

GRAFFITI HOTSPOTS : PHYSICAL ENVIRONMENT OR HUMAN DIMENSION?

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Abstract

Graffiti is a prominent icon in contemporary urban landscapes with some areas being more dominant or hotspots, than others. This research examines whether the occurrence and characteristics of graffiti are related to the underlying physical environment or is it a consequence of the demographic [human] dimension or both? Land use types and urban design features were utilised as surrogate measures of the physical environment. The research used intensive field surveys carried out in Townsville between 1998 and 2002 to locate characteristics of graffiti at each location including type of graffiti, frequency, mode, medium used, lighting and visibility. These were correlated with specific land use types to assess patterns and frequency of graffiti. The hotspots were geo-coded and spatially mapped and the physical characteristics of each space identified. The research also uses population data from the Australian Bureau of Statistics to correlate graffiti hot spots with underlying demographic and socio-economic characteristics of these same regions. This research highlights the relevance of using field audits and local governments taking into consideration the multiple factors in both the physical and human landscapes when formulating and implementing strategies on graffiti in the urban landscape.

1. Introduction

Graffiti is a spatial phenomena sustaining an explicit identity and defending a place for itself in the urban landscapes of the world. By virtue of its positioning it has become a prominent icon in our urban landscape. Some spaces are more prone than others to graffiti and referred as “hotspots” in this paper.

1.1 Graffiti Defined

In Italian ‘graffito’ means scratching and originally implied the ‘wall scribbings’ found at Pompeii and other Italian cities. This concept gradually extended to walls and other public amenities with political graffiti proliferating in the 1930s and ‘spraycan art’ or ‘aerosol art’ evolving in the 1980s as a semi-abstract, quasi-pictorial manifestation in the New York subway system [Brewers, 2002]. Contemporary graffiti is a particular style of art which exploits strong basic colours with geometric shapes generic to the hip hop culture of New York.

By most definitions graffiti is a criminal act that usually defaces property visible to the public [Grant, 1996; Lachman, 1988; Rudin, 1996]. While the debate on graffiti being art or vandalism continues [Abel & Buckley, 1997; Ferrell, 1993a, 1993b, 1995; Raymond 1989; Rudin, 1996] legal art programs to create public murals have been initiated in an effort to reverse vandalism [Castleman,1982, Romo,1992].

Graffiti commissioned by society is referred to as ‘legal art’ as opposed to those not sanctioned and called ‘illegal graffiti’. In this usage however, there is an implicit assumption that all such activity is illegal without appropriate justification. Therefore the term ‘unauthorised graffiti’ is proposed in this research as being more appropriate than ‘illegal’, because graffiti is done without prior endorsement rather than it being unlawful. Unauthorised graffiti includes – tags, etching, messages, drawings, pieces, throw-ups and murals done without the permission of the owner of the property. The term ‘graffiti’ is used in this paper to represent all forms of unauthorised graffiti.

According to the Queensland Department of Justice, 1998:

"There are two forms of graffiti - graffiti vandalism (which is a crime committed mainly by young people as a form of rebellion and risk-taking) and graffiti or aerosol art (which is legal and commissioned by property owners)."

Contemporary society clearly recognises this difference and their attitudes towards graffiti vary depending on the form represented - favouring legal art as opposed to tagging. This research is therefore written in the context of graffiti that is *not* acceptable to our society.

1.2 Physical and Human Dimension

The intensity of graffiti varies with the size of the population, particularly the prevalence of youth. Whilst minimal graffiti is found in our outback towns, it explodes in metropolitan cities. By nature graffiti thrives on its visibility and exposure to the public; larger the audience greater the exposure and greater the respect for the graffitist among its peers. Graffiti proliferates as an outcome of certain favourable physical and human attributes and in this paper these locations are analysed as 'hotspots'.

Whilst the research raises issues on the *raison d'être* of these hotspots in general, the study specifically focuses on the prevalence of hotspots in a commercial [City] and residential [Aitkenvale] locality within Townsville in North Queensland.
[Fig 1.1, Appendix 1]

Locations qualifying as hotspots were identified in the physical environment via graffiti audits. Measures used in the physical environment were identified via graffiti audits [Bandaranaike, 1998-2002]. Surrogate measures of the human environment influencing these hotspots were selected with reference to the 2001 census data [ABS Census of Population & Housing, 2001].

The focus of this research is on the methodological aspects and the analysis is based on audits conducted at a specific moment in time. Therefore what is depicted in the results does not always reflect the current status of graffiti in Townsville.

1.3 Aim and Objectives

The aim of this paper is primarily to locate hotspots using comprehensive graffiti audits and examine the underlying causes for those hotspots in terms of the prevailing physical and social environments.

The objectives are:

- 1 identify specific features in the built environment that attracts graffiti.
- 2 examine socio-economic attributes that may contribute to the high incidence of graffiti.
- 3 debate current status and suggest place management strategies for graffiti hotspots.

The value of this research is fourfold:

- Management - the use comprehensive graffiti audits over a period of time to assist in identifying hotspots and measuring the effectiveness of current strategies in place.
- Design - in evaluating and improving urban design to reduce the impact of graffiti.
- Economic - the advantage of cutting back on wipe out costs
- Social - the advantages in improving community perception of safety.

2. Methodology

2.1 The Survey

- 1 The incidence of graffiti on buildings, public utilities including parks and park equipment, telephone booths, toilets, footpaths, alleyways, light poles were noted on field survey forms while trekking on foot. No cars or cycles were permitted since this would inhibit accurate recordings.
- 2 Students of demography at James Cook University assisted in the audit and were trained in primary data collection and identifying individual attributes of graffiti.
- 3 Intensive field checks were carried out on the survey data. After the first collection of field data by the students, a second trip was done by foot to each locality by the principal researcher and a research assistant to check the validity of the original data. Minor errors were corrected immediately and if there were major omissions, the original data collector was instructed to go back into the field to amend the mistakes.
- 4 The graffiti audits were conducted between 1998 and 2002 for the central business district [City] of Townsville and the suburb of Aitkenvale. At the time of the audits these two suburbs had the highest densities of graffiti and remains so to date.
- 5 The Graffiti hotspots identified were geo-coded using specific addresses and then mapped .

2.2 Graffiti Audits

The analysis in this research is based on a total of 1635 graffiti audits with each location having a field entry as identified in section 2.3. Audits were conducted in the City in 1999 [N=260], in 2001 [N=401] and in 2002 [N=296]. In Aitkenvale audits were conducted in 1998 [N=384] and in 2002 [N=294]. Each individual graffiti field entry was mapped as illustrated in Fig. 3.1 [Appendix 3].

Time series analysis was based on these records. In Stage 1, data was analysed first as all graffiti records [legal & unauthorised] for each individual classification given below [Appendix 3, Table 3.1]. Stage 2, data was analysed using only the unauthorised graffiti records [Appendix 3, Table 3.2a-c] as used in this paper, and stage 3 selected the more frequently targeted sub-groups [eg. Commercial buildings] based on Locality type [Appendix 1, Table 3.3] for more detailed analysis.

2.3 The Classification

The classification used in this survey to categorise location characteristics is based on the original Street Smart CD-ROM [Dept of Land Administration, 1997] and modified for the study area. A numeric coding system was used for ease of field entries. Each of the characteristics below were mapped as illustrated in Fig. 3.2 [Appendix 3].

Location Characteristics

- Locality – eg. building, park, vacant block
- Structure – eg. wall, tree, sign post
- Surface – eg. cement, metal, wood

Type of Graffiti

- No. of Tags
- No. of Throwups

- No. of Pieces
- No. of Murals
- No. of Messages
- Tag Content

Medium Used

- Aerosol
- Felt pens
- Scratching
- Crayon
- Chalk
- Finger
- Other

Lighting Conditions

- Fully lit
- Dimly lit
- No Lights

Visibility to the Public

- Highly visible
- Moderately visible
- Not visible
- Was target area cleaned before [wipe out]

Proximity to select land use

- Food Outlets
- Park
- Vacant Land
- Hotel/Pub
- Other outstanding feature

Overall Land Use

- Land use type – Land use classification

3. Analysis

Identifying graffiti hotspots address a complex of relationships constructed through space and place. Hotspots are defined as places where according to a variety of statistics the opportunities for certain forms of crime are highest [Grescoe, 1996; Hirschfield *et al*, 1995; Longley *et al*, 1999].

In this research graffiti audits conducted between 1998 and 2002, in the City and Aitkenvale suburbs were selected to identify hotspots. Legal art murals were excluded from this analysis since localities targeted in this research are the unauthorised graffiti only. Hotspots were identified as any individual location with a hit of 10 or more. This included tags, messages and all other types of graffiti excluding legal murals. These hotspots were then superimposed on a density distribution map of graffiti by census collectors districts [CD]. In the City for example, there are 10 CDs with 1-10 hits and 2 CDs with 151 and 176 hits [Fig.1.2] , in contrast Aitkenvale has 7 CDs with 1-10 hits and 1 CD containing 170 hits [Fig. 1.3].

Field audits conducted by the Townsville City Council [TCC] and mapped by the digital data base over the period 1998 –2000 tally very closely with the results of this research. The dot distribution on these maps show very high densities in the suburbs of Aitkenvale and the City compared with the rest of Townsville.

3.1 A Comparative Study of Hotspots

3.1.1 Land Use

The analysis of the graffiti audits revealed the most frequently graffitied land use types differed between the two study areas as illustrated in Figs. 2.1 & 2.2 [Appendix 2]. In the City 77 % of the graffiti was found in commercial land use while in Aitkenvale the incidences were more evenly distributed among residential [21%], open space [20%], commercial [19%] and light industry [19%].

3.1.2 Locality

Locality as a select variable illustrates which particular spaces are targeted by graffitists. Within the City [Fig. 2.3], commercial buildings had more than a third of the total hits [36.2%] followed by Parks [12.8%] and then vacant buildings and Malls both following on with 10.6% each. In Aitkenvale, on the other hand both parks/sporting grounds and footpaths each sustained 23.7% of the total hotspots [Fig. 2.4], followed by vacant buildings [18.4%] and then commercial buildings [13.2%].

The diversity of targets in Aitkenvale is directly related to the diversity in its land use pattern referred to previously. In a predominantly residential suburb youths find more opportunity to congregate in open spaces like parks and sporting grounds. In Aitkenvale the location of a popular sporting ground combined with a park has attracted many graffitists to its precincts and surrounding spaces. An adjacent school has always been a common target and continues to be so. Footpaths as hotspots have a high occurrence in Aitkenvale since a number of electricCity poles were targeted at the time. The incidence may have been one tag per pole but the proliferation of these tags on a number of poles contribute to them being classified as hotspots in this study. Also footpaths bordering the river are target hotspots in this suburb as elsewhere.

3.1.3 Structure

Information on surface features are useful to locate the specific part of the building or urban landscape on which the graffiti occurred. Doors [18.9%] on buildings were the most common target in the City followed by building walls and road signs with 13.5% each. Other significant structures targeted were telephone booths [8.1%], pylons/supporting beams [8.1%] and curbstones [8.1%]. In Aitkenvale more than one-fourth of the structures affected were building walls [26.3%], followed by metre boxes [18.4%]. The latter were located mainly on footpaths.

3.1.4 Surface

Surface refers to the type of construction of the structure and useful to identify since certain surfaces are more prone to graffiti than others. Graffitiists are aware of the different surfaces and enjoy working with surfaces that absorb the medium used [eg. Aerosol paint] and do not smudge or dribble. From this point of view, in the City the most popular surface targeted was concrete/cement [29.8%] which were mainly on building walls and pillars. Metal [21.3%] was the next most popular [21.3%] followed by wooden surfaces [17.3%] and then glass/perpex [14.9%]. Interestingly these were the same high incidence surfaces recorded for Aitkenvale, although not identical in hierarchy. In Aitkenvale wooden surfaces [36.8%] appeared to dominate the targets possibly related to doors on buildings, park benches and tables. Metal [21.1%] had the next highest occurrence, connected to the targeting of water pipes in this area and then concrete/cement [18.4%], followed by glass/perpex [7.9%] related to telephone boxes and shop windows.

3.1.5 Previously Graffitied

In the City audit [2001] a record was made whether the surface was previously graffitied or not. An overwhelming 73% of the locations did not appear to have been cleaned previously. In other words these were fresh graffiti targets or the area had been graffitied before and the resurrection was so good that it left no trace of previous graffiti?

3.1.6 Medium Used

Graffitiists use many different tools to make their mark. This section examines in detail the impact of the dominant medium used in each study area. The most common medium used in the City was *aerosol paint* [28.6%], followed closely by scratching/etchings [20.8%] and finger [11.8%] and house paint [11.8%] [Fig. 2.5]. The graffitiists operating in the City and using aerosol paints most commonly targeted buildings [50%] and parks [40%]. They aimed at the easy access of walls and preferred the cement/concrete surfaces. Tags numbered between 1-20 at these localities and there were up to 10 messages, particularly in the parks where play equipment and trees were a common target. Visibility was medium [60%] and 95% of these locations were dimly lit.

In contrast to the City, the hotspots within the predominantly residential suburb of Aitkenvale was targeted more by *felt-tip pen graffiti* [60%] than aerosol graffiti [16%] [Fig.2.6]. Although, on 53.8% of these occasions felt-tip pens were used together with aerosol paint, as an accompanying medium. 69.2 % of these graffitiists operated in parks with a further 23.1% operating along footpaths and another 19.2% in vacant building/vacant lots. Metre boxes on footpaths were the more popular [26.9%] target followed by building walls [23%] with felt tip pen graffiti. Likewise metal [46.2%] and concrete [30.8%] surfaces were popular. Tags at individual hotspots varied between 10 and 80+. However it must be noted that in Aitkenvale there were a large number of messages and these were counted together with tags in the 1998 survey. There were also 1-3 throwups and pieces at individual hotspots. In half of the hotspots using felt tip pens, the lighting conditions were very poor or nonexistent, which meant most of these graffitiists would be operating in the daylight writing their tags or quick messages. In this context felt-tip pen graffiti would proliferate on metre boxes and concrete walls. The structures most affected therefore were walls [26.3%] followed by metre boxes [18.4%]. This clearly indicates that even though the medium used in writing graffiti varied between the two study areas the graffitiists optimised on the presence of walls as their canvas. While visibility of tags using aerosol paints in the City were highly visible to moderately visible, in Aitkenvale the visibility with felt tip pens dropped to moderate & not visible. This visibility has an influence on the operating medium, the more visible graffiti using aerosol paint rather than felt-tip pens.

It is clear from this research that the nature of the graffiti operation is reflected in the underlying locality, structures, surfaces and the medium used. Identifying these attributes within a location is relevant to anti-graffiti strategies in place.

3.1.7 Lighting Conditions

The lighting conditions are relevant to the operating times of the graffiti artists. They operate mainly in the dark in commercial localities after business hours. But in parks and footpaths there is a greater likelihood they operate during the daytime and using felt-tip pens rather than aerosol cans for convenience of operation during the day. Overall in the two study areas the lighting conditions where the hotspots occurred varied from 70% being dimly lit in the City, to 52% of hotspots in Aitkenvale occurring where there was no lighting at all. In comparison the City had only 5% of its graffiti occurrences in areas of no lighting.

3.1.8 Proximity to Landmarks

It has been noted in previous research [Ferrel, 1993] that graffiti artists operate in close proximity to certain land use types and localities. For the purpose of this study proximity to land use types were measured in terms of food outlets, parks, vacant land/lot, hotel/pub and railway yards. Food outlets like McDonalds and Seven to Seven or IGA are common places where youths hangout. In terms of the City hotspots a considerable proportion of the occurrences were in close proximity to Parks [43.8%], particularly Hanran Park bordering the Ross River was a high target area. Vacant land /lots [24.7%] were also popular at the time of the survey [2001] since there was much reconstruction and development progressing within the City.

In Aitkenvale too, proximity to parks [38.9%] and food outlets [33.3%] was seen as a significant contributor to the prevalence of graffiti hot spots. Vacant land/lot comprised 27.8% of the total recordings and contributed to the formation of hotspots.

3.2 Focus on Hotspots

The above analysis of hotspots focuses on specific structural features of certain pro-graffiti locations. In mapping hotspots first density of graffiti was calculated based on the actual records for a particular collection district over the total audit periods. The hotspots were then been superimposed on these maps - City [2001] Aitkenvale [1998]. The maximum number of records available determined the choice of individual years for mapping hotspots for a particular year.

The underlying density in the City [Fig 1.2] denotes occurrence of graffiti was highest [151 to 176 hits] in the main commercial district East of the City Mall. At the time of the survey this area comprised the older commercial area with several buildings in disrepair, vacant lots, car yards, the cinemas and the railway yards. In contrast the revamped City Mall and more recently refurbished shops in the inner City including the newly developed Strand had a slightly lower density of graffiti [101 to 150 hits] during the audit periods. Densities of less than 30 hits were found in the more residential areas of the City and had no hotspots recorded.

The presence of large areas of parkland [Hanran Park, Central Park, Dean Park, Perfumed Garden] within and in close proximity to the City appears to have an effect on the burgeoning of graffiti. This was particularly so in the City Mall and the very vulnerable Ogden Street where urban design is conducive to graffiti. Ogden Street is narrow with a number of shops having its rear entrances facing this street. The design of the doors is such that they are tucked into the building with little or no lighting at night fostering easy access and invisibility to the graffiti artists. Also at the time of the survey, most of these shops were not well maintained at the rear, encouraging further hits.

Other common target areas in the City were in the numerous parking lots, the railway yards and nearby alleyways with easy access and dim or no lighting. Eating outlets like McDonalds are common meeting points for youths. Long drawn out scratches along the shop windows in proximity to Mc Donalds [along Denham Street] were clear evidence of the path travelled by youth. The hotspots on the Strand were also associated with areas that youth congregated for socialising and recreation.

While the distribution of hotspots in the City were linear and mainly located on major access roads [Fig.1.2], the distribution in Aitkenvale was more spreadout [Fig.1.3]. The highest densities of 101 to 170 records were found along a major arterial road [Ross River Road] and adjacent to a major shopping complex [Stockland Nathan Plaza]. At the time of the survey there was heavy tagging inside the car park of the shopping centre and on walls, pathways, curb stones and even landscaped trees. Shopping centres are a high target area for graffiti and will always remain a problem locality owing to the nature of business conducted within the building. The next highest densities corresponded with proximity to parks [Illich Park, Aitkenvale Park] and light industrial/commercial land use in this area. Aitkenvale also has several schools in the vicinity, it hosts a popular sporting ground, youth clubs [Scouts, Girl Guides, PCYC] and a library which are largely youth oriented. Other heavily targeted areas were located along the paths adjacent to Ross River and underneath the bridge

A good example of the proliferation of graffiti resulting from an access bridge opening up at a former footbridge is evident at Aplins Weir Bridge in Annandale /Mundingburra. Despite repeated wipe outs and surveillance this locality is a high target area owing to its aspect with heavy youth traffic accompanied by open space adjacent to parks and sporting grounds and a suitable interface in the predominantly cement and concrete surfaces that abound.

Another design feature which is targeted by graffiti is the pedestrian subway [not necessarily located in the study areas]. Despite attempts by the local council to decorate subways with murals these are constantly graffitied. Therefore design features should be incorporated by lowering or elevating road levels to allow pedestrian movement at grade. Where pedestrian subways are absolutely essential they should be wide and short and readily supervised by passing traffic and pedestrians [Poyner, 1983].

Some of the newer apartment buildings constructed in the Inner City areas of urban landscapes are now heavily fortified and bombarded with surveillance for purposes of security. Oscar Newman warns in his *Defensible Space* [1972] the non-effectiveness of target hardening and physical security measures of the fortress City.

In summary to deter graffiti urban design needs to be changed. Design features must be incorporated to improve external lighting, reduce anonymous open spaces, reset windows for greater surveillance, and doors must not be tucked into the buildings. While modifying the physical environment [urban design] may assist in deterring graffiti in the short run, the long term solutions lie in addressing the human dimension [section 3].

3.3 Time Series Analysis

Time Series data was used to analyse further the effect of structural features of the physical environment on specific locations and the methodology adopted is discussed below.

3.3.1 Time Series Data 1999-2002 [City]

Regular graffiti audits are most useful to measure change over time. It must also be noted that graffiti is recorded in a moment of time. If the auditing was done during school holidays for example, the count will be higher than during school term. Fortunately all the audits done in this research were at the same time of the year and during school term.

The data collected was analysed in three parts.

- Part 1 – *All data* records [legal and unauthorised] for all characteristics recorded – eg. Locality, structure, lighting etc.
- Part 2 – Same analysis as Part 1, but only for *unauthorised* graffiti.
- Part 3 – *Major Locality* types are cross tabulated with other characteristics.

In the context of this study it is important to note that the Townsville City Council's Graffiti Action Plan [GAP] was introduced in 1998 and took effect on the graffiti scene around 2001 with major reductions recorded in 2002 [Tables 3.2a – 3.2c, Appendix3]. As an immediate reaction to the introduction of GAP there was an increase in graffiti between 1999 and 2001 in the City, followed by a significant decrease in 2002. Individual percentage decreases for each locality classification is indicated in Table 3.2c. Percentage variation over the years is illustrated in Table 3.2b.

The analysis indicates the predominant target of graffiti is specifically commercial building. Buildings are a common target owing to the accommodating space available on structures such as walls, doors and windows to operate on supported by the non-slippery, paint absorbing concrete or cement surfaces.

Of all the graffiti documented over the three years, 1999–2002, 40.2% targeted all forms of buildings listed, followed by footpaths [23.4%], vacant buildings/vacant lots [16.3%], car parks [7.6%], sporting grounds/parks [6.1%], laneway/easement [2.8%] and under-passes/bridges [0.7%] [Table 3.2b]. Whilst overall there was a general decline in graffiti between 2001 and 2002, parks showed no change [Table 3.2a]. However, in terms of total hits between 2001 and 2002, there was an increase from 7.5% to 10.7% [Table 3.2b]. Therefore the location and design of parks in particular should be taken into account in urban landscaping.

The City Mall is a common target for graffiti and if records were accurately tallied would have a higher percentage hit recorded. Unfortunately due to a misinterpretation in recording, some of the incidents, which should have been attributed to the Mall in totality, were documented under footpaths and other types of building classifications.

Jameson used the term 'hyperspace' to refer to a type of architecture, and City form, considered typical of post modernity and associated with the construction of Malls. This type of building completely ignored the rest of the City. They created their own separate and self-contained space, "a complete world, a kind of miniature City" as described by Jameson [1991:22]. Empirical studies [Dean, H. and Taylor-Gooby, P. 1992; Featherstone, M. 1991] supporting this view observe that the morphology of cities have been restructured in order to accommodate social schism and inequity rather than assimilate and integrate dissimilar groups. This is a prime cause for the increasing prevalence of graffiti in public spaces such as Malls. The presence of disparate groups inculcates fear in the community and leads to other types of crime. Larger the City greater the likelihood of social polarisation and inequality. In the design of Malls the 'hyperspace' environment needs to be replaced by more open spaces that encourage greater integration and activity spaces to incorporate the diverse segments of the community.

Assessing the changing effect of graffiti on structures, two classifications stand alone as having increased between 2001 and 2002. Graffiti on benches and picnic tables increased from 13.3% to 53.3%, and on power poles/light poles increased from 28.8% to 40.4%. A nominal increase of graffiti on wooden surfaces [Table 4] was noted corresponding to the increase on benches and picnic tables stated above.

Table 3.5 focuses specifically on *commercial/service buildings* as a locality and data is cross tabulated with surface classifications to assess the interaction with each classification type over a series of years. This method is a useful to monitor the predominant surface graffitied in a locality and the option to change that surface.

Environments have the capacity to foster and facilitate certain types of behaviour and hinder or impede others. It is therefore important to understand the relationship between design and management in reducing crime and anti-social behaviour. Appropriate management is required depending on the particular characteristics of individual hotspots.

There are several strategies in place for urban design as illustrated in Crime Prevention Through Environmental Design (CPTED) [Poyner,1983:10] CPTED is about examining the relationship between environmental and design factors and reducing the opportunities for crime. Much research has also been carried out on Situational Crime Prevention [SCP] [Clarke, 1997]. Whilst this research supports a similar thesis, that alone will not solve the problem. To resolve the issue more effectively it is important to examine the human dimension or the underlying social characteristics of the environment.

3.4 The Human Dimension

Whelan and Begg [2001] defined crime prevention as “any act that prevents crime from occurring” and said “...crime prevention is not defined by its intensions but by its consequences”. They believed issues such as family dysfunction, unemployment and economic disadvantage, influenced crime. Therefore to minimise the risk factors these issues need to be addressed.

Others found public graffiti in urban areas was associated with lower socio-economic status and inner City youths aged mainly between 10 and 19 years [Ferrell, 1993a, 1993b, 1995; Grant,1996; Lachmann,1998; Melhorn & Romig,1985]. But it has also been said [Lasley,1995; Walsh, 1996] that the contemporary graffitists can be of any age, sex or socio-economic status. Whilst the latter is true of those graffitists that have moved on from tagging to murals, the majority of unauthorised graffiti, particularly in regional centres as in this study, reflect the social environment of the neighbourhood.

The contemporary graffitists operating in large cities and metropolitan regions belong to a wide spectrum of our society, varying in age [pre-teen to 40+] and socio-economic backgrounds. Their movement is facilitated by the convenience of public transport or their own modes of transport. Identification of the individual and their actions are more difficult owing to the larger youth population and the greater dispersion of their activity. In contrast in smaller regional centres like Townsville, the majority of unauthorised graffitists do not have the privilege of well established public transport networks and therefore tend to operate within a close radius from their residence. Even in larger metropolitan regions clusters of potential graffitists breed in the same localities because of similar interests and common demographic and socio-economic profiles. Graffiti is their way of physically demonstrating their rejection of the ideals and values placed upon them by their particular upbringing and culture and living in the same area promotes this culture [Walsh].

Some researchers [Collins, 1998] have recognised the relevance of cultural and social components of graffiti to management strategies. Others [Dawes, 1998] have referred to the importance of culturally significant behaviours in addressing youth issues.

This research discusses some of the techniques that can be used in identifying those cultural and social components in our society.

Public space impinges on social life and social space. Social space is the social production of the spaces within which social life takes place. The term derives from the writings of the French Marxist philosopher Henri Lefebvre [Merrifield, 1993; Kofman, E. and Lebas, E. 1996]. Graffitiists operate in a social space of their own making determined largely by the friction of distance. The majority of the taggers operating in smaller regional centres like Townsville, have low purchasing power and limited resources that restrict the distances travelled to achieve their objectives. Because of the combined effect of time and cost of overcoming distance graffitiists will therefore move within a radius of 2-3 km from their home and operate from familiar surroundings [Brantingham et al, 1981]. The only exception to this is when they congregate for social activities in places like the central business district [City] where there is a likelihood then that some would travel more than a distance of 3 km. Fig 1.4 denotes the 3km radius around the study areas [City, Aitkenvale]. This 3km radius was effective only when applied to residential suburbs and therefore its effect on Aitkenvale alone, is considered in this analysis

The concept Friction of Distance, explains the inhibiting effect of distance on the volume of human interactions [The Dictionary of Human Geography (2000)]. Shorter the distance greater the interaction of the graffitiists on a particular location. In contrast, buses and railway carriages in metropolitan cities are targeted by graffitiists because of well developed affordable transportation networks which contribute to an increase in the distance travelled by these graffitiists.

3.5 Socio-Economic Maps

Surrogate measures used in the analysis of social characteristics [human dimension] were selected from the Australian Bureau of Statistics, basic community profiles released for the 2001 census. The choice of variables was partially influenced by the availability of classified data. The selected variables include:

- males aged 12-18years
- one parent families
- rented dwellings.

14.6% of the population of Townsville are aged between 10 -19 years [2001 ABS Census of Population & Housing] and of this total 53.8%¹ live within a 3km radius from Aitkenvale.

Based on the existing research on crime, the average graffitiists [tagger] in Townsville, has an estimated age of between 12-18yrs. The implicit assumption here is that there is a greater likelihood that this sub population together with other coinciding variables, could foster breeding grounds for graffiti. According to Fig.1.5 some of the highest youth densities are located within the 3km radius from Aitkenvale and it is very likely that youth from these areas target Aitkenvale. The shopping centres, McDonalds, skate board shops, video shops, sporting grounds, the River, bridges and parks are all spaces that are used intensively by youth and familiarity with this landscape has the potential to trigger graffiti.

¹ includes the populations of Aitkenvale, Cranbrook, Heatley, Douglas, Gulliver, Mundingburra, Murray, Pimlico and Vincent.

Graffiti is a social issue related to lack of parental control, inadequate supervision of youth and often a social dilemma affecting a majority of one-parent families. In this context, the distribution of one-parent families are mapped as another surrogate measure of the human dimension – Fig.1.6. The highest densities once again coincide within the 3km radius of Aitkenvale with very high densities in some of the collectors districts within Vincent, Cranbrook, Heatley and Gulliver.

Socially it has been proved that areas with rented dwellings are more prone to criminal activity than other areas. In this context Fig 1.7 illustrates the distribution of dwellings rented from a housing authority. Some of the highest densities are located in the suburbs of Vincent, Currajong, Heatley and Aitkenvale, all within the 3 km radius. The presence of rented dwellings also signify the high mobility of the local population and the general non-allegiance of the people to the place they live in.

Other factors that contribute to the human dimension in the prevalence of graffiti and not discussed here are:

- the drop out rate of youth from schools
- rate of youth unemployment
- degree of influence of schools on youth behaviour
- availability of parental guidance and supervision

A combination of these variables can explain the ‘who’ factor of graffiti and can be achieved through more intensive research in this area. It is not within the scope of this paper to discuss in detail strategies to overcome the disadvantages in the social environment. But, for a greater understanding of the reasons why graffiti hotspots are generated in our environment there is a need to juxtapose the human environment with the physical. While modifying the urban design may contribute to reducing graffiti in the short run, in the long run it is more relevant that the social making of the environment be addressed.

4. Discussion

The prevalence of graffiti hotspots in our urban landscape clearly denotes there is a ‘message’ to the rest of society, irrespective of its mode of articulation. Youth need to express themselves as much as any other member in our society. Stifling their activity without providing an alternative will lead to dissention and more aggressive behaviour.

Therefore while it is important to maintain the aesthetics, comfort and the security of the urban landscape through appropriate urban design as discussed in this paper, it is important that society provides other opportunities for these messages to be conveyed.

Literature on crime has two schools of thought for crime prevention – those who favour ‘situational’ as opposed to ‘social’ crime [Barr et al.1990]. This study however, emphasises a balanced approach in that graffiti prevention should incorporate both situational [physical dimension] and social aspects [human dimension].

Environments have the capacity to foster and facilitate certain types of behaviour and hinder or impede others. It is therefore important to understand the relationship between design and management in reducing crime and anti-social behaviour. Appropriate management is required depending on the particular characteristics of individual hotspots.

It is believed the familial background, societal attitudes and individual circumstances trigger these activities. Graffitiists engage in these behaviour because they are asserting their identity, defying societal norms, reacting to a heartfelt feeling (need for love or company; anguish of abuse, discrimination), larrikinism and seeking adventure, the adrenalin rush and pleasures in risk taking and because it is cool to imitate their peers [Bandaranaike, 2001].

What are some possible strategies?

1. Develop and strengthen a sense of collective responsibility among all.
2. Engage in data collection and dissemination for a balanced approach to graffiti prevention.
3. The need to incorporate urban design together with underlying socio-demographic features of the operating population.
4. Partnerships with other departments such as Main Roads, Family Services, Aboriginal Affairs, to address some of the social issues related to graffitiists.

As Phil Crane [www.lgag.asn.au/...] puts it "The greatest challenge to Local Government is not in the responding to activity that is clearly illegal, but in responding to calls for intervention about behaviour that is considered annoying, anti-social or simply involves people who are seen as different and therefore misunderstood and perceived threatening."

Yet, local government cannot solve the long-term issues on its own. Townsville City Council for example has achieved much success in the very short period of just two years to control the spread of unauthorised graffiti. But to develop long-term solutions and address the issue at the grass roots level, greater partnership is required between State and Federal departments and the community. Community safety in public spaces should be protected at all times and not at the expense of any specific group, particularly those that have no avenues of spreading their message.

5. Conclusion

The focus of the research has been on the impact of the urban environment [both physical and human] on graffiti hotspots with an emphasis on formulating achievable measures for reducing graffiti hotspots in urban environments. This study provides guidelines to ensure that future building and streetscape designs address preventive strategies and become more aware of the changes in the contemporary making of our social environment for minimising the incidence of unauthorised graffiti and community fears about the safety of public areas.

The research findings reported in this paper illustrates the value of applying field and mapping techniques to assess graffiti hotspots specifically -

- The use of field audits in accessing specific characteristics on site.
- Utility of time series data and cross-classifications in preventative strategies.
- The use of census data and GIS mapping to identify the social dimension.
- The extension of this methodology to other urban areas confronted with graffiti

The results of this study support the call for incorporating the human dimension with the physical environmental information into graffiti management and decision making.

- New ways of conceiving place, space and society relations highlight bringing together the process through which the space is created and managed.
- Changes in urban design [physical environment] can influence the offender's decision or ability to commit graffiti at given places and given times.

- The danger of suppressing graffiti in one physical locality often deflect the activity elsewhere. Therefore the need to address the intervening social environment as well.
- The validity of the method adapted here in measuring the effectiveness of strategies in place.

It is hoped that the findings reported in this paper will encourage local councils to incorporate human dimensions information into decision-making, to improve the effectiveness of graffiti management policies and programs.

- This research concludes that urban planners need to be more conscious of changes in contemporary post modernist youth behaviour. Planning needs must be cognizant of both utility of place and changing behavioural patterns.
- Responses therefore, should be designed to suit the local situation, based on an analysis of the actual occurrence of the incidents of graffiti and its surrounding environment.

Place management strategies will vary from one City to another, from one locality to another. The consideration of demographic and socio-economic attributes of a population is vital in resolving the conflict between property managers and graffitiists. There is no ideal model for a graffiti prevention program. The "graffiti culture", like any other culture, presents itself in different forms, dependent on the social and cultural component of the local community, the distribution of cultural knowledge, the age of the culture and particularly, the presence or lack of an established graffiti hierarchy possessing experienced writers [graffitists]" (Collins, 1998).

Graffiti expresses a dialogue and transcript of its own by those deprived of other sources of expression. It occurs in a specific spatial context where opportunity prevails, and the choice of that space was a consequence of the prevailing physical and social environment at the time. Management strategies must address not just the shortcomings in the physical landscape but also those encompassing the social environment because we need to focus not just on the ubiquity of graffiti, but on the message as well.

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Appendix 1

Fig.1.1 : Location of Townsville LGA, 2001

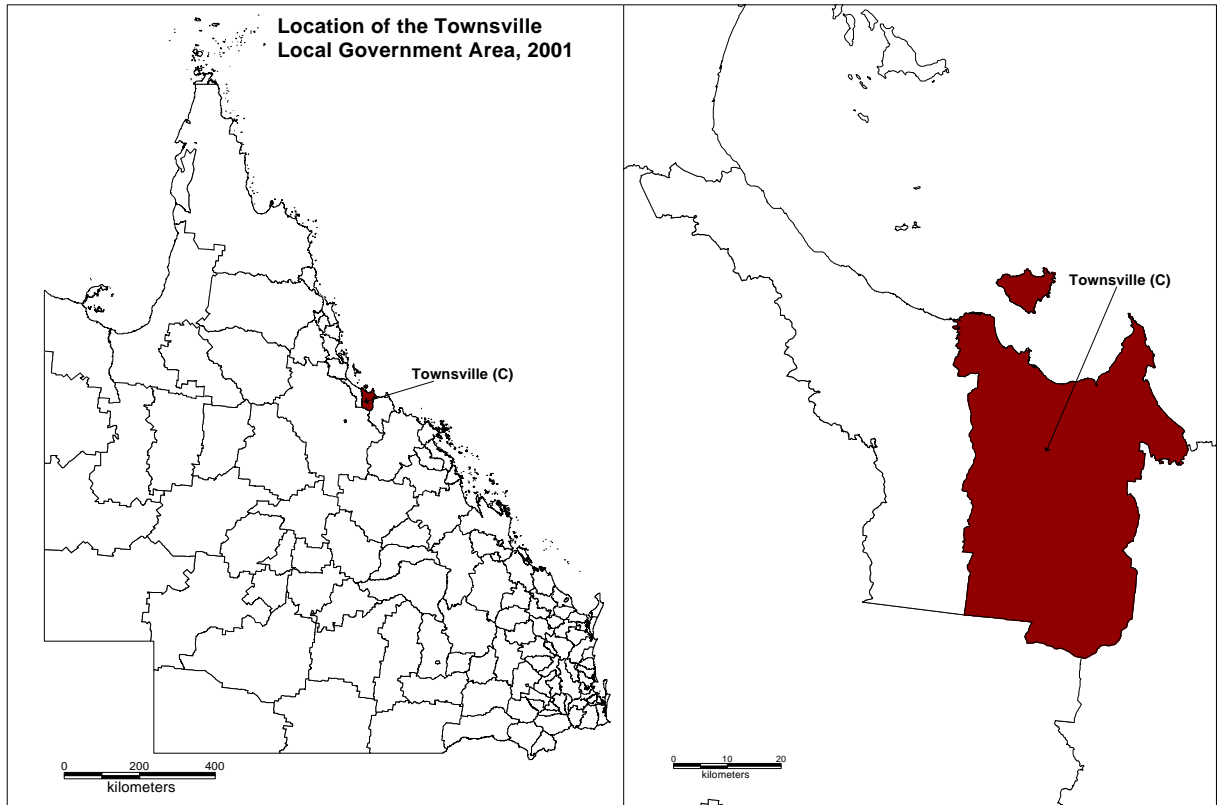
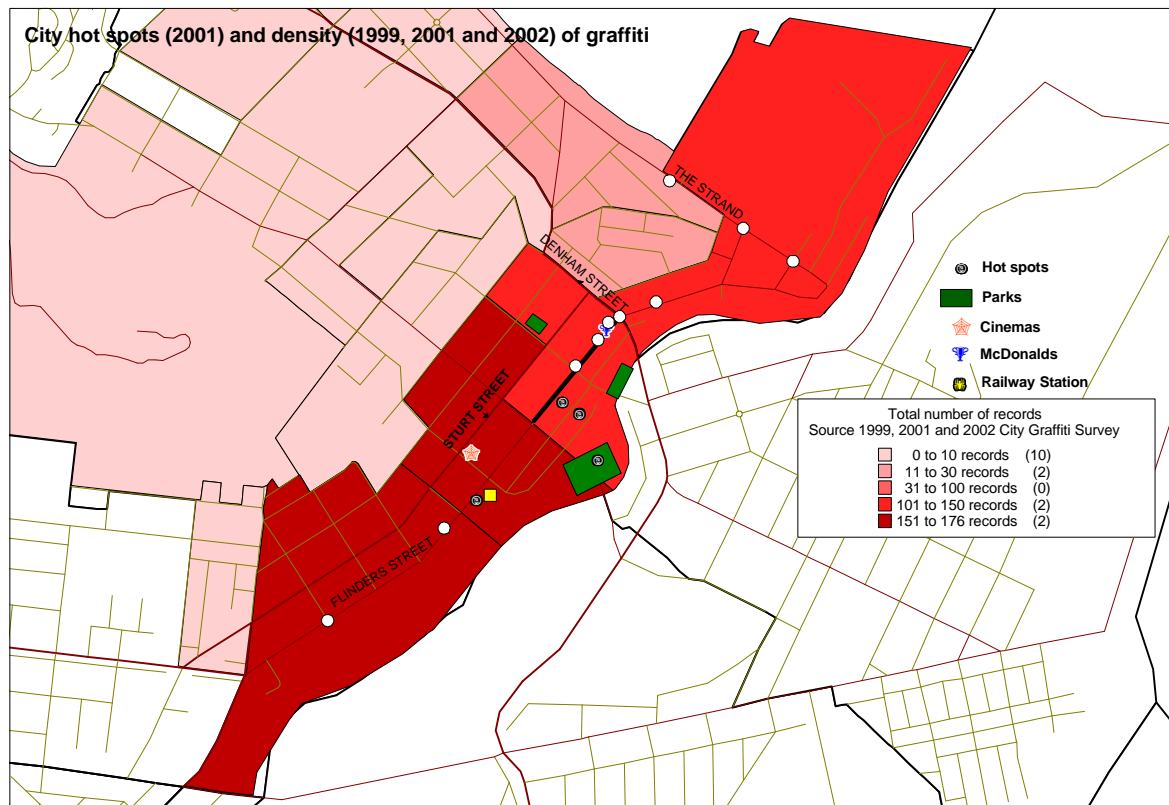


Fig. 1.2 : City Graffiti Hotspots and Density



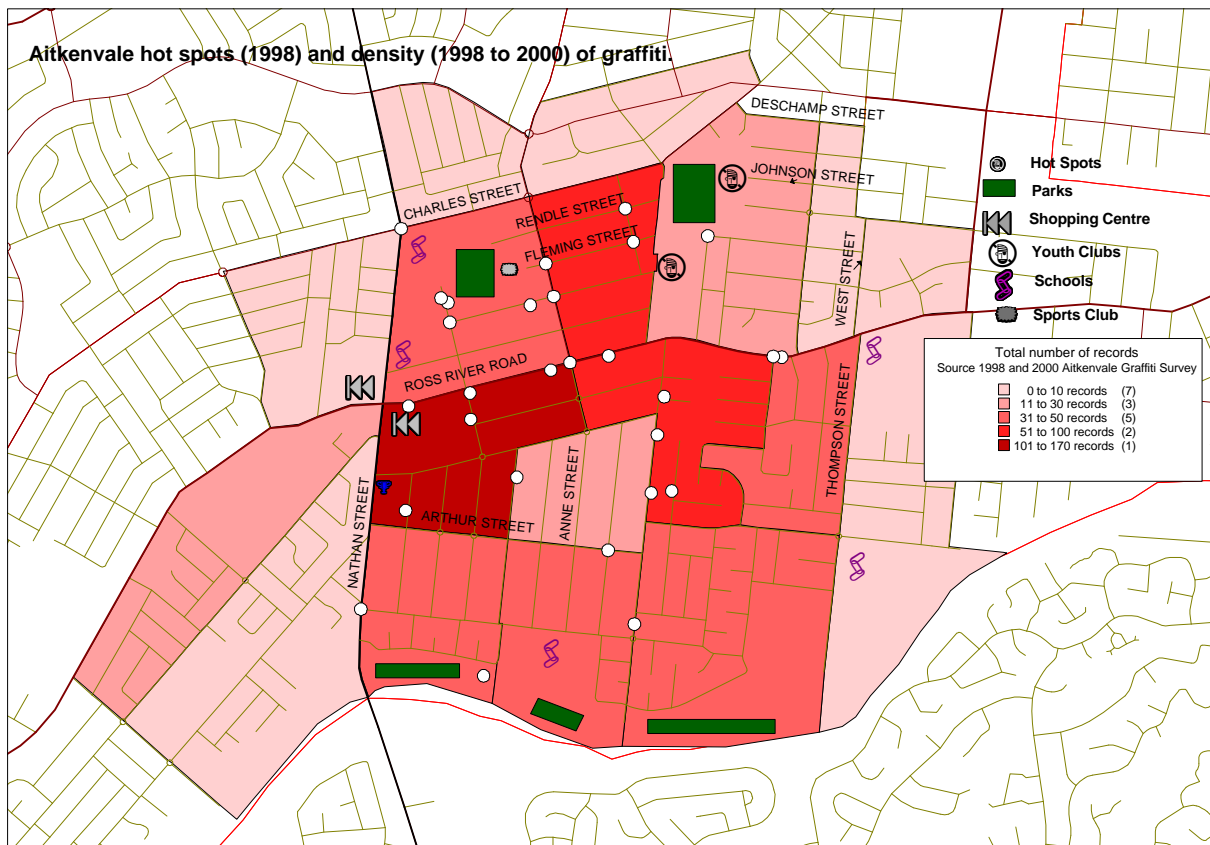
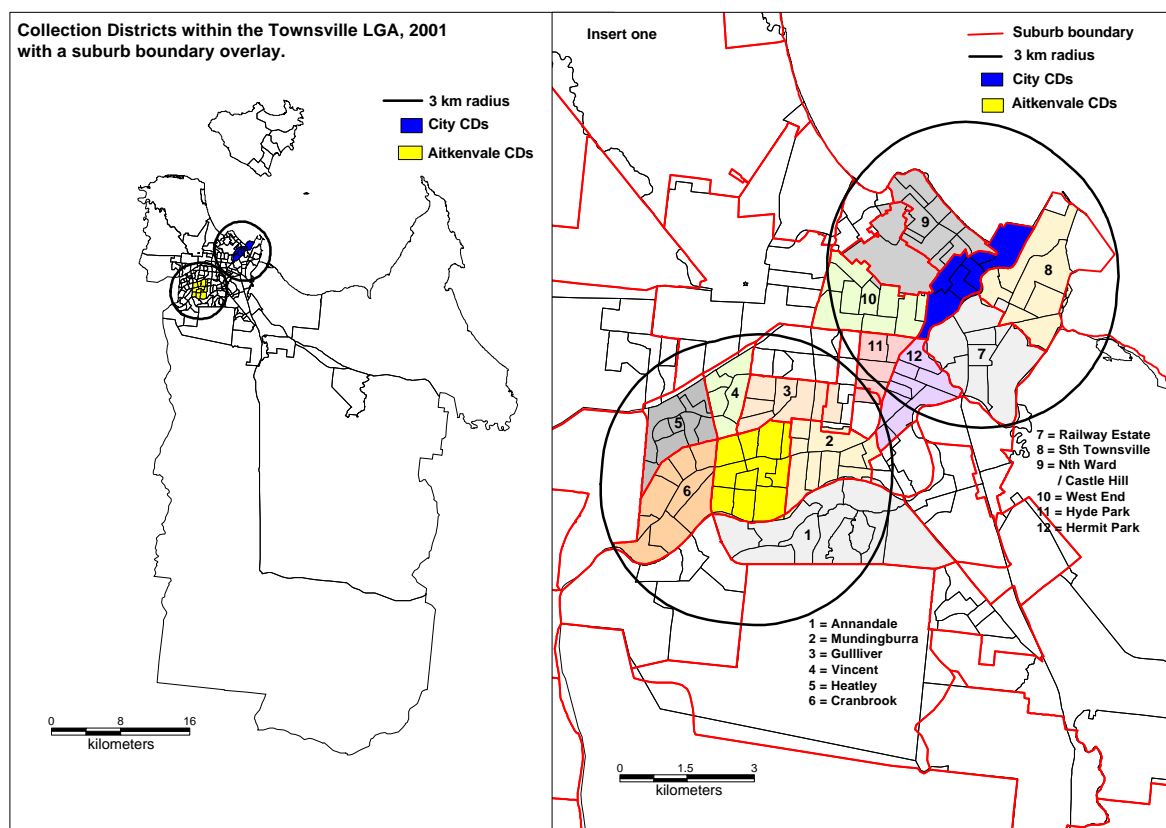


Fig. 1.4 : Three km radius from study sites – Aitkenvale & City



Total number of males aged 12 to 18 years by Collection District within the Townsville LGA, 2001.

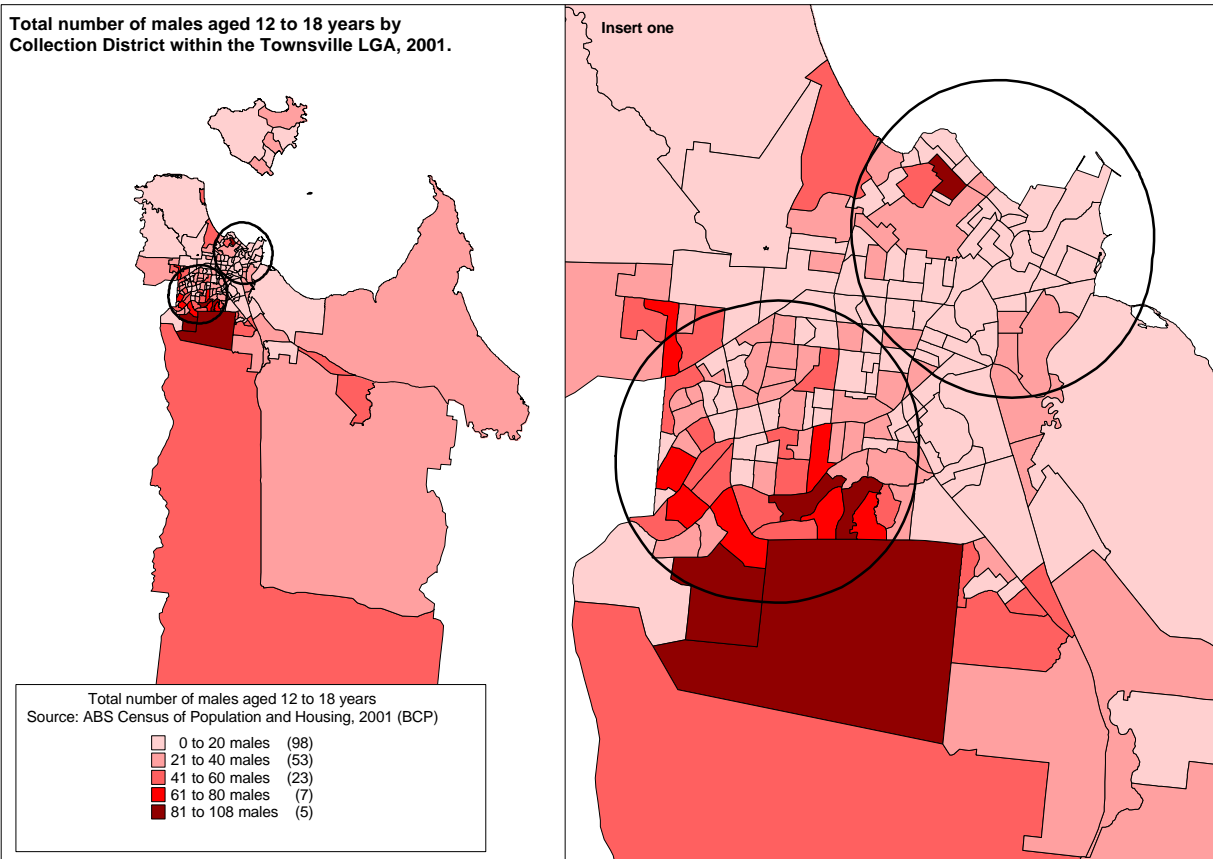


Fig. 1.6 : Population within three km radius, One Parent Families

Total number of one parent families by Collection District within the Townsville LGA, 2001.

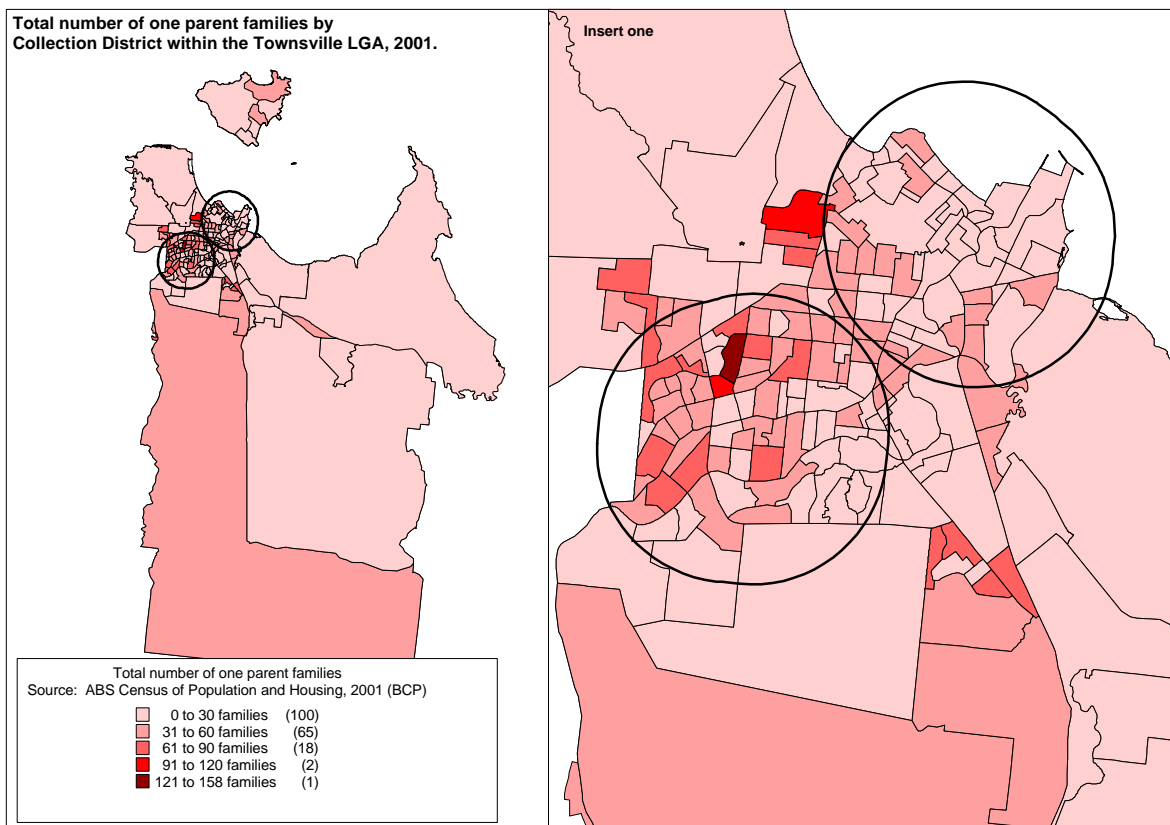
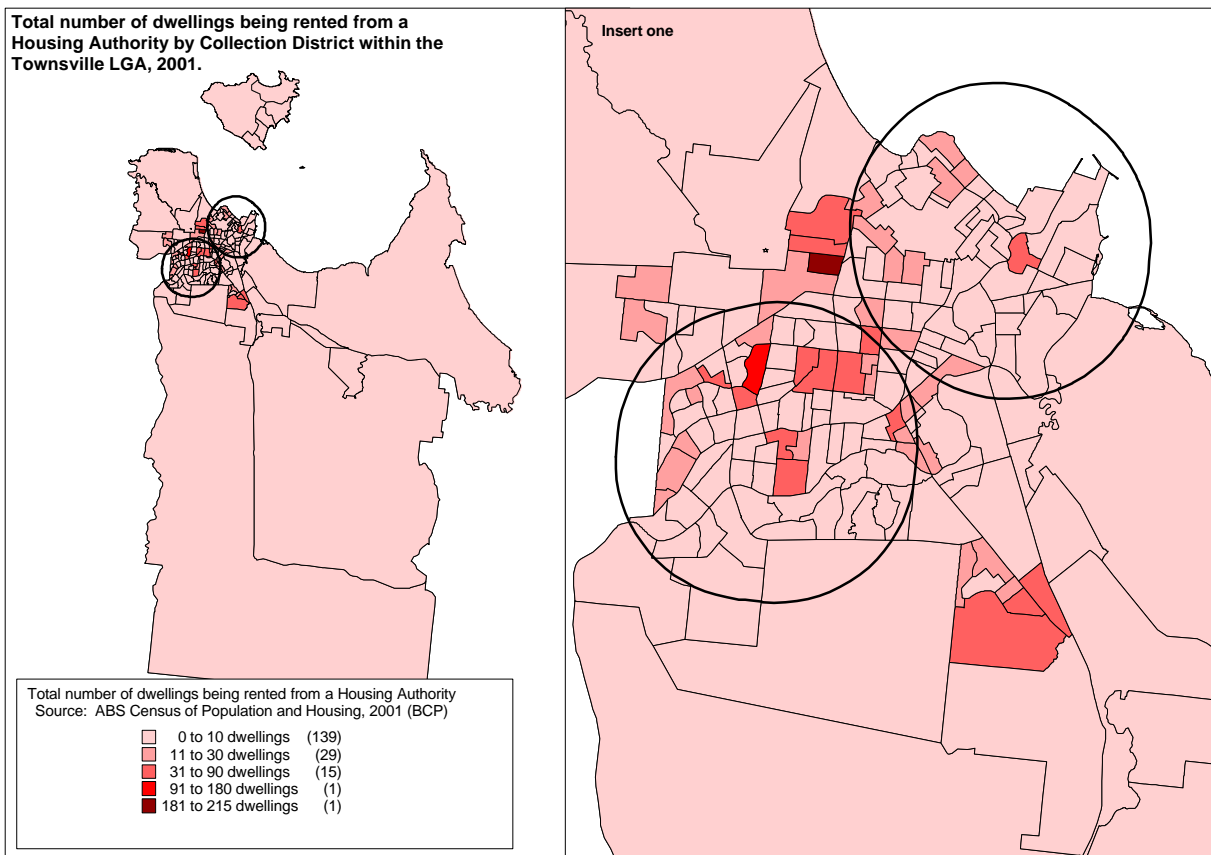


Fig. 1.7: Population within three km radius, Rented Dwellings [Housing Authority]



Appendix 2

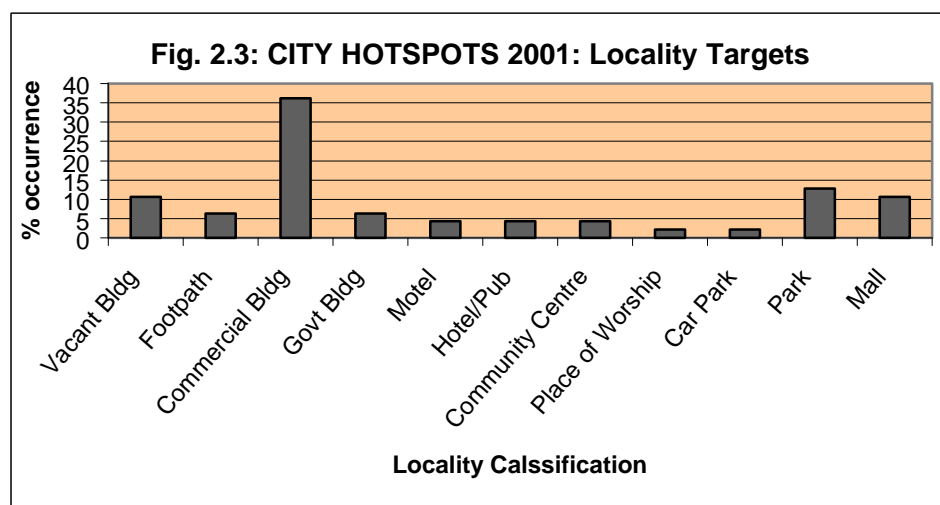
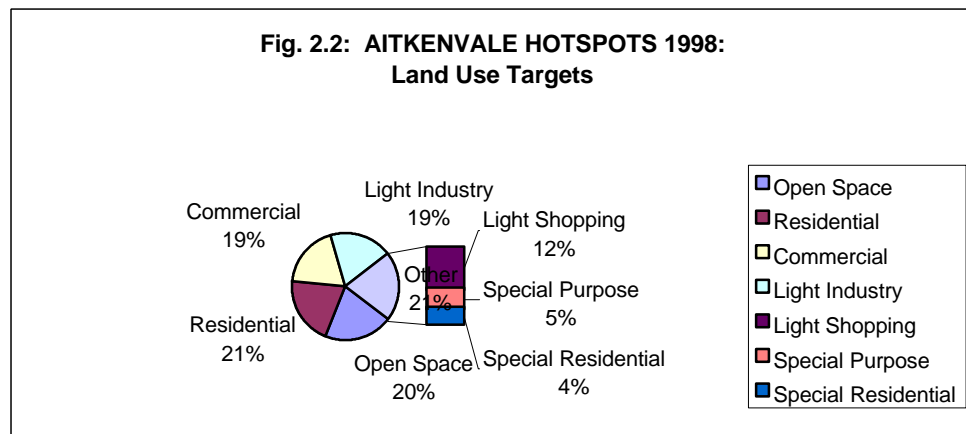
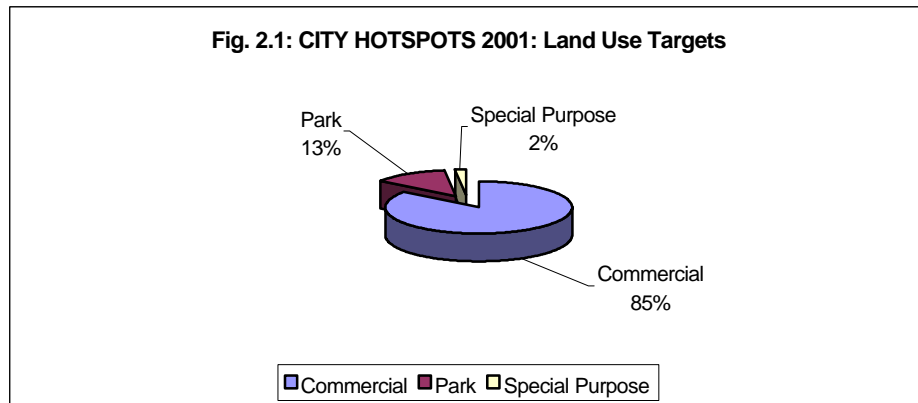


Fig. 2.4: AITKENVALE HOTSPOTS 1998 : Locality Targets

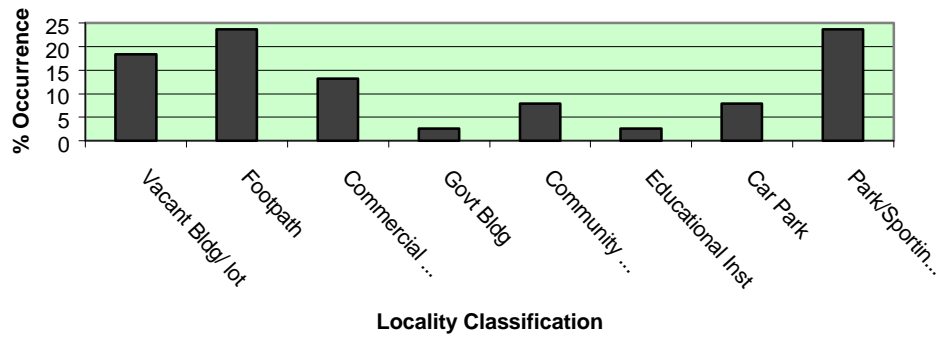


Fig. 2.5 CITY HOTSPOTS 2001: Medium Used

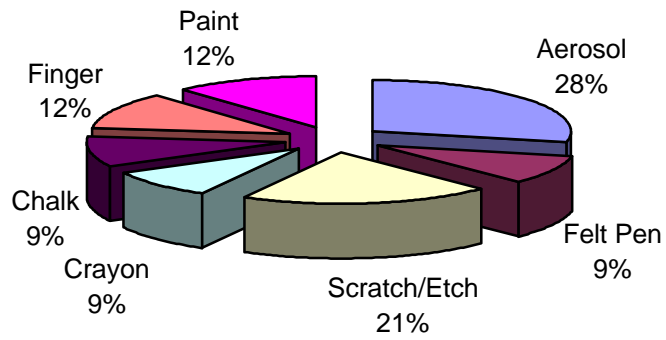
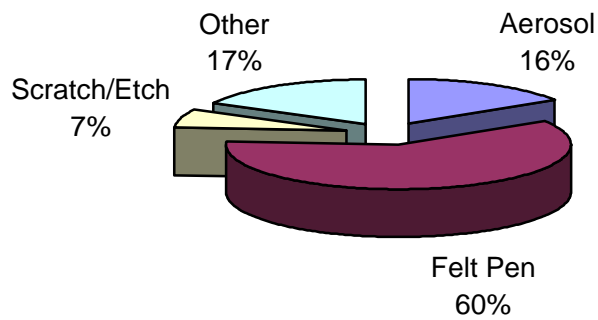


Fig.2.6 : AITKENVALE HOTSPOTS 1998 : Medium Used



Appendix 3

Fig.3.1 : Mapping Graffiti Audit : the City

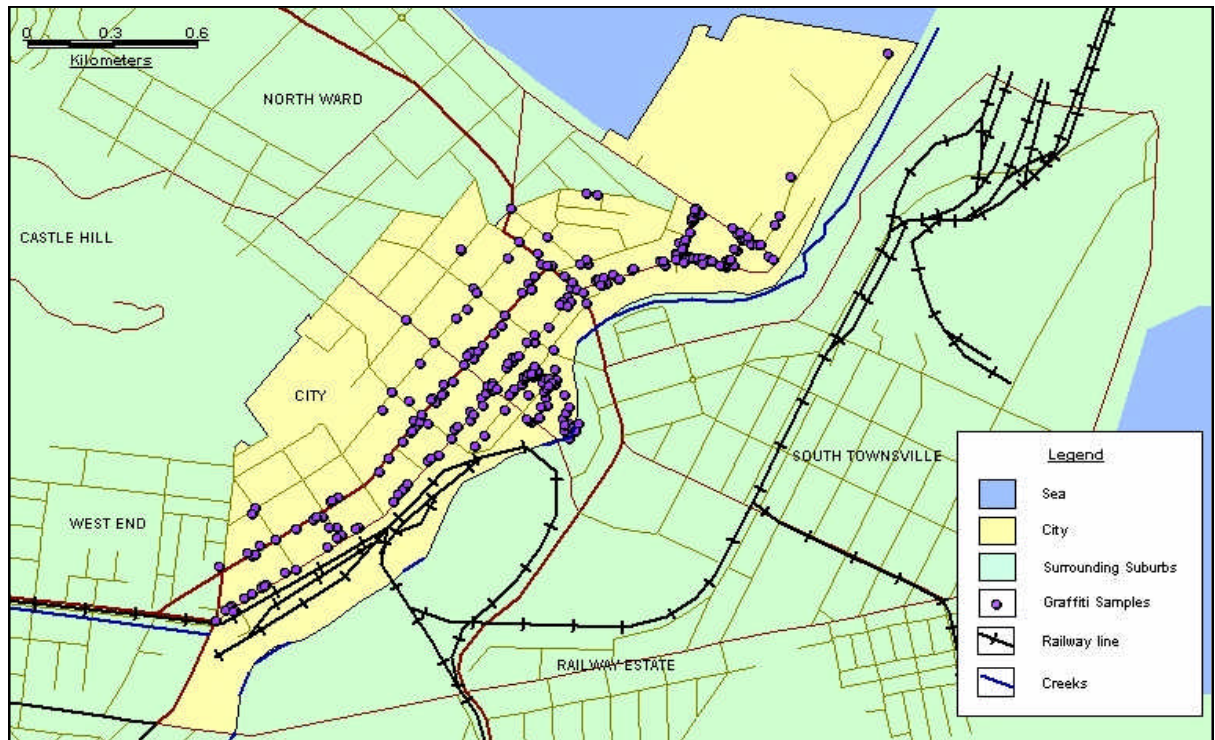
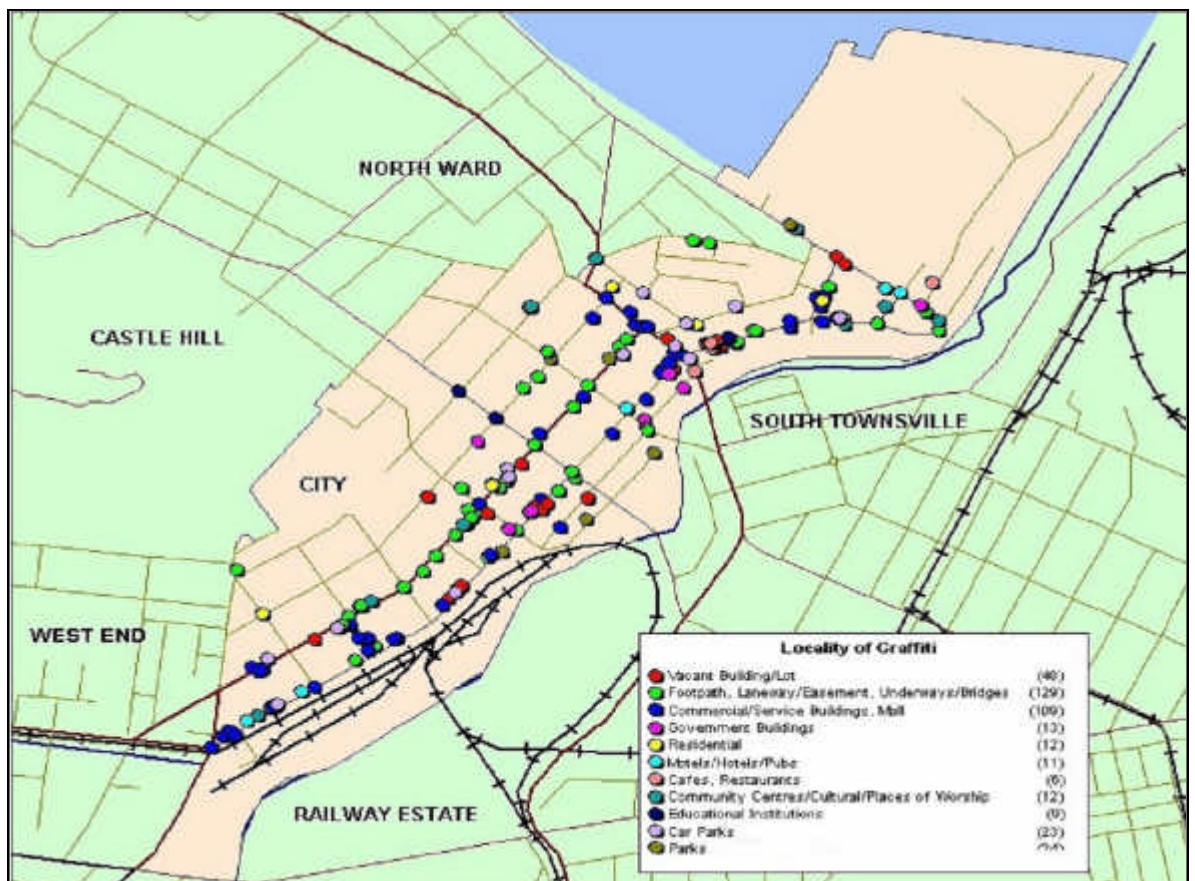


Fig. 3.2 : Classification by Locality Type



Please note: Sections Only of the original Tables are listed here for **demonstration** purposes. Some of the data is not displayed & therefore totals do not add up.

STAGE 1

Table 3.1: CI TY : Locality Classification of all graffiti records [Number]

Type of Locality	1999	2001	2002	Total
	-- number --			
Vacant Building / Vacant Lot	57	49	34	140
Footpath	62	118	101	281
Laneway / Easement	12	10	2	24
Under / Bridges	1	3	2	6
Commercial / Service Building	63	100	78	241
Government Building	14	13	7	34
Car Parks	30	24	17	71
Parks, Sporting Grounds	0	26	26	52
TOTAL	260	401	296	957

Source: 1999, 2001, 2002 City Graffiti Survey data collection [unpublished data].

STAGE 2

Table 3.2[a]: CITY : Locality Classification of unauthorised graffiti records only [number]

Type of Locality	1999	2001	2002	Total
	-- number --			
Vacant Building / Vacant Lot	56	45	34	135
Footpath	62	70	61	193
Laneway / Easement	12	10	1	23
Under / Bridges	1	3	2	6
Commercial / Service Building	62	91	67	220
Government Building	14	13	7	34
Residential – Private House	4	6	2	12
Car Parks	30	23	10	63
Parks, Sporting Grounds	0	25	25	50
TOTAL	258	335	233	826

Source: 1999, 2001, 2002 City Graffiti Survey data collection [unpublished data].

Table 3.2[b]: CITY : Locality Classification of unauthorised graffiti records only [percent]

Type of Locality	1999	2001	2002	Total
	-- per cent --			
Vacant Building / Vacant Lot	21.7	13.4	14.6	16.3
Footpath	24.0	20.9	26.2	23.4
Laneway / Easement	4.7	3.0	0.4	2.8
Under / Bridges	0.4	0.9	0.9	0.7
Commercial / Service Building	24.0	27.2	28.8	26.6
Government Building	5.4	3.9	3.0	4.1
Residential – Private House	1.6	1.8	0.9	1.5
Parks, Sporting Grounds	0.0	7.5	10.7	6.1
Mall (new category added from 2001)	n.a	2.7	3.4	2.1
Non record (a)	0.4	0.0	0.0	0.1
Not Stated	2.3	0.0	0.0	0.7
TOTAL	100.0	100.0	100.0	100.0

Source: 1999, 2001, 2002 City Graffiti Survey data collection [unpublished data].

Table 3.2[c]: CITY : Locality Classification of unauthorised graffiti records only [percent by locality]

Type of Locality	1999	2001	2002	Total
	-- per cent --			
Vacant Building / Vacant Lot	41.5	33.3	25.2	100.0
Footpath	32.1	36.3	31.6	100.0
Laneway / Easement	52.2	43.5	4.3	100.0
Under / Bridges	16.7	50.0	33.3	100.0
Commercial / Service Building	28.2	41.4	30.5	100.0
Government Building	41.2	38.2	20.6	100.0
Residential – Private House	33.3	50.0	16.7	100.0
Car Parks	47.6	36.5	15.9	100.0
Parks, Sporting Grounds	0.0	50.0	50.0	100.0
TOTAL	31.2	40.6	28.2	100.0

Source: 1999, 2001, 2002 City Graffiti Survey data collection [unpublished data].

Table 3.3 CITY : Structure Classification of unauthorised graffiti records only [percent by structure type]

Type of Structure	1999	2001	2002	Total
	-- per cent --			
Building wall	39.5	36.3	24.2	100.0
Retaining wall	20.9	41.9	37.2	100.0
Fence	21.1	50.0	28.9	100.0
Gate	33.3	50.0	16.7	100.0
Door	15.4	55.8	28.8	100.0
Window	32.5	40.0	27.5	100.0
Rubbish bin	24.0	52.0	24.0	100.0
Letter box	100.0	0.0	0.0	100.0
Australia Post box	0.0	0.0	100.0	100.0
TOTAL	31.2	40.6	28.2	100.0

Source: 1999, 2001 and 2002 City / North Ward Graffiti Survey data collection (unpublished data)

Table 3.4 CITY : Surface Classification of unauthorised graffiti records only [percent by surface type]

Type of Surface	1999	2001	2002	Total
	-- number --			
Glass / perspex	18	31	15	64
Wood	34	43	46	123
Concrete / cement	86	114	66	266
Plastic	14	19	10	43
Metal	53	58	49	160
Mirror	1	1	0	2
Chipboard	4	6	3	13

Source: 1999, 2001, 2002 City Graffiti Survey data collection [unpublished data].

STAGE 3

Table 3.5: CITY : Structure Classification of Commercial/Service Buildings [unauthorised graffiti only]

Type of Structure	1999	2001	2002	Total
	-- number --			
Building wall	46	59	45	150
Retaining wall	1	0	1	2
Fence	1	5	2	8
Gate	1	1	0	2
Door	2	13	8	23
Window	4	4	1	9
Rubbish bin	0	1	3	4
Letter box	1	0	0	1
Australia Post box	0	0	0	0
Meter box, switch box	2	1	1	4
Air conditioner	0	0	0	0
Telephone box	0	0	0	0
TOTAL	62	91	67	220

Source: 1999, 2001 and 2002 City / North Ward Graffiti Survey data collection (unpublished)