 000
Toowoomba	\$ 85 000
Brisbane	\$270 000

(Source: D. Wilson and A. Sutton, 'Open-Street CCTV in Australia', *Trends & Issues*, No. 271, Australian Institute of Criminology, November 2003)

In a paper to an August 2003 conference, the NSW Police Service highlighted the following hidden costs associated with CCTV systems:

- lighting upgrades
- removal of obstructions
- signage
- vandal resistance
- auditing and evaluation of the system

- training of staff
- ongoing maintenance.<sup>33</sup>

Given the initial outlay required to establish an efficient CCTV network and the potential for ongoing costs associated with its use and upkeep, it will possibly be the view of some State/Territory jurisdictions, particularly the smaller ones, that more research needs to be done on the effectiveness of CCTV before such expenditure can be justified. Indeed, in a 2001 survey of 150 local councils in NSW, the most common reason for not using CCTV was that it is too expensive.<sup>34</sup>

In what at first seemed like a cautious approach to the use of CCTV, the ACT Chief Minister, Jon Stanhope, was reported in July 2005 saying that he would prefer to invest in increasing police numbers in the ACT rather than installing more surveillance cameras across the city.<sup>35</sup> This sits well with the recognition that although simple increases in police numbers do not automatically result in reduced crime rates, maintaining a police presence in the community through planned beat policing has been shown to be highly effective in reducing reported crime.<sup>36</sup>

However, a week after Mr Stanhope's comments were reported and on the same day as a bomb scare at a major Canberra transport hub, Mr Stanhope called for urgent advice on 'the locations where CCTV cameras must be usefully installed in the ACT to enhance the personal security of all Canberrans'.<sup>37</sup> Perhaps this reflects the strength of the political attraction of CCTV and suggests that assumptions about its effectiveness are such that traditional concerns, such as cost, have become a secondary consideration, particularly in times of crisis.

Furthermore, some crimes might not be sensitive to CCTV surveillance or the extent of a particular crime problem might not be as great as is popularly believed. Without a proper analysis of the problem, there is a risk that the cost of installing and operating a CCTV system might end up outweighing whatever benefits it is supposed to deliver.

There is, perhaps, still more value to be gained from a government's crime prevention dollar when it is spent on traditional policing—that is, human rather than technological resources. Although the cost of providing and

maintaining effective levels of beat policing might also be prohibitive, it would be interesting to know how its cost compares to that of CCTV in terms of its ability to achieve the same or better reductions in crime and the same or better perceptions of public safety.

### Conclusion

Conclusions about the effectiveness of CCTV are aptly summarised in a 1999 evaluation of open-street CCTV in Glasgow:

Open-street CCTV can work in limited ways, but is not a universal panacea. It works in different ways in different situations...<sup>38</sup>

Available research appears to consistently indicate that CCTV surveillance works best as part of a package of crime prevention measures, rather than being relied upon in isolation. As the Australian Institute of Criminology boldly notes, 'CCTV will not work by itself'.<sup>39</sup> Research also suggests that CCTV may be of more value as a source of evidence than as a deterrent, and most effective against property crime. Whatever its intended use, it is clear that careful consideration needs to be given to the way in which CCTV is applied in order to maximise whatever benefits it does offer.

Although CCTV is undoubtedly a valuable tool in the prevention and investigation of crime, the inconsistent and ambiguous nature of its effectiveness would seem to suggest that the right balance of environmental factors, education, administration, resourcing and equipment is yet to be determined and achieved.

The development of policies governing the application of CCTV surveillance must therefore be grounded in solid empirical research. Authorities considering using CCTV should be careful to avoid falling into the trap of basing their decision on persuasive anecdotal evidence and flawed assumptions about its effectiveness. Authorities need to be clear about what it is they hope to achieve through the use of CCTV surveillance and determine how that will be achieved, before simply assuming there is a need for it. Just how useful traditional CCTV surveillance will be in countering terrorism in the long term is unclear when the effectiveness of CCTV in combating a range of other crimes remains largely inconclusive.

1. *Transcript of the Prime Minister the Hon John Howard MP doorstep interview, Claridges Hotel, London, 23 July 2005*, <http://www.pm.gov.au/news/interviews/Interview1477.html> (9 September 2005).
2. Network Ten, 'Interview with Prime Minister John Howard', *Meet the Press*, 24 July 2005, <http://www.ten.com.au/library/documents/MTP24075.doc> (30 September 2005).
3. The Hon. John Howard (Prime Minister), *Counter-terrorism laws strengthened*, media release, Canberra, 8 September 2005.
4. *Council of Australian Governments' Communique—Special Meeting on Counter-terrorism 27 September 2005*, <http://www.coag.gov.au/meetings/270905/coag270905.pdf> (27 September 2005).
5. *ibid.*
6. D. Wilson and A. Sutton, 'Open-Street CCTV in Australia', *Trends & Issues*, No. 271, Australian Institute of Criminology, November 2003, <http://www.aic.gov.au/publications/tandi2/tandi271.pdf> (2 August 2005).
7. *ibid.*, p. 2.
8. *ibid.*, p. 3.
9. B. C. Welsh and D. P. Farrington, *Crime prevention effects of closed circuit television: a systematic review*, Home Office Research Study 252, UK Home Office, August 2002, <http://www.homeoffice.gov.uk/rds/pdfs2/hors252.pdf> (3 August 2005).
10. M. Gill, et al., *The impact of CCTV: fourteen case studies*, Home Office Online Report 15/05, UK Home Office, February 2005, <http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr1505.pdf> (26 October 2005).
11. B. C. Welsh and D. P. Farrington, *op. cit.*, pp. vi–vii.
12. D. P. Farrington and B. C. Welsh, *Effects of improved street lighting on crime: a systematic review*, Home Office Research Study 251, UK Home Office, August 2002, <http://www.homeoffice.gov.uk/rds/pdfs2/hors251.pdf> (30 September 2005).
13. K. Johansson, C. Milne and M. Merlene, *Evaluation of the NSW Government Policy Statement and Guidelines for Closed Circuit Television (CCTV) in Public Places*, ARTD Management & Research Consultants, July 2001.
14. B. Delaney, 'Off your bike: the rider who did 212kmh in tunnel', *Sydney Morning Herald*, 10 March 2004, [/03/09/1078594365960.html?from=storyrhs](http://www.smh.com.au/articles/2004/03/09/1078594365960.html?from=storyrhs) (3 August 2005).
15. R. Peake and B. Doherty, 'Touch of hysteria in reaction: Stanhope', *Canberra Times*, 25 July 2005, p. 1.
16. The Hon. Peter Beattie, MP, (Premier of Queensland), *Counter-Terror Campaign Will Bolster Rail, Bus & Ferry Security*, media statement, 31 August 2005.
17. C. Coumarelos, *An Evaluation of the Safe City Strategy in Central Sydney*, NSW Bureau of Crime Statistics and Research, 2001, cited in D. Wilson and A. Sutton, *op. cit.*
18. K. Swinbourne, *Research Report: Five year review of closed circuit television cameras in Cabramatta and Canley Vale*, Sutherland Shire Council, 2001, cited in D. Wilson and A. Sutton, *op. cit.*
19. M. Secombe and L. Dodson, 'Safety before liberty, say most voters', *Sydney Morning Herald*, 3 August 2005, p. 2.
20. Parliament of Victoria Drugs and Crime Prevention Committee, *Reporting Crime in Melbourne*, 2001, cited in D. Wilson and A. Sutton, *op. cit.*
21. K. Johansson, C. Milne and M. Merlene, *op. cit.*
22. M. Skelsey and A. Kamper, 'They'll be watching you', *Daily Telegraph*, 5 August 2005; and R. Peake and B. Doherty, *op. cit.*
23. K. Johansson, C. Milne and M. Merlene, *op. cit.*
24. *ibid.*
25. Department of Transport and Regional Services, *Maritime Security Fact Sheet 2—Border Protection Boost for Customs*, Canberra [http://www.dotars.gov.au/transsec/maritime/fact\\_sheet/fact\\_sheet2\\_20\\_07.pdf](http://www.dotars.gov.au/transsec/maritime/fact_sheet/fact_sheet2_20_07.pdf) (25 August 2005).
26. See Dr L. Mazerolle, 'Policing in the 21<sup>st</sup> century: what works and what doesn't', *paper presented at the 4<sup>th</sup> National Outlook Symposium on crime in Australia 'New crimes or new responses'*, 21–22 June 2001, <http://www.aic.gov.au/conferences/outline4/Mazeroll.pdf> (17 August 2005).
27. J. Button, 'Britain dreads more bombs', *Sydney Morning Herald*, 11 July 2005, p. 1.
28. C. Naylor, 'Security footage of hit-run in Civic lost', *Canberra Times*, 4 August 2005, p. 1.
29. The Rt Hon. Sir John Wheeler, *An Independent Review of Airport Security and Policing for the Government of Australia*, 2005, p. 48, [http://www.aspr.gov.au/docs/Security\\_and\\_Policing\\_Review\\_PUBLIC.pdf](http://www.aspr.gov.au/docs/Security_and_Policing_Review_PUBLIC.pdf) (22 September 2005).
30. See for example: B. Doherty, 'Gaps in camera coverage', *Canberra Times*, 6 October 2005, p. 1.
31. Australian Institute of Criminology, 'Closed Circuit Television (CCTV) as a crime prevention measure', *AICrime reduction matters*, No. 18, 27 January 2004, <http://www.aic.gov.au/publications/crm/crm018.pdf> (17 August 2005).
32. D. Wilson and A. Sutton, *op. cit.*, p. 4.
33. Sergeant J. Klepczarek, 'To CCTV or not to CCTV—that is the question: but is it the answer? A practitioner's point of view', *paper presented at the Graffiti and Disorder Conference*, Brisbane, 18–19 August 2003, p. 9, <http://www.aic.gov.au/conferences/2003-graffiti/klepczarek.pdf> (17 August 2005).
34. K. Johansson, C. Milne and M. Merlene, *op. cit.*
35. R. Peake and B. Doherty, *op. cit.*
36. See for example: Dr P. Mazerolle, et al., *On the beat—an evaluation of beat policing in Queensland*, Crime and Misconduct Commission, 2003, <http://www.emc.qld.gov.au/library/CMCWEBSITE/BeatPolicing.pdf> (17 August 2005).
37. Mr Jon Stanhope, MLA (Chief Minister, ACT), *Urgent review of CCTV capability*, media release, Canberra, 3 August 2005.
38. J. Ditton, et al., *The Effect of Closed Circuit Television on Recorded Crime Rates and Public Concern About Crime in Glasgow*, Scottish Office Central Research Unit, Edinburgh, 1999, cited in NSW Law Reform Commission, *Report 98 (2001) Surveillance: an Interim Report*, Section 3.72, <http://www.agd.nsw.gov.au/lrc.nsf/pages/r98toc> (27 September 2005).
39. Australian Institute of Criminology, *op. cit.*

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