GRAFFITI VANDALISM

REVIEW OF GRAFFITI REDUCTION DEMONSTRATION PROJECTS 2007-08

Policy and Analysis
Crime Prevention Division
NSW Department of Justice Attorney General
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1. BACKGROUND

There has been a significant increase in the number of graffiti vandalism incidents recorded by the NSW Police over the last decade. Graffiti vandalism is a crime that has significant financial and social impacts on the NSW community, affecting Government utilities, public transport operators, local government, business owners and residents. The cost of graffiti management diverts taxpayers' money from important Government services for the community.

The NSW Government has a long-standing commitment to dealing with the problem of graffiti in the NSW community. This commitment has seen the establishment of graffiti taskforces, such as the Anti-Graffiti Action Team (AGAT, established in 2006), changes to legislation and the provision of funds to Local Councils to implement targeted graffiti management strategies. The NSW State Plan deals with graffiti management under Priority R3: Reducing Anti-Social Behaviour.

A broad range of programs and initiatives aimed at reducing graffiti vandalism have been introduced across Australia and internationally. However, there is little evidence available on the effectiveness of the strategies in reducing graffiti vandalism. In 2007 the Crime Prevention Division of the NSW Attorney General's Department (CPD) developed a Graffiti Reduction Demonstration Project that aimed to identify, and build an evidence-base for, the most effective graffiti vandalism prevention strategies, measured by a reduction in the incidence of graffiti.

2. THE GRAFFITI REDUCTION DEMONSTRATION PROJECT

The Graffiti Reduction Demonstration Project provided NSW Councils that had a high incidence of graffiti vandalism with the opportunity to participate in a trial of graffiti reduction programs. The project was designed to complement the existing graffiti vandalism prevention activities in each of the Local Government Areas. Following a review of available research to identify graffiti reduction strategies that had been found to have some measure of success in combating graffiti vandalism, three graffiti reduction strategies with the most likelihood of success were identified:

- Crime Prevention through Environmental Design (CPTED)
- Rapid removal
- Volunteer programs

Eight graffiti reduction demonstration projects were implemented during 2007 and 2008 to build an evidence base for graffiti management strategies. This paper reviews the effectiveness of each of the strategies implemented.

2.1 Crime Prevention through Environmental Design (CPTED)

Crime Prevention through Environmental Design (CPTED) is situational crime prevention that aims to 'design out' opportunities for offences including vandalism and graffiti.[1] The use of CPTED in the management of graffiti is built upon the rationale that graffiti vandals target places that are easily accessed, have little surveillance, have easy escape routes, and where graffiti is easily visible. CPTED approaches for graffiti management can be categorised into three main areas:

- Surveillance and lighting
- Access control
- Coatings and surfaces

Surveillance and lighting

It has been proposed that design elements that increase natural surveillance, such as eliminating blind spots from underpasses or park paths, may serve to deter graffiti vandalism. Closed-circuit television (CCTV) is also a surveillance mechanism that may be incorporated as a crime prevention strategy. However, a 2002 UK study that reviewed the effectiveness of CCTV as a stand-alone crime prevention tool suggested that its usefulness may be limited when used as a sole crime prevention measure.[2]

Access control

Access control is used to limit access to locations and guide legitimate users safely through the environment. Access control can be comprised of physical barriers that prevent access, or symbolic barriers that indicate that access is restricted. Some examples of measures used to control access are walls, fences, locked alleys, rails, vegetation, razor wire or jagged metal.

Coatings and surfaces

The use of a protective coating can make graffiti easier to remove, reduce penetration of paint or ink and reduce the harmful effects of the removal process. There are various types of anti-graffiti protective coatings available on the market, including 'sacrificial' and 'non-sacrificial' coatings.[3]

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[1] Geason, S. & Wilson, P. (1990), *Preventing Graffiti and Vandalism*, Australian Institute of Criminology, Crime Prevention Series, p.71

[2] Welsh, B. C. & Farrington, D. P. (2002), *Crime prevention effects of closed circuit television: a systematic review*, UK Home Office Research Study 252, London.

[3] Sacrificial coatings are protective, but come off when graffiti is removed and must be reapplied. Non-sacrificial or permanent anti-graffiti coatings are unaffected by the graffiti removal process and remain on the surface.

Resistant materials may also be applied to glass to prevent etching. Another option is to coat window glass with a transparent paste. When scratched, the paste can be re-applied.[4]

Textured surfaces, such as exposed rock, rough cement and dimpled stainless steel are less likely to be graffiti targets as they obscure the resulting image. Non-solid surfaces, such as open-grill storefront security screens (rather than solid panels), lattice panels or vegetation may also be used as measures to deter graffiti vandals. Similar principles may be applied to interior surfaces.

2.2 Rapid Removal

'Rapid removal' is used to describe a process by which graffiti is removed within a short time frame, commonly 48 hours,[5] of it being discovered. The processes involved in graffiti removal vary depending on the type of graffiti tool used and the type of surface for cleaning. There are four main methods used to remove graffiti: painting over graffiti; using chemical removal products; cleaning graffiti off using water pressure; and replacing vandalised items.[6]

Rapid removal for graffiti prevention

The proposed effectiveness of rapid removal for graffiti *prevention* lies in the belief that one of the main reasons people do graffiti is for their work to be seen by other graffiti vandals.[7] Thus, the rationale for rapid removal as a graffiti *prevention* measure is that it can frustrate graffiti vandals by limiting the exposure time of their work.

Some researchers caution, however, that rapid removal will work in some instances but not all and that some graffiti vandals will continue to write graffiti on newly-cleaned walls.[8] Similarly, the effectiveness of rapid removal as a means of decreasing the exposure time of graffiti may be compromised by the ease with which graffiti may be shared electronically: using mobile phone or other digital cameras, graffiti may be photographed and displayed on the Internet or distributed via email, MMS or other electronic means.[9]

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[4] Stafford, J. & Pettersson, G. (2003b), *Vandalism, graffiti and environmental nuisance – case study report,* prepared for the UK Department of Transport, London, p.19

[5] Premier's Department (2000), NSW Graffiti solutions handbook for local government, planners, designers and developers. Premier's Department, Sydney.

[6] Weisel, D.L. (2004), *Graffiti*, Problem-oriented guides for police problem specific guides series, guide no. 9. US Department of Justice, p.23-24

[7] Halsey, M. & Young A. (2002), *Graffiti culture research project*, final report, Prepared for KESAB, Adelaide

[8] Halsey, M. & Young A. (2002), *Graffiti culture research project*, final report, Prepared for KESAB, Adelaide

[9] Stafford, J. & Pettersson, G. (2003a), *Vandalism, graffiti and environmental nuisance – literature review,* report for the UK Department of Transport, London

Rapid removal for graffiti management

Rapid removal is believed to be effective as a graffiti *management* measure due to the graffiti being more easily removed when paint or other materials are not completely dry.[10] Further, rapid removal can address public concerns about graffiti vandalism as actions are taken swiftly to restore the environment.

2.3   Volunteer Programs

Volunteer programs aim to engage the community in the graffiti removal process. These programs range from centrally-coordinated graffiti removal teams to facilitating individuals to remove graffiti by offering removal packs. For example, Blacktown City Council offers residents a graffiti removal pack, which includes a manual, protective glasses, brush, gloves and paint. Blue Mountains City Council operates a similar program to encourage businesses to remove graffiti from their own property and surrounding areas. (While Councils offer these services, the uptake rate of them by the community is unknown.) Local Councils are the most likely agencies to offer and coordinate these programs, however the extent to which volunteer programs are in operation is unknown and there is some Council opposition to volunteer programs because of occupational health and safety (OH&S) concerns.

Some NSW Councils have engaged the community in neighbourhood improvement programs. For example, Wollongong City Council used community consultation and engagement to address repeated vandalism at Webb Park in Kanahooka. The community was involved in painting and coating surfaces, and creating murals to paint the amenities block, which was the main target of graffiti vandalism.

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[10] Callinan, R. (2002), 'Dealing with graffiti in New South Wales', Briefing paper, http://www.parliament.nsw.gov.au

3. METHODOLOGY

3.1 Selection of Local Councils and Intervention Strategies

The Crime Prevention Division (CPD) identified 12 Local Councils with a high incidence of reported graffiti vandalism. These 12 Councils were invited to submit a grant proposal to CPD seeking a grant to implement one of the three identified graffiti reduction strategies. Eight of the 12 Councils invited to participate submitted a grant proposal. The participating Councils and the intervention strategies adopted were:

Crime Prevention through Environmental Design

- Gosford City Council
- Leichhardt Council
- Penrith City Council

Rapid Removal

- Sutherland Shire Council
- Wollongong City Council
- City of Canada Bay Council

Volunteer Programs

- Willoughby City Council
- Blue Mountains City Council

3.2 Selection of Control and Intervention Sites

Councils were required to select two sites with the following requirements:

- The sites are comparable in size
- The sites are of a similar nature and have similar functions
- The sites are subjected to a similar incidence of graffiti vandalism
- The sites are of the same property type

One of the sites was to be used as the intervention site, where the selected graffiti management strategy was to be implemented. The other site was to be a 'control' site. At the control site the Council was to continue with their existing graffiti vandalism prevention activities only. The purpose of the control site was to provide a constant measure of the amount of graffiti vandalism that took place in the absence of the intervention strategy throughout the duration of the project.

The sites were selected by the Local Council and approved by a Crime Prevention Adviser from CPD before funding approval was granted.

3.3 Data Collection

Measuring the incidence of graffiti

CPD developed standardised data collection tools that were distributed to the participating Councils. Data collection was the responsibility of the Councils. CPD ran two data collection workshops to inform Councils of the standardised data collection procedures and undertook site visits to ensure processes were understood. The research design called for 'baseline' data to be collected for a three month period for both the control and intervention sites with the purpose of drawing comparisons between them before, during and after the intervention. Data was to be collected and provided to CPD monthly during the intervention. The reporting template included questions about the type, amount and size of graffiti removed from the intervention site and observed at the control site.

Progress and final reports

In addition to the monthly data collection, Councils were required to provide a six month project progress report and a final report at the cessation of the intervention. The reports included a set of 20 questions in four categories:

- Project management
- The pros and cons of the intervention program implemented
- Program outcomes
- The future of the intervention program

The responses provided by the Councils to these questions provided a valuable source of qualitative information used to examine the effectiveness of the intervention strategies from the perspective of the hands-on users.

Exit interview

At the conclusion of the intervention period exit interviews were conducted with each of the project managers over the telephone. These interviews enabled CPD to clarify issues identified in the monthly, progress and final reports and to question the project manager about his/her views of the project. Project managers were generally more forthcoming verbally than in written reports and the exit interviews were a valuable data source.

3.4   *Caveats*

The project was designed to provide both quantitative and qualitative data for the evaluation. Each participating Council was asked to provide three months of baseline data to be used in a before/after intervention analysis. Councils were also asked to provide ongoing monitoring data on the incidence of graffiti at both the intervention and control sites. However, only two Councils provided baseline data and a number did not provide ongoing data on the incidence of graffiti vandalism at the control sites. On this basis, a before/after intervention analysis was precluded for six of the eight locations and a between-sites comparison precluded for some. This resulted in the evaluation's heavy reliance on the qualitative information provided by the Councils throughout the evaluation.

A second consideration is that the implementation of the graffiti reduction strategies was the responsibility of the participating Councils, as was the collection of the graffiti incidence data. All conclusions drawn in relation to the intervention strategies operate on the assumptions that the strategies were implemented by the Councils in accordance with the intervention plans Councils provided to CPD and that the data and information supplied in relation to the incidence of graffiti vandalism was accurate.

4. REVIEW OF THE INTERVENTION STRATEGIES

4.1 Crime Prevention through Environmental Design

Crime Prevention through Environmental Design (CPTED) principles were implemented by three Local Councils: Gosford, Leichhardt and Penrith.

4.1.1 Gosford

The intervention site

The Kariong Youth and Community Sports Centre was selected as the intervention site because the Council identified it as being a frequent target of graffiti. The Centre is located at the end of a housing complex and on the perimeter of a recreation area consisting of two ovals, cricket nets and a skate park. The building is visible from the Pacific Highway entry onto the F3 and the main access road to the suburb of Kariong. The site is relatively isolated when activities are not occurring on the ovals or in the centre. The building provides amenity for local sporting groups and youth service activities.

The control site

Gosford Council initially selected the Carrington Street Community Centre and amenities block as the control site. This site was selected because of the high incidence of graffiti at the site. However, during the assessment of the location by CPD's Crime Prevention Adviser, it was discovered that:

- CPTED interventions had been applied to Carrington Street rendering it inappropriate as a control;
- Graffiti at Carrington Street appeared old, that is, there was no evidence of the location having been the recent target of graffiti vandals.

On this basis, the control location selected was changed to the Paddy Clifton Oval's amenities block in June 2007. This location was selected because of its history as a target of graffiti vandalism and its similarity to the intervention site.

Program duration

1 May 2007 – 31 July 2008

The intervention: CPTED

The Gosford Council intervention project employed a combination of landscaping, additional lighting, fencing, and upgraded surveillance equipment to prevent graffiti vandalism:

- The landscaping included planting native plants to block access to building walls;

- Additional lighting was installed to boost passive surveillance from Mitchell Drive (passing cars and houses opposite);
- A total of nine CCTV cameras were installed in two stages. Initially six were installed, however an additional three cameras were required to cover a blind spot;
- Council's CCTV server was upgraded to enable monitoring of additional cameras. The nine cameras were monitored 24 hours a day by Gosford Council.[11]

Were the intended outcomes achieved?

The quantiative reports provided by Council showed only seven incidents of graffiti at the intervention site from 1 May 2007 until 31 July 2008.

Gosford City Council reported favourably on the introduction of CPTED strategies to reduce graffiti vandalism, indicating that there had been a much lower incidence of graffiti at the intervention site since the program commenced.

The benefits of establishing partnerships with the sporting clubs occupying the community centres at the intervention sites were also noted. It was stated that these partnerships increased community ownership of the sites, resulting in an increased willingness of the community to report graffiti incidents and greater care being taken of the site. For example, a community member independently painted over graffiti that was applied by vandals on a Saturday night. By comparison, "before the intervention, graffiti was seen as a normal occurrence." Council reported the perception that the program had "empowered the community to report the vandalism quicker."

Further to this, it was reported that displacement of graffiti vandalism had not occurred as a result of the intervention. Instead, Council indicated that there had been a reduction in graffiti vandalism in Kariong area generally, with the neighbouring Scout Hall and Neighbourhood Centre no longer graffiti targets. A decrease in the incidence of malicious damage offences in the area was also noted.

An unintended but beneficial effect of the program was an informal beautification of the intervention location, with reported benefits of this to the users of the amenity. Important to Council was that this beautification process provided the local community with "a clean environment they can be proud of." Importantly, Council reported that no damage had been done to the CPTED features implemented.

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[11] The approved grant included funding of two CCTV cameras and an IP server upgrade to enable central monitoring of CCTV footage.

4.1.2   Leichhardt

The intervention site

Leichhardt Council chose a large, privately owned commercial brick building in Moore Street as the intervention site. The location was selected as it was highly visible to both public transport users and motorists and a frequent target of graffiti tagging. The building is located in a local transport corridor and a pedestrian thoroughfare between Annandale and Leichhardt. The approximate size of the intervention site is a 45 square metre frontage, and it is comprised of a brick wall with a number of masked windows and two roller doors.

The control site

The control site is located in Mullens Street, Rozelle. It too, is a large, privately-owned, commercial brick building that was subject to a high incidence of graffiti tagging. Like the intervention site, the location of the control site is in a local transport corridor, the main route into the Balmain Peninsula from Victoria Road. The approximate size of the control site is a 50 square metre frontage.

The intervention: CPTED

The CPTED intervention implemented by Leichhardt Council involved a revamping of both the selected wall and its immediate surrounds. It was noted by Council that the intervention site appeared neglected and abandoned and that it was in need of an upgrade.

The blank intervention wall was converted into one almost wholly covered by climbing vegetation, which was further protected by sensor lighting. The intervention included:

- Installation of sensor lights on the site wall;
- Construction of garden bed against the site wall;
- Planting fast-growing creepers on a wire frame attached to the site wall;
- The painting of *trompe l'oeil*[12] murals on the roller doors and windows on the adjoining brick walls.

In addition to the CPTED strategies at the site, Leichhardt Council introduced:

- Rapid removal (within 48 hours) of reported graffiti vandalism from buildings around the intervention site for the duration of the project.
- The Council also indicated that Rangers would monitor and photograph the site on a daily basis to enable graffiti removal and/or garden maintenance to be carried out in a timely fashion.

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[12] A *trompe l'oeil* (literally, 'deceives the eye') is a "painting or method of painting that creates the illusion of a three-dimensional object or space." (Oxford Dictionary)

Program duration

July 2007 – August 2008

Were the intended outcomes achieved?

While there is no baseline data with which to undertake a before/after comparison, Leichhardt Council reported that there had been a significant reduction in the number of graffiti incidents occurring at the intervention site since the implementation of the intervention. It was also noted that the number of graffiti incidents at the intervention site was significantly less than the number of incidents at the control site. Council commenced the project by having the intervention site wall completely cleaned of all graffiti. Following the commencement of the intervention in July 2007 until its completion in August 2008 the site was tagged on only four occasions, once each in August 2007, September 2007, November 2007 and February 2008. Council reported that this graffiti was removed within the rapid removal time-frame to deter further tagging at the site.

Leichhardt Council undertook no intervention at the control site and reported that graffiti vandalism continued to be a problem for the duration of the project. The reports provided by Council show there to have been fifteen tagging incidents at the control site during the intervention. It was reported that graffiti vandalism was taking place on a regular basis on properties adjacent to the control wall during this time. This may be explained by the fact that the control wall was covered in graffiti at the commencement of the project, leaving limited space for new graffiti to be applied. It would have been beneficial to the project if Council had cleaned the control site of existing graffiti at project commencement, providing a 'clean slate' for comparison with the intervention site.

Another issue to note is that due to the small number of graffiti incidents on the intervention site during the project, Council directed that graffiti removal be undertaken on buildings adjacent to the intervention site. The result of this additional intervention is that Council reported that the effectiveness of the CPTED practices cannot be determined in isolation of the rapid removal of tagging that was taking place on the adjacent buildings. Nevertheless, it was the absence of graffiti on the intervention site that precipitated the rapid removal of graffiti from adjacent buildings: this absence may be attributed to the CPTED intervention. Relevant in this situation is that the CPTED intervention included planting of vegetation to provide a green screen to disable the application of graffiti to the intervention site wall. It is to be expected that over time, as the screen grows and blocks access to the site, there will be a reduction in the incidence of graffiti. The murals implemented by Leichhardt were also found to be effective graffiti prevention measures, as the mural sites were targets of graffiti vandals for the duration of the project.

Also of importance to Council was that the project transformed an area that was previously marginalised and ill-kept into an attractive community asset. It was noted that the project served to increase the awareness in local community of the

issue of graffiti. Importantly, in response to the work being undertaken by Council, local businesses became proactive in removing graffiti from their own property, which contributed to improving the appearance of the municipality.

Overall, it was reported that the combination of CPTED and rapid removal strategies were successful in reducing graffiti vandalism in the targeted location as well as reducing vandalism in the surrounding areas.

4.1.3   Penrith

The intervention site

A sandstone retaining wall in the Penrith suburb of Glenmore Park was chosen as the intervention site. The wall is 100 square metres (55 metres long by 1.8 metres high) and is in a prominent location across the road from Glenmore Park Shopping Centre. The wall is clearly visible from the sporting ovals and shopping centre, has a high school behind it and is on the main road that runs from one end of the estate to the other.

Council reported the wall as a frequent target of graffiti vandalism over the past few years and that the Town Centre precinct has a high incidence of graffiti on both private and public property.

The control site

The control site, also in Glenmore Park and adjacent to the Town Centre, is two lengths of similar sandstone retaining wall that are close enough to each other to be considered one control site. The first section is a retaining wall on the edge of a public footpath outside an Integral Energy sub station; the second section is a retaining wall that leads into the Town Centre shopping centre. The site is approximately half a kilometre from the intervention site and is subject to repeated graffiti that is difficult to treat due to the porous nature of the sandstone.

Program duration

11 April 2007 – April 2008

The intervention: CPTED

The intervention included:

- 'Green screening' the retaining wall with vegetation that would grow quickly on a trellis;
- Installing temporary, see-through fencing to protect the vegetation as it grew;
- Replacing the existing mesh fence with fencing materials to match and complement the trellis

Council undertook to replace any vegetation lost or vandalised during the project.

In addition to the CPTED interventions, Council committed to monitoring the site on a daily basis and introduced rapid removal (within 48 hours in general and within 24 hours for offensive material) to be undertaken by contracted graffiti removalists.

Were the intended outcomes achieved?

Council reported positively in relation to the CPTED procedure implemented as a graffiti reduction mechanism. Note though that the Council had also introduced the rapid removal of graffiti incidents at the two locations. There were however only a small number of incidents that Council had to deal with at both the intervention and control sites throughout the project. The monitoring reports showed only eight incidents of graffiti were recorded at the intervention site between 1 March 2007 and 31 August 2007. No incidents occurred between 1 September 2007 and 31 May 2008. Only four incidents of graffiti were recorded at the control site for the duration of the project. Noted by the Council was that prior to the commencement of the project both the intervention and control sites were regular graffiti targets and that graffiti vandalism continued at high levels in other locations in the LGA for the duration of the project. Therefore, the low number of recorded graffiti incidents at the two sites does not appear to reflect an overall reduction in the incidence of graffiti vandalism taking place within the LGA.

Council reported that there had not been a reduction in graffiti in other locations that could be attributed to the project, nor had there been any displacement in the application of graffiti to either the control site or other locations in the LGA. Council also reported its intention to implement CPTED principles at other locations across the LGA on the basis of the success of the demonstration project. Important to Council was that the CPTED intervention also served to improve the amenity of the intervention location.

As was the case with Gosford City Council, Penrith City Council reported that no damage was done to the CPTED facilities during the project. Council commented that protective fencing was cost-effective as it proved successful in reducing malicious damage and the theft of plants, ensuring that the green screen remained in place. In addition, Council intended to reuse the fencing at other locations once the plants are fully grown. Council reported that no unexpected resources were needed to maintain the program. Staff time for inspections, record keeping and removal did not exceed expectation, neither did the cost of landscape architects and contractors to carry out design and implementation. The cost-effectiveness of the project was also considered an advantage as the demonstration project had allowed staff resources to be allocated to other "high profile" locations where Council believed were not amenable to the introduction of CPTED features. During the exit interview the Penrith City Council Public Domain Amenity and Safety Manager stated, "The success of the project will support future proposals for fenced vegetation in graffiti hotspot locations."

4.2   Rapid Removal

Three Councils implemented rapid removal projects: Sutherland, Wollongong and Canada Bay.

4.2.1   Sutherland

The intervention site

The intervention was implemented at Cronulla Plaza, which is comprised of a pedestrian plaza and road lined with retail and service businesses. At the rear of the businesses are parking areas, pedestrian laneways and access points. Cronulla train station is located at the south end of the plaza and although it adjoins the location it was not included in the intervention area. The size of the intervention area was 62,700 square metres (approximately 450 metres long and 130 metres wide).

The control site

Sutherland CBD Shopping District was selected as the control site due to its similarities with the intervention site. Both locations are adjacent to a rail corridor, with a mix of Council and private parking areas (ground level and multi-deck parking). Both locations contain a mix of commercial/retail properties and Council-owned property. The incidence of malicious damage is also comparable at the two locations. The size of the control site is 60,078 square metres (approximately 445 metres long and 120 metres wide).

At the control site, Council continued to remove graffiti from its own property on a regular cycle. Individual property owners and tenants continued to be responsible for graffiti removal at their own properties.

Program duration

July 2007 – May 2008

The intervention: rapid removal

Sutherland Council had an existing 24 hour rapid removal policy in place for Council property only. The proposed rapid removal intervention was to extend that policy to residential and commercial premises within the targeted area, thus providing a consistent approach to graffiti removal in the area.

Graffiti at the intervention site was to be removed by graffiti removal specialists under contract to the Council. They were tasked to remove graffiti from both Council property and private property within the intervention area. The rapid removal of graffiti at the control site continued to be undertaken on Council-owned property only.

Sutherland Council sought written permission from the owners of the private properties that were situated within the intervention boundaries prior to commencement of the intervention. Legislation allows for Council discretionary power to remove graffiti from private property without owner/occupier consent if the graffiti can be seen from a public place and as long as Council officers do not enter onto private land without consent. [13] Obtaining written permission to remove graffiti from private property in advance of project commencement served to expedite the graffiti removal process.

Graffiti removal was conducted twice a week (on Monday and Thursday mornings) with a third drive past per week to identify any offensive graffiti for removal within 24 hours. The Council was not able to sustain removal within this timeframe for all graffiti incidents for the duration of the project. The Sutherland City Council Community Safety Officer indicated that the 24 hour removal requirement was achieved "for the most part – difficult jobs took longer." For example, graffiti removal may have been delayed for sensitive surfaces such as sandstone or when OH&S issues arose. The accepted standard for the rapid removal of graffiti is 48 hours from the time of reporting.[14] This may be a more realistic benchmark for the development of graffiti management strategy.

Were the intended outcomes achieved?

Sutherland City Council provided monthly reports to CPD from April 2007 to May 2008, representing three months of baseline data and 11 months of program data. There was considerable variation in the monthly number of graffiti incidents recorded at both sites before and after the program period. Post-project discussions with Council revealed that not all incidents of identified graffiti were removed each month. Therefore, some reports will have been counting the same incidents of graffiti across months. A second consideration is that there is no information about the rate of graffiti removal relative to the rate of incidents, and whether this rate remained constant across the months.

At the *control* site, the number of incidents recorded during the *baseline period* was 64 in April 2007, 99 in May 2007 and 78 in June 2007. This equates to an average 80 incidents per month. The number of monthly graffiti incidents recorded at the control site during the *intervention period* ranged from a low of 90 in April 2008 to a high of 133 in March 2008, with an average of 122 per month.

At the *intervention* site, the number of *baseline* graffiti incidents recorded was 102 in April 2007, 96 in March 2007 and 70 in June 2007. These figures equated to an average of 89 incidents per month. The range in the number of graffiti incidents for the *intervention period* was from a low of 69 in December 2007 to a high of 172 in July 2007, equating to a monthly average of 150 incidents of graffiti incidents at the intervention site. This data is presented in Figure 1, below.

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[13] *Graffiti Control Act 2009*, formerly legislated under the *NSW Local Government Amendment (Graffiti) Act 2002*
[14] Premier's Department (2000), NSW Graffiti solutions handbook for local government, planners, designers and developers. Premier's Department, Sydney.

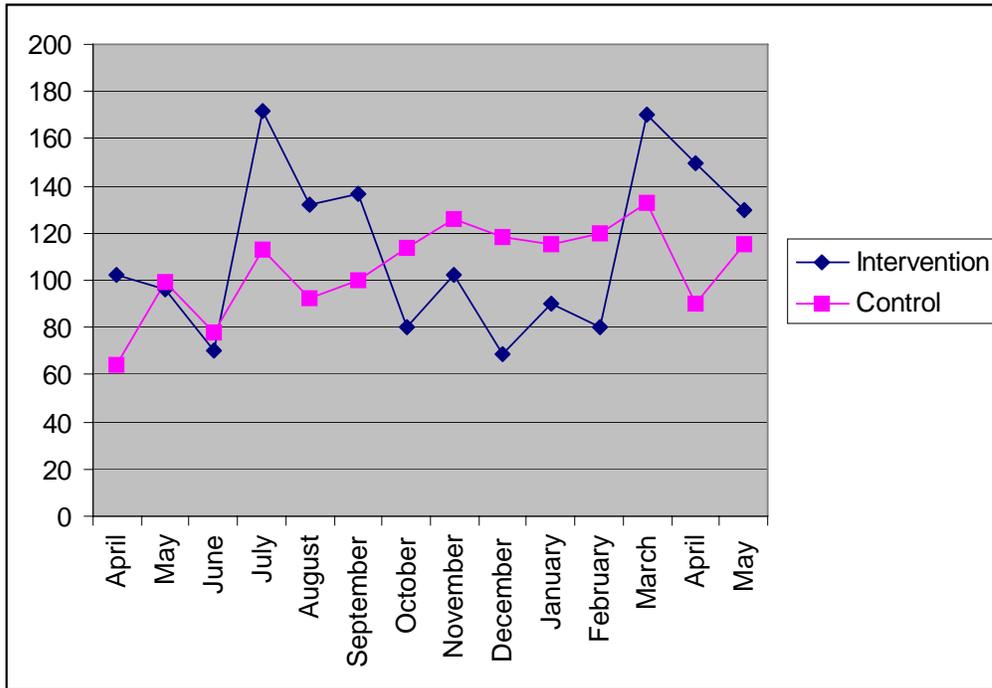**Figure 1:** Number of graffiti incidents recorded by month at Sutherland sites, April 2007 to May 2008

Figure 1 shows a convergence in the number of recorded incidents of graffiti at both the intervention and control sites in May/June 2007 (during the baseline period). The number of graffiti incidents in the following three months was higher at the intervention site, followed by a reduction in the number of incidents in comparison to the control site from October 2007 to February 2008. The incidence at the intervention site increases thereafter in March and April, and reconverges with the control site following a reduction in recorded incidents in April 2008. Note that without a full 12 months of baseline data it is not possible to determine whether the apparent reduction in graffiti incidents is due to the intervention strategy, the rate of graffiti removal over those months or if it simply reflects typical seasonal variation in the incidence of graffiti at these locations.

Nevertheless, Sutherland City Council reported that in their view the rapid removal project had been successful. It was reported that the intervention site was significantly more graffiti free (in relation to both size and visibility) than was the control site, thereby improving the amenity of the area for the community. This, from the perspective of Local Council, is an important goal of a graffiti management strategy. So while Council recognised that the number of graffiti incidents remained fairly constant for the duration of the program, the quick removal of the incidents provided for a cleaner environment.

One significant outcome of the intervention reported by Council was a noticeable reduction in the number of larger graffiti 'pieces'[15] in the intervention area. Rapid removal practices may have resulted in graffiti vandals being less inclined to invest their time in doing graffiti pieces in an area that was the target of frequent graffiti removal. This is one of the aims of rapid removal as a graffiti prevention strategy. On this basis, the intervention can be considered as successful in deterring these graffiti vandals from applying graffiti in the intervention area. A second finding of note is that while Council reported a degree of reduction in the reoccurrence of graffiti throughout the duration of the project, taggers still continued to vandalise the intervention area, despite the rapid removal of their tags. It was noted however that it is quicker and cheaper to remove tags than it is to remove large pieces, which indicates that rapid removal aided graffiti management in the intervention site, if not its prevention.

Despite viewing the rapid removal program as having been successful in reducing the amount of visible graffiti at the intervention site, Sutherland City Council reported that they would not be continuing the project beyond the demonstration period due to the cost of running the program.

4.2.2   Wollongong

The intervention site

The intervention site selected by Wollongong Council for inclusion in the project was a pedestrian walkway (Ethel Hayton Walk) that links Burelli and Crown Streets in the central business and main shopping district of Wollongong. The site is highly visible and is subject to a large volume of pedestrian traffic on a daily basis. Council reported that due to its location, the walkway is the frequent target of graffiti vandalism.

The control site

A pedestrian walkway off the Princes Highway located at the Dapto central business and main shopping districts was selected as the control site. The walkway is a similar size, pedestrian flow and graffiti incidence to the intervention site.

Program duration

2 June 2007 – 12 August 2008

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[15] 'Pieces' are usually highly-stylised and colourful versions of tags or crew names. (Halsey, M. & Young A. (2002), *Graffiti culture research project*, final report, Prepared for KESAB, Adelaide, p.5.)

The intervention: rapid removal

Rapid removal was the intervention implemented by Wollongong Council. Graffiti was to be removed from the intervention site within 24 hours of it being observed by Council staff.

Were the intended outcomes achieved?

Wollongong Council did not provide CPD with baseline data. In the six month progress report it was stated that the intervention site was subjected to three incidents of graffiti from June 2007 until the end of January 2008. There was no corresponding data for the control site during this period. Monitoring reports were sent through for February until June 2008. These five months of data showed very low levels of graffiti vandalism at both the intervention and control sites, with a total of two and eight incidents recorded respectively. In the absence of baseline data, there is no way to determine if this reflects a decrease in the number of graffiti incidents at either site, however that sites were chosen based on the reported high levels of graffiti at both sites prior to the project's commencement.

The six month progress report provided by Wollongong City Council stated that there were no factors outside the demonstration project that were impacting on the operation of the rapid removal scheme. However, the 12 month progress report details factors believed to have impacted on the low incidence of graffiti at both the intervention and control sites during the second six months of the project. Two possible confounders were identified at the intervention site. The first was that during the second six months of the demonstration project, the Wollongong City Centre Management responded to the high incidence of graffiti in the Wollongong CBD by contracting another independent rapid removal team to remove graffiti in the CBD area. As the intervention site falls within the boundaries of the City Centre Management it was suggested that graffiti removals at the site may have been undertaken by the independent rapid removal team prior to the graffiti incident having been recorded by Council. There is no information provided as to why this issue was not followed up with the City Centre Management.

The second reported confounder is that while the graffiti demonstration project was in progress a strategy was introduced into the Wollongong CBD aimed at reducing the incidence of anti-social behaviour by persons moving between licensed premises late at night. This strategy involved the closure of food outlets at 2am. It is not clear if this strategy would have impacted on the incidence of graffiti at the intervention site unless graffiti was being conducted at the site after 2am on weekends.

The proposed confounding factor at the control location was that during the second half of the project, a new shopping mall was opened in the Dapto CBD. The shopping mall is located 500 metres from the control site. The opening of the mall coincided with an increase in antisocial behaviour at that location, and the Council believes that this resulted in a shift of graffiti related activities from the

control site to the area surrounding the mall. However, it is important to consider that the control site is a pedestrian walkway that leads to the mall area. On this basis, the likelihood of a reduction in graffiti at the control site due to the opening of the mall is low.

In the absence of both quantitative and qualitative data it is not possible to draw definitive conclusions about the effectiveness of rapid removal as a graffiti prevention and/or management strategy based on the implementation of the strategy by Wollongong City Council. However, Council did report a low incidence of graffiti at both sites in the second six months of the intervention.

4.2.3   Canada Bay

The intervention site

The intervention site selected for a rapid removal program was Five Dock Park, an active and passive recreation area that includes a range of facilities including a skate ramp, a War Memorial, grandstand, football/cricket oval, play ground, barbeques and picnic settings. It also has an Early Childhood Centre within its confines. The site has been the repeated target of graffiti vandalism over the past five years. Five Dock Park is 95,000 square metres.

The control site

The control site selected was Drummoyne Oval, Drummoyne Park and Taplin Park. While the site has three different titles, the three areas from a single contiguous parcel of land that provides both passive and active recreation uses. According to Council staff the control and intervention sites offer similar facilities to the public and experience similar levels of graffiti vandalism. The control site is 83,000 square metres.

Program duration

June 2007 – March 2008

The intervention: rapid removal

The intervention site was subject to daily inspections and same or next day removal, Monday to Friday, of all graffiti. This protocol represented a significant increase in the activity of Canada Bay Council in dealing with graffiti vandalism. Council continued the usual site maintenance regime at the control location.

Were the intended outcomes achieved?

A total of 33 graffiti incidents were recorded at the intervention site during the three month baseline data collection period. A total of 85 graffiti incidents were recorded at the intervention site from June 2007 to May 2008. This represents an average of seven incidents per month, a small decrease from the baseline figures provided. The range in the number of graffiti incidents at the intervention site

ranged from two in June 2007 to 14 in November 2007. The number of incidents exceeded seven in only four of the 12 program months.

Council did not believe that the rapid removal strategy had been effective in reducing the recurrence of graffiti at the intervention site. Council's Building Services Coordinator commented that the intervention has "seemingly not" reduced the incidence of graffiti at the intervention site.

Baseline data for the control site showed only one incident for the three month period. This calls the selection of this location as a frequent graffiti target into question. Following the commencement of the program, changes were made to the management of the site that undermined its usefulness as a control location. Council reported that security restrictions were introduced that locked the park down when it was not in use. This restriction of access to the park after hours reduced the likelihood of graffiti being committed. In short, Canada Bay Council implemented a CPTED intervention at the control location. In the 12 month progress report Council noted that only seven incidents of graffiti had been recorded as taking place at the control site for the duration of the project.

4.3 Volunteer Programs

Two Local Councils received funds to implement a volunteer graffiti removal program: Willoughby and Blue Mountains.

4.3.1 Willoughby

The intervention site

The intervention site selected by Council was private property located in the Artarmon Commercial Precinct at the Artarmon Shopping Centre. The site encompassed shops and laneways. The size of the intervention site was 4km^2.

The site is highly visible from the rail line, the Pacific Highway and has a high transient population due to the shopping strip and its proximity to Department of Housing properties. The shop-keepers in the area were very supportive of the program.

The control site

The control site encompassed the railway and freeway corridor that surrounded the intervention site. The size of the control site was also 4km$^{2.}$

Program duration

Program not implemented.

The intervention: volunteer program

The aim of the volunteer program was to train a team of volunteers who would remove graffiti from privately-owned properties within 24 hours. This was to complement the existing within 24 hour graffiti removal practices of Council when graffiti is found on Council property.

Council was to provide training to local shop-keepers and members of the Artarmon Progress Association to identify, photograph and notify Council of all incidents of graffiti vandalism within the intervention site. Clean-up kits were to be provided to the volunteers. Training was to be provided through an existing contracted graffiti removal company. All volunteers were to be provided with personal protection equipment, data collection sheets, OH&S information, correct cleaning procedures and training to use the cameras and recording sheets.

The funding agreement for the Willoughby Volunteer Graffiti Removal Strategy was finalised in March 2007. In November 2007 Willoughby Council withdrew from the Demonstration Project citing the inability to attract volunteers to participate in the program, despite repeated attempts. As the Council already had a graffiti removal program in place that involved a contractor regularly patrolling the LGA and removing graffiti from both private and Council-owned properties, the funding provided for the project was returned to the CPD. The Willoughby example demonstrates the difficulties associated with finding people to volunteer their time to graffiti removal programs.

4.3.2   Blue Mountains

The intervention site

The Blue Mountains City Council selected Katoomba Street, the main shopping street of Katoomba, as the intervention site. The area is frequented by tourists and is the entry point to the town. The vast majority of property is privately owned and is therefore not treated by Blue Mountains City Council's graffiti team.

The intervention site is visible from the railway and the main road. It is a shopping strip with private businesses and cafes. It includes some Council owned property and other public assets (for example, Integral Energy junction boxes).

The Council indicated that graffiti was a pervasive problem in the identified area.

The control site

The Blaxland Mall Precinct was chosen as a control site. It also has numerous local businesses fronting the area. This site is similar to the intervention site because it is an entry point to the shopping precinct and is adjacent to a railway station, with a large number of pedestrians. The site includes Roads and Traffic Authority (RTA), Council and private assets. The control site is reported to have similar levels of graffiti vandalism as the intervention site and its approximate size is 0.4ha.

Program duration

15 September 2007 – 30 September 2008

The intervention: volunteer program

Blue Mountains City Council was funded to run a volunteer program to remove graffiti from Katoomba Street and adjacent backstreets and laneways. This was an area that did not have any consistent graffiti control measures in place. Volunteers were provided with equipment, training and support. The Blue Mountains City Council appointed a Volunteer Graffiti Removal Coordinator to work with the volunteers to ensure processes and equipment were properly used and to assist with the recording and reporting of graffiti incidents. The responsibility for the provision of data relating to the number of graffiti incidents identified and removed was given to the volunteers who participated in the project.

In addition to actively removing graffiti incidents, the volunteer program undertook a range of graffiti control strategies. These included contacting other agencies to address graffiti on their property (RailCorp, RTA, Integral Energy), using flyers to inform business owners about graffiti on their property and how to remove it, and writing to local schools about graffiti matters.

Were the intended outcomes achieved?

There was insufficient quantitative data provided to CPD to determine whether there was a reduction in the incidence of graffiti at the intervention site either over time or in relation to the control site. Council reported the difficulties faced in gaining volunteer support to collect and report graffiti incidences and graffiti removal on a regular basis. Therefore, the following information is based on the qualitative information that was provided by the Council in the six and 12 month progress reports.

In both the six and 12 month progress reports Council indicated that the volunteer program had been successful in reducing the reoccurrence of graffiti at the intervention site. The majority of areas in which graffiti removal had been undertaken had not been retargeted and those that were, were not targeted to the same degree as they had been previously. It was noted that under the volunteer program large areas of graffiti at the intervention site had been removed and had remained graffiti-free for the duration of the project. It was however noted that a "great deal" of the graffiti vandalism appeared to have been an accumulation of older damage that once removed did not reappear.

In short, the volunteer removal program filled a gap in existing graffiti management practices in that it allowed for the removal of graffiti from privately owned property – which, it was stated, was where most of the graffiti incidents were occurring in the area.

The volunteer program actively sought partnerships with other agencies, encouraging graffiti removal from their assets. It was noted that the volunteers

had been successful in engaging representatives from the RTA and RailCorp and that this resulted in a more visible response from the agencies in response to graffiti.

An advertising campaign undertaken by the volunteer group was considered to have increased public and business awareness of the graffiti problem in the area and resulted in an increased number of reports of graffiti vandalism being made, especially to state agencies.

The Council reported that there was no evidence that the volunteer program had resulted in the reduction of graffiti in other areas of the LGA, nor had it resulted in displacement of graffiti vandalism to other areas – including the control site.

Potential program confounders

It was noted that a volunteer group, independent of the Council led volunteer graffiti removal group, had commenced the removal of graffiti from the control site while the program was operating. This would have a bearing on the applicability of the control site for comparative purposes.

Council also reported that while the program was underway, a Council funded legal graffiti art wall was closed and the graffiti thereon was removed. It was believed that this had the potential to result in additional graffiti vandalism being undertaken at the intervention site due to its proximity to the legal wall site. In the absence of monitoring data, the impact of this cannot be determined.

It was noted that program progress was slower than anticipated due to graffiti removal activity being sporadic and the number of volunteers who were active at any one time (two to three) being less than the number trained (nine). A major stumbling block for the efficient operation of the volunteer graffiti removal program was considered to be the inability of volunteers to commit to a regular graffiti removal timetable. It was due to this that graffiti removal was done opportunistically rather than on a regular basis, which is not considered conducive to graffiti prevention.

Council noted the difficulties in gaining volunteer support for the provision of accurate and reliable data in relation to the number of graffiti incidents and their removal. This was considered an administrative burden to Council as Council commenced undertaking additional inspections of where the volunteers had been working to collect data.

Council gratefully recognised and applauded the efforts of the people who participated in the volunteer graffiti removal program. However, it was noted that managing a volunteer program is fraught with difficulties. As the participants are giving their own time there is no formal requirement for them to operate to a timetable (to increase effectiveness) or to comply with the obligations of a program. It was believed that little could be done to circumvent this problem without affecting the goodwill of the participants (which is essential to the continuation of the program).

5.   DISCUSSION AND CONCLUSIONS

In 2007-2008, the Crime Prevention Division implemented a graffiti reduction demonstration project aimed at identifying the most effective of three graffiti vandalism prevention strategies. The three strategies were crime prevention through environmental design (CPTED), rapid removal and volunteer programs. Eight Local Councils participated in the demonstration project.

The project was designed to produce quantitative data that would enable an evaluation of the effectiveness of each of the strategies and qualitative data as a supplementary information source. As has been discussed, the consistency and accuracy of the quantitative data provided by the Councils precludes rigorous data analysis. The discussion and conclusions that follow are based on analysis of the available quantitative data and the qualitative data provided by exit interviews with project managers and narratives from the Councils' progress and final reports.

5.1   How Effective Were the Interventions?

5.1.1   Crime Prevention through Environmental Design

CPTED is a situational crime prevention method that aims to design out opportunities for graffiti vandalism to take place. It is based on the rationale that graffiti is most likely to be applied at locations that are accessible, where there is little surveillance, where there is ease of escape and where the graffiti will be on show.

CPTED strategies were implemented by three Councils: Gosford, Leichhardt and Penrith. The Councils implemented a range of CPTED features, including:

- Green screening of walls (Gosford, Leichhardt, Penrith)
- Additional lighting (Gosford, Leichhardt)
- CCTV surveillance and monitoring (Gosford)
- Murals on walls (Leichhardt)
- Landscaping (Gosford, Leichhardt)

In addition to the CPTED features, each of the Councils implemented (or continued) a rapid removal program at and/or around the intervention site, accompanied by increased site monitoring, as was a requirement of the project for data collection purposes. While this makes it difficult to examine the effectiveness of a single CPTED treatment in isolation, the increased surveillance provided by increased monitoring of the sites is, in itself, a feature of crime prevention through environmental design.

However, at program completion all Councils reported that there had been a reduction in the incidence of graffiti at the intervention site and an increase in the

'visual amenity' of the location. Importantly, Councils reported that the CPTED features that were implemented were not the targets of vandals during the project.

5.1.2   Rapid Removal

Rapid removal refers to a process whereby graffiti is removed within a relatively short time following detection. The usual rapid removal standard is 48 hours.[16] The effectiveness of rapid removal as a graffiti prevention method is purported to be that it undermines a major motivation of graffiti vandals, which is to have their graffiti on display. It is also purportedly an effective graffiti management strategy due to newly applied graffiti being quicker and cheaper to remove than graffiti that has been allowed to set.

The effectiveness of rapid removal at Wollongong and Canada Bay is difficult to determine due to data, site selection and site treatment issues, as discussed previously. The following conclusions are based, therefore, on the experience of rapid removal in the Sutherland Shire Council area.

While the data provided by the Councils did not show there to be a reduction in the incidence of graffiti at the intervention site during the project, Council reported that they were satisfied that the rapid removal program had reduced the impact of graffiti in the intervention area. The impact of graffiti was measured by Council in a number of different ways. Council reported that while there was not a reduction in the incident numbers, the graffiti was being removed quickly which provided for a significantly more graffiti-free environment than the control site. This would indicate that rapid removal was effective as a graffiti *management* measure if not a graffiti *prevention* measure.

Council reported that the incidence of large graffiti pieces at the intervention site was reduced for the duration of the project. This finding supports that rapid removal was successful in achieving one of its aims – that is, to deter graffiti vandals from doing graffiti due to the likelihood of quick removal and the reduction in exhibition time that this allows their work. However, it is important to note that while rapid removal deterred the application of large graffiti pieces, it did not reduce the incidence of tagging in the intervention area. Nevertheless, Council reported that it is considerably quicker and cheaper to remove tags than it is to remove large graffiti pieces.[17]

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[16] Premier's Department (2000), NSW Graffiti solutions handbook for local government, planners, designers and developers. Premier's Department, Sydney.

[17] While considered to be a successful means through which to deal with graffiti, the rapid removal program undertaken by Sutherland Shire Council during the intervention was not going to be continued, due to its expense.

5.1.3   Volunteer Programs

The purported benefits of volunteer graffiti removal programs are that they are a cost effective means of removing graffiti and also serve to engage the community in the process. A benefit of having an engaged community is an increased sense of ownership over the area and a greater likelihood of vigilance in relation to graffiti.

However, the demonstration project identified a significant problem with attracting volunteer participation and establishing a level of commitment from them that will sustain the program. The program planned for implementation by Willoughby Council had to be abandoned due to the Council being unable to recruit program participants. The program in the Blue Mountains recruited nine volunteers, however only two or three of these were active at any one time, which severely limited the amount of time that was dedicated to graffiti removal. For example, it was reported that in one month 19 graffiti incidents were recorded at the intervention site. Only two volunteers were active during this period, and spent a total of 14 hours working on the program. They were however only able to remove six of the identified incidents.

While the efforts of volunteers who give freely of their time to reduce the incidence of graffiti in their LGA is commendable, such small measures are not able to match the efficiency and effectiveness of formal, Council-managed graffiti removal and management strategies that include the deployment of professional maintenance crews.

On this basis, the effectiveness of volunteer graffiti removal programs as a means through which to address graffiti vandalism is questionable. On the basis of the findings of the demonstration project it is concluded that while volunteer removal programs may be useful for the removal of graffiti backlogs, they are not effective as graffiti prevention or management strategies.

5.2   Issues to Consider

Consistent in the monitoring reports of the Councils that provided ongoing data, with the exception of Sutherland, was an unexpectedly low incidence of graffiti at both the intervention and control sites for the duration of the project. The monitoring requirements under the project agreement required that Council undertake frequent monitoring of each of the sites. This ongoing monitoring equated to increased and regular surveillance of the sites. Surveillance, particularly in the guise of a capable guardian, has been shown to be an effective crime prevention method. It is possible that the monitoring process itself may have had a positive effect in reducing the incidence of graffiti at both the intervention and control locations due to increased likelihood of detection. (The increased surveillance provided by increased monitoring of the sites is, in itself, a feature of crime prevention through environmental design.)

A consistently-reported benefit of the graffiti removal programs from the perspective of the Councils was that they served to make the intervention area a more attractive amenity for the community.

5.3   *Conclusions*

Due to a number of strategies being implemented concurrently in most sites, the relative impact of the individual graffiti prevention methods implemented as part of the graffiti demonstration project is difficult to determine. All Councils that implemented primarily CPTED features reported a reduction in graffiti, successes achieved in combination with the rapid removal of graffiti incidents from the intervention site.

Sutherland Council implemented a rapid removal strategy in isolation. While an overall reduction of the presence of graffiti was reported due to the graffiti being removed quickly, the strategy did not appear to have been successful in reducing the number of graffiti tagging incidents at the site. It was however successful in reducing the number of larger graffiti pieces being applied, which are more costly and time-consuming to remove. This would indicate that rapid removal was effective as a graffiti *management* measure if not a graffiti *prevention* measure.

The volunteer program implemented by Blue Mountains City Council was limited in its effectiveness due to the issues associated with recruiting and directing a volunteer 'workforce'. The Willoughby City Council experience further evidences this problem through the cancellation of their proposed volunteer removal program prior to implementation. While volunteer programs may have some benefit in engaging the community and creating a sense of ownership of community assets, such programs may be best utilised for removing graffiti backlogs rather than managing and removing ongoing graffiti incidents.

These findings suggest that Crime Prevention through Environmental Design is the most effective of the three strategies implemented in the Graffiti Reduction Demonstration Project at reducing the incidence of graffiti. Further, the findings suggest that the rapid removal of graffiti incidents in and around the intervention sites may contribute to the success of CPTED interventions.