

Samuels, R. (1995), Design and Planning for Urban Safety and Security

Final Report, Department of Housing, NSW

1.0 EXECUTIVE SUMMARY

The research project reported here evaluated 8 Collector District (CD) areas of Warwick Farm, NSW, on behalf of the NSW Department of Housing, which is concerned with issues of security and lifestyle quality in its housing areas. An inter-agency approach was taken, and a multi-disciplinary steering committee was set up, including a consultant with expertise in Crime Prevention Through Environmental Design (CPTED) and situational/environmental criminology.

Initially the project was devised to evaluate and relate reported crime incidences and associated time/place settings. It was later extended to include user experiences, in terms of perceived fear, and victimisation experiences. The assumption was that residents in Warwick Farm would have an intimate knowledge of living (and working) in the area, and their insights would be invaluable as additions to the expertise brought to the project by the steering committee. The scope of the project was thus considerably expanded, and it was determined to consider the project as a pilot study, to test the methodology for future studies, as well as to evaluate the Warwick Farm area as closely as possible, given the limited resources available.

The CPTED principles underlying the approach taken in this project relate to Surveillability, Accessibility and Territoriality. Theoretical issues reviewed include: fear of crime, urban design and crime, housing and crime, neighbourhood quality and crime, and community and crime.

Issues relating to criminal perceptions and criminal victimisation are also briefly evaluated, and shortcomings of reported and/or recorded crime rates discussed.

A multi-methodological approach was taken. The recommendations, based on CPTED principles (to be further examined before being developed into a set of dynamic guidelines) are, similarly, multi-dimensional. The situational approach recognises that crimes are not random, and criminals take rational decisions. In other words, crime is specific - times,

places, targets and victims are associated with particular crimes. The essential paradigm of situational deterrence - that crime is setting-specific - is borne out by the findings.

The 'convergent' methods used to examine the urban/housing security issues ranged from:

- a Situational Experience Questionnaire (posted to Warwick Farm residents):
 - eliciting their perceptions of fear or sense of risk;
 - their recollections of victimisation experiences (including harassment events);
 - and their sense of security in specific places and at specific times (night or day).
- Situational Experience Maps were subsequently produced;
- a Neighbourhood Indicator (malaise and quality) walk-through (and mapping) of the area;
- the collection and mapping of Incidence of Recorded Police Crime statistics ¹, for 6 crimes
 - (3 property: vehicle theft, break/enter/steal and malicious damage
 - and 3 personal: assault, sexual assault and robbery);
 - Crime Rates for each of the above were also established, but were not mapped.
- A CPTED Evaluation (related to both user experience, and rates and incidence of recorded police crime data) of 3 general domains within each CD, and the Warwick Farm Station/tunnel domain; and of 4 micro-areas (plus photographic survey);
- Housing tenure and housing type mapping

Information from the above range of convergent methods was applied during the CPTED analysis.

¹ Incidence maps are based on the actual occurrence in specific places of recorded crimes (not reported crime, which may be different *ie* recorded crime does not include 'call-outs' where no action was taken). Rate maps are CD based *ie* are generalisations reflecting the proportion of crimes recorded per population density of each Collector District.

All maps were produced using the Computer-Aided Design (CAD) system MicroStations

A critique of the methodology includes issues relating to recorded crime rates, requirements for raised community awareness prior to questionnaire surveys, questionnaire design, difficulties associated with the CPTED analysis, and alternative methodologies which could supplement tactics used in this research, given the availability of resources.

All results are relative to the sample of respondents, and cannot be generalised. Nonetheless, the high incidence of fear and victimisation in the sample (84% and 63% respectively) suggests that even if the group is self-selected (and 60% female), the quality of their lifestyles leaves a lot to be desired, and some remedial action should eventually, and hopefully, be an ultimate outcome of this research.

Overall, the huge reserve land domain, 4 schools, railway open space and Pioneer Park generate a particular nature for the area which removes large tracts from the control of local people - where individual territoriality or communal defensibility potentials are all but non-existent.

Basic findings deriving from this project were the following:

* some areas have relatively high crime rates (ie proportional to population) but do not appear as problematic for this sample of respondents (CDs 906, 907 and particularly 910 - the high density, *privately* owned domains). CD 910 does feature, however, in victimisation experiences (and also has an assault rate several times higher than any other domain). CPTED evaluation suggests that high accessibility and low territoriality factors are implicated.

* After the station/tunnel area, CD 807 (the Hinkler st domain) is the area most feared, with the highest number of victimisation experiences; closely followed by CD 808 (the Mannix st domain). Both of these have concentrations of low density (and some medium density/walk-up) public housing, and both are subjected to the anti-social behaviours of youths and gangs, with alcohol and drugs as compounding problems. Design and behaviour relationships are not necessarily implicated here, but social/community issues seem to be.

One micro-domain (the housing straddling Hinkler Lane) - with particularly short sightlines and low surveillability potentials - was examined in more detail.

* A relatively high harassment incidence is evident in CD 809, which seems to be related to the nature of specific micro-domains such as the tunnel entrance, and the location of the Lawrence Hargraves School bordering dark reserve land and the railway line. Simultaneously, an allocation system mismatch (between lifecycle and lifestyle) - and consequently enhanced fear/victimisation experience - appears evident in a DoH housing block.

* Overall, CD 905 is perceived as safest (although a comparatively high rate of sexual assault is recorded there);

CD 806 is also perceived as secure. Here a stable, established community coincides with a cul-de-sac street design (not necessarily related). This domain, all things considered, would

appear to be the area with least problems. The location of the only pub in the area on its flank is its biggest problem, despite the fact that the rear of houses back onto the reserve land. It is the only area with double fencing on the reserve boundary.

* Sense of security at home (rather than in the neighbourhood) relates largely to building security and controlled accessibility issues; thereafter, to other people (good neighbours, and high levels of animation *ie* many people around).

* Sense of risk associated with the home relates largely to having inappropriate neighbours and youths colonising the streets; with building issues following in second place.

* Neighbourhood malaise and quality indicators occur throughout the area, as expected. Superficially, there do seem to be more quality indicators in areas that are also perceived by users as being safer (eg CDs 905 & 806), and more malaise indicators in those areas which respondents fear (CD 807, eg). British studies concur - but no analysis is undertaken here.

Rather than attempting to generate a set of guidelines at this juncture - (a series of longitudinal studies, in other DoH areas, will be first undertaken) - a list of design/planning CPTED principles has been proposed as a skeleton framework. Framework guiding principles for community responsibility, and involvement are also suggested, and include community patrols, maintenance/clean up programs to enhance civic pride, and, most importantly the notion of soft architecture.

Soft architecture is the antithesis of the image of the fortress environment which security hardware and hard materials convey (only glazing and lighting, both essential for surveillability, must be vandal-proofed). It is grounded in the notion that where local community members (including local youths) are involved in the decoration and adornment of their neighbourhood (with community and urban art co-ordinators providing the overall vision) they are more likely to develop a sense of belonging, of caring and preserving, and of defensibility - since they are actively included in the user-environment interaction, and are not excluded and marginalised.

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The primary goal of the research is to move towards understanding the interaction between people and the built environment, in order to be able to design buildings and places with a high degree of built-in crime prevention potential. Vital as it is, this is not the whole story. Community participation and responsibility is at least as important in the overall equation;

and socio-economic conditions and precursors can readily override the best laid plans. It is not the intention to consider social factors in this report, but their predominance in the formation of attitudes and in consequent behaviours cannot be stressed enough.

Ultimately, it is not only deterrence that is the goal, but the enhancement of life-quality. If design and management strategies can engender feelings of security, and people feel safe in their neighbourhoods - and behave accordingly, it is likely that neighbourhood ambience and image - the situational setting - will reflect this positive mood, rather than people being held hostage to fear.

2.0 INTRODUCTION

2.1 The aim of this research is to promote a better understanding of the relationship between environmental design and crime prevention. The objective is to establish criteria for the design of residential estates (with a high degree of inbuilt potential) to reduce criminal and delinquent activity. Equally, it is important that perceptions of the built environment lead to an improvement in the level of resident's sense of security and satisfaction, such that their lifestyle quality and use of their neighbourhood are enhanced. The development of a design policy guideline is the ultimate objective of the series of research programs envisaged, of which the research reported here is the first.

2.2 The rationale for the undertaking of this research is the understanding that the nature of the built environment can have an influence on the behaviour of people. Residents might be encouraged or discouraged from using their neighbourhood depending on how well lit, well maintained, and animated it is, *inter alia*. Similarly, individuals intent on committing a crime 'read' the environment, assess potential risks and rewards, and make calculations based on how residents are using the area.

It is recognised that the built environment does not cause behaviour to occur; however, the greater the potential defensibility built-into the physical fabric, the greater the likelihood that an area will be used appropriately. Likewise, the commitment of the community contributes significantly to a neighbourhood's character, whatever the nature of the physical environment. Where these integral factors coincide in space, the situational opportunities for harmony and security are maximised.

Given that this is the first study of its kind in Australia, it was decided to treat it as an extended pilot program, rather than to expect definitive measures and recommendations to emerge. Nonetheless, an attempt has been made to interpret findings as fully as possible, given the limited time and personnel resources available. Most importantly, the methodology

has been trialed, and evaluated, and can now be adapted for future studies with some confidence.

2.3 Methodology

The research techniques employed were an elaboration of the original outline proposal. The introduction of the user experience component, neighbourhood evaluation, and CPTED walkthrough techniques, as proposed by the consultant as complementary data required to begin to understand the complexity of people-place interactions, were accepted by the Steering Committee.

A similar study was currently being undertaken by the consultant, where a similar methodology was being developed. This allowed for the transference of the techniques to the Warwick Farm pilot study without undue delays and complications.

A multi-methodological approach was taken (see 4.0/Methodology) which took into account recorded crime statistics, user experiences, and expert evaluations.

2.4 The sample population for this study was the Warwick Farm community. Eight Collector Districts were evaluated, 4 above and 4 below the Hume Highway. A range of different housing types were included, and both private and public tenure properties. The total population in these 8 CD areas is about 4,225 individuals. 1,750 households were targeted. It is not known how many individuals live in each household, so the assumption was made that, on average, a maximum of one return from each could be anticipated. In the event, 161 valid responses were received, which represents a 9.2% response rate. This is low, but statistically a 10% sample is considered adequate. Nonetheless, future research should aim to increase this response rate as much as possible.

2.5 The research was appraised by an inter-agency Steering Committee on an on-going basis. 7 meetings were conducted between the consultant and members of the committee.

2.6 Further research is envisaged evaluating other Department of Housing (DoH) areas, with the ultimate aim of deriving patterns of relationships between physical and behavioural parameters, and developing a design guideline that can be included in the Urban Design Guidelines. The implementation of these guiding factors in the renewal of existing estates and the development of new housing areas should enhance the quality of life of DoH tenants living there.

2.7 Information transfer to DoH communities is envisaged as a means of enhancing the responsibility which these communities feel towards their neighbourhoods. Without this component the crime prevention potentials built into the environment are likely to remain as potentials.

3.0 LITERATURE REVIEW

3.1 Environmental Criminology and CPTED

Environmental Criminology is a development within preventative criminology that understands criminal events as the co-incidence of offenders, victims and targets, guardians and communities, within a spatial-temporal environmental context. Moreover, these localised dimensions are embedded within a global situational-opportunity context, which consists of cultural, social, economic, historical, genetic and personal precursors. Within this general model are two contemporary paradigms that help explain and locate criminal events - rational choice theory (Clarke and Cornish, 1985) and routine activity theory (Cohen and Felson, 1979).

Rational Choice theory sees criminal events as premeditated calculations made within the opportunity structure of specific settings *ie* as non-random, goal-oriented, planned behaviours. For instance, interpretations of environmental cues will suggest some places as good locations for criminal behaviour - dark alleys, good escape routes, soft targets, minimal presence of guardians/gatekeepers. Routine activity theory sees criminal events as the confluence of suitable targets/victims and motivated offenders in an appropriate time-space setting as a consequence of their lifestyles and patterns of behaviour. Paths of movement of both potential victims and offenders will tend to influence occurrences - being out late on a Saturday night, in the vicinity of a pub, for instance, increases the likelihood of being victimised. Similarly, unattended residences or cars represent a routine behavioural pattern that is 'criminogenic' *ie* can be capitalised upon by motivated offenders.

Situational crime prevention, thus, is an approach which relies on reducing opportunities for crime, by manipulating the physical and community environment to increase the effort required and the risks (real and perceived), and to reduce rewards, and enhance a community's sense of responsibility.

Crime Prevention Through Environmental Design might be considered as the application of such principles in the built environment, the three fundamental CPTED facets being surveillability, accessibility and territoriality. Surveillability is the ability to see and be seen - and thus implicates orientation of buildings, windows and entrances, street design, and so on (and must be sensitively implemented in order not to simultaneously destroy privacy). The possibility of being observed while committing a crime thus increases the risks associated with committing a crime, and should logically reduce incentives accordingly ². Accessibility is the control of access and egress, and includes issues such as use of security hardware for target hardening, manipulation of the occupancy factor (presence of people x vacancy), and management of entrances and exits as deterrents *ie* accessibility control increases the effort required to commit a crime. Territoriality includes community and neighbourhood management to enhance the appropriation of places, images/labelling/decoration of places to suggest ownership of or responsibility for place, use of symbolic boundaries, urban legibility and so on. The notion of defensible space (Newman, 1972) is embedded within CPTED, as is the issue of urban design and management for community interaction and natural surveillance (Jacobs, 1961).

3.2 People-Place Model

Architectural and Urban Form *do not cause behaviour* (in a deterministic sense), but can increase or decrease the likelihood of behaviours occurring. It is not enough to examine design features alone. We must understand how people perceive or interpret the meanings embodied in such places.

Social ecological analyses of crime have consistently indicated higher rates of crime in inner city/low socio-economic status/high social disorganisation urban areas/ and public housing areas, which are taken to be indicators of ecological pressures on behaviour. However, such pressures do not produce the same effect on all individuals; *and* ecological analyses do not provide predictors of which individuals are most likely

² All site plans for new developments should be subjected to a surveillability analysis

to become criminals, or where criminals live, or where precisely they commit their offences.

High crime rates in Central Business District (CBD) areas, for instance, are not reflections of the social characteristics of the residents in those areas but of the differentials in opportunities for certain types of crimes in such areas. Furthermore, not all 'badly designed blocks of flats' suffer from environmental crime - although such a situation 'increases the odds against which people have to struggle to preserve civilised standards' (Coleman, 1985).

Ascertaining the viewpoint of individual criminals is vital to understanding the spatial patterning of urban crime. It is their motivations, decision-making trade-offs, evaluations of risks and rewards, familiarity with areas *ie* their individual socio-spatial perceptions which are meaningful, not socio-ecological statistics, or general epidemiological crime rates (frequencies of recorded crime occurrence by spatial distribution).

- The fundamental relationships in an *interactional model* of situational contingencies are outlined below:

- i) *Situational opportunities and environmental cues are interpreted.*

Included are: defensible design features, territorial markers, and target and victim identification by potential offenders. Here, environmental cues and stakeholder expectations, experiences and evaluations largely determine the 'ambience' of a place and 'suggest' what behaviours might be appropriate there *ie* appropriate for either legitimate or illegitimate activities.

- ii) *Individual susceptibilities and proclivities intervene.*

Socio-economic opportunity, psycho-social experiences, role-models, somatic tendencies, extroversion personality-typing, psychological stressor thresholds, 'get even' desires, thrill seeking, peer pressures, and gang membership...encourage individuals considering a delinquent, anti-social or criminal activity to take action (or not). Similarly, personality and experience (or nurture) can enhance or diminish the likelihood that individuals will display 'victimisation' traits or susceptibilities, thus influencing their chances of being targeted.

3.3 Crime and Fear of Crime

Fear (perceived risk) influences behaviour (limits options). People develop strategies to avoid places/times/modes of transport etc which are perceived of as threatening. Where people fear to use an area this results in less people using it overall, which further enhances both the fearfulness of those who do go out (feelings of isolation) and the opportunities for crimes to be perpetrated (due to low use and thus surveillance potentials).

Merry (1981b) asked residents from four ethnic groups living in a housing project to indicate, on a map, areas of the project which were safe and which were dangerous. Respondents differed in their perceptions, and had different neighbourhood ranges, and there was a clear incongruity between a sense of danger and the objective occurrence of crime. Areas in front of residents homes were described as the most safe (and 70% of interventions to deter a crime occurred in these areas) yet these were also the frequent locations of robberies.

It was also clear that residents found narrow dark walkways, low underpasses, and convoluted entrances to buildings to be dangerous, *and* robbers also considered these places to be ideal for crimes. Residents avoid these areas, and hence the actual rates there were not as elevated as might be expected, given their situational vulnerability.

3.4 Urban Design and Crime

Urban settings take form largely as a consequence of planning policy decisions. It is from here that the in-built potentials or latent situational opportunities derive. Such policy decisions can be steered towards situational deterrence and environmental amelioration via the recognition of the salience of a small number of general principles. A range of such principles is outlined below.

i) Mixed Zoning

The anticipated consequence of the inclusion of local facilities, residential, commercial, recreational, educational and urban domains in a *metropolitan fabric* is the 'populating' of these areas, resulting in a heightened 'animation' during the daytime hours and, particularly, at night. In principle, 'eyes on the street' (Jacobs, 1961) enhance natural surveillance opportunities and reduce fear - due to the presence of potential witnesses and, hopefully, people who feel strongly enough to actually intervene (or at least make the effort to alert the police). Jacobs observed that successful city neighbourhoods were close-textured, high-density assemblages of

mixed land uses, where many people lived within walking distance of many destinations and there was a constant coming and going on foot along a dense network of streets.

Where land-uses do not have continuous occupancy there is a gap in the socio-spatial fabric, and because surveillance is lower, these places - *ie* at the 'territorial interstices' - are likely to be assessed by 'marginal' individuals as good places for crime (Taylor, 1988).³

The presence of potential witnesses on neighbourhood streets appears to deter crimes such as robbery (robbers choose commercial stores set back from the street, shielded from public view), and sparsely used streets adjacent to commercial districts have been found to be particularly crime ridden (Conklin, 1972; Fenney and Weir, 1974).

There are also arguments against mixed zoning. Where there are more people there are also potentially more strangers, and more potential offenders. Studies have shown that residents near small commercial centres expressed feelings of less control and thus more fear (McPherson et al, 1983); and access from non-residential land-uses to housing increased the burglarisation rate (Winchester and Jackson, 1982).

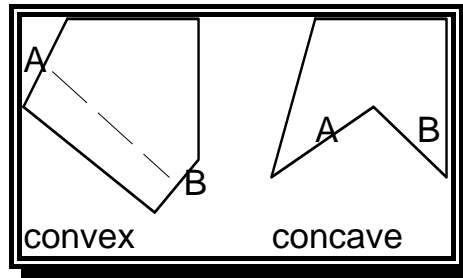
This suggests that for the advantages of mixed zoning to become manifest, careful design is required. Most importantly, the different uses need to be *integrated*, not merely juxtapositioned, and their functions and time-space profiles considered as a whole. Most importantly, the siting of licensed premises, particularly pubs and clubs, is relevant since it is now clear that there is an association between street crime and violence and zones around such facilities (Homel and Tomsen, 1992).

ii) Space Syntax

Hillier (1984) derived a technique to evaluate how the spatial configuration of buildings defines public space, and its use. In order to encourage people to move freely and interact often, dead-end spaces and secluded streets with 'short sightlines' should be identified (and eliminated) via space syntax techniques such as convexity maps.

³ Such 'un-animated' places are referred to in the research reported here as 'dormant' places.

The convexity map shows an area broken up into convex and concave segments. A convex segment is one in which a person standing at any point on the perimeter of a segment can see another person at any other point on its perimeter. A concave map has blind spots in it.



The safest public spaces are said to be those with good flows of people, and intelligible (integrated) routes with long sightlines. Coleman (1985) agreed that if the route system is unintelligible, a few places are likely to drain off all the street life, leaving other places deserted/segregated.

A researcher at the Bartlett School of Architecture and Planning, University College, London, used the technique and showed that the likelihood of a more segregated dwelling being burgled was highly significant (quoted in Mills & Armstrong, 1993).

iii) Site and housing design

A multitude of factors are relevant to this aspect of urban design and policy. Briefly, issues of interest are: hard architecture (vandal-proofing and target hardening) vs. soft architecture (community decorating and maintenance) street design (cul de sacs, eg); urban parks (lighting and narrow sites); landscaping (inadvertent screening of risky areas); woonerfs or traffic/pedestrian mixer courts; lighting at public transit nodes; wayfinding and legibility; symbolism of fencing around places and labelling of places; entrances to dwellings and groups of dwellings; issues of neighbourhood malaise indicators and impacts; and, of course, defensibility notions concerning the functional hierarchy of spaces (from private to public).

Overlook from dwelling to dwelling via the location/placement of windows is a design intervention of major importance. It is interesting here to note that a bay window can offer surveillance in three directions, while the inverse of a bay, the splayed window, limits opportunities for people to look in, and thus enhances privacy

(Amcord Urban 1992). The Amcord guideline also has hints about attaining privacy in medium density clustered housing while still retaining outlook, such as the screening of upper floors with high canopy trees, or with pergolas; and the use of level changes to achieve the same end. The intricate relationship between surveillability (seeing out) and privacy (seeing in) is a major urban and architectural design issue yet to be satisfactorily resolved.

iv) Minimum (rather than maximum) residential density controls

Classic urban planning policies restrict residential densities, according to pre-conceived notions that high densities are bad. Early developments in the field of environmental psychology (Hall, 1959; Sommer, 1969, Altman, 1975) however, have increased our understanding of the way people react to density according to personal space evaluations and cultural factors, and how prescriptive density rules can be inappropriate; and Newman (1972) showed that density, *per se*, seemed to be irrelevant to crime rates.

Rather than the traditional concern with maximum densities it is *minimum* densities that are required to make the social fabric continuous; and to make public transportation both viable economically, and to ensure sufficient passenger presence on trains and at stations, at all times, and particularly at night - which is a natural security measure. Clotfelter (1978) found a higher probability of victimisation on the New York subway system when ridership was low (midnight to 6am).

v) Discouragement of suburban sprawl

Because of contemporary changes in habitual behaviour patterns *viz.* the increased frequency of both adults in a household going to work, houses in suburban areas are often left empty during the day, and cars are also parked at suburban railway stations for long periods of time when suburbanites commute to the urban areas to work. This 'routine activity' thus generates easy targets for potential offenders due to low surveillance and low animation. Connection to the 'information highway' and decentralisation of employment and community facilities could increase the number of people working from home or in their neighbourhoods - which would alter these routine behaviours.

vi) Urban villages and village-forum concepts

Neighbourhood vigilance and sense of community, caring, and readiness to intervene is likely to be heightened where urban villages are formed - in contrast to the urban fortress mentality, where target hardening and vandal-proofing attempts to restrict and control use. These village-type residential tracts are centred and contained. An essential element of such urban designs is, thus, the forum [from Roman times] or the village green [from medieval England], a place where local inhabitants can meet to talk, interact, jointly survey children at play, hold village and school fairs, weekend markets, etc.

For open space to be well-used and thus naturally safe, users should be visible from all sides of the space. It's a question of scale, surveillability and social control. A large tract of open space is no-man's land, or, rather, no-women's land, and must be avoided at all costs.

The ideal urban village would be a domain of well-lit, mixed land uses and medium density housing, easily supervised car parking, with an emphasis on pedestrianisation, public realms and community services, and limited accessibility for both vehicle and foot traffic, but with links to other parts of the metropolis via safe light rail systems. The involvement and participation of the local community would be paramount, during both pre-design and post-occupancy phases.

Indeed, a multi-agency management approach is crucial to the whole idea of the urban village. The collaboration of civic, social service, housing, planning and police departments with community and tenant management bodies can be aided if in-built facilities are available *ie* places where interaction can readily and regularly occur, and if the urban culture and local government policy encourages interaction and the decentralisation of decision-making powers.

vi) vs. the Aladdin paradigm

The Aladdin paradigm is a term which has been coined here to describe that planning policy where urban renewal replaces *old neighbourhoods for new*, but simultaneously destroys individual familiarity, local community networks and contacts, eyes on the street, etc. Merry (1981b) found that people who did intervene to help people being victimised had all lived on the project (surveyed) for the full ten years of its existence, and many of their important social relationships were with other project residents. In other words, they were committed to the project, had formed social networks, and interacted on a daily basis within the project. They also intervened in spaces they used

regularly. All of these aspects are destroyed when neighbourhoods are razed and new urban renewal projects erected, with neither history nor heritage.

Hackler et al (1973) mention that in neighbourhoods where there is a great deal of social mobility, where slums have been destroyed to bring in high rise apartments, and where unfamiliar environments replace familiar ones, fewer social situations develop where mutual friends are present or where neighbours know and care for each other.

viii) Displacement of Crime

Displacement of crime can take place in time, or space, or to a different crime, but not all criminals will continue to hunt for targets. Contemporary environmental criminologists believe that different levels of opportunities are likely to trigger persons with different levels of criminal motivation, with weaker opportunities only triggering action by those with the most powerful compulsion to crime (Brantingham & Brantingham, 1991/b; Gottfredson & Hirschi, 1990).

In general, CPTED has been found to have an impact on burglary/theft, street offences, nuisance behaviour and vandalism; *and* there might well be some beneficial *diffusion* too (Clarke, 1992) - a halo effect. It seems self-evident that if preventative environmental design and management were implemented *on a wide enough scale*, the issue of displacement could become neutralised.

This is a powerful argument for inter-agency involvement at Local Authority and DoH level. Decisions as to where roads and pedestrian paths, housing, shopping centres, convenience stores and public facilities should be located, and the nature of public open space, coupled with resolutions concerning the vigour of maintenance programs, and policies influencing the degree to which communities are brought into the design/planning procedures...could have a multiplier effect by reducing opportunities for crime at municipal level. If the State government departments of housing and planning were committed to a situational opportunity approach, even regional consequences could be anticipated.

3.5 Housing and Crime

3.5.1 There is a contrast between area offender rates (based on where offenders live) and area offence rates (based on where crimes are committed). The rates and

incidences referred to in the research reported here are for *offences* (see Critique of Methodology).

There are no simple 'causes' underlying crime. Violent crime, for instance, has been correlated with a number of indicators of poor physical and social living conditions, but there is great uncertainty about the causes of the crime. Numerous theories have been put forward, including the situational opportunity model, the differential drift model (where people with violence-prone lifestyles are rejected by society and drift to disorganised areas), social alienation or youth subculture models (where resentment or hostility is directed against symbols of power), gratification frustration models, and so on.

3.5.2 Baldwin and Bottoms (1976) suggested that 'housing class' *ie* tenure may be important in crime incidence generally, since renters appeared to be more crime-prone than owner-occupiers; yet the local environment cannot be discarded from this equation since it contains the cues to which individuals respond (Herbert, 1979). Poyner et al (1985) approached the issue from the situational point of view, where denying opportunities as a result of housing design is believed to affect offence rates; while Coleman (1985) argued that the design of certain apartment blocks encourages uncivilised behaviour among those who live in them *ie* that they tend to 'breed anti-social people' (p.133) - and influence offender rates.

British studies show that owner-occupied areas have uniformly low offender rates (Baldwin and Bottoms, 1976; Herbert, 1982). At the same time, they have relatively high offence rates, especially for burglary and vehicle theft - an opportunistic consequence, and this is especially likely where such areas are located near to high offender rate areas, or main roads (Brantingham and Brantingham, 1981).

Private rental housing areas, where they exist, tend to have high offender rates. There is a over-representation of young single males in such areas (a transient population). There is also a high offence rate in such areas given the frequent multi-occupation of large houses by unrelated persons, and the garaging of cars on streets (Bottoms and Wiles, 1988).

Local authority housing areas tend to have high offender rates, but there is also a correlation between high offender and high offence rates in such areas in Britain. This does not mean that public housing areas are criminogenic. Such conclusions are reductionist and deterministic - some areas have high rates, others do not; some

individuals are crime-prone, others are not. Bottoms et al (1987) showed how two estates with almost identical social class composition had very different offence and offender rates.

The Warwick Farm pilot study confirms this. Proportionately the highest offence rates are in the privately owned, high density domains, presumably where most opportunity for crime exists; while other largely DoH housing areas vary considerably between themselves, and also have different rates for different crimes. The area perceived of as safest, and also having lowest overall recorded crime rates, also has the highest proportional incidence of sexual assaults, in certain parts of it, for instance.

Situational

crime occurs at the micro scale.

3.5.3 High Density Public Housing

Stollard (1991) examines the issue at length. Some major principles are discussed briefly below:

It is acknowledged from the outset that target hardening can produce a sense of fortress, which can lead to an increase in social isolation felt by residents and reduce the fragile community support networks which are such an important defence against crime. The urban village approach, or social control/natural policing, contrasts here with the urban fortress approach, the enclosure/access control/guardian approach.

Stollard states the following principles:

- public open space only works if it is managed by or on behalf of the residents who use it, but in any event any public space should come under surveillance from the surrounding dwellings
- footpaths should be limited and well-used, well-lit and overlooked by dwellings and building entrances. Paths should not form a through-route, since a high degree of vandalism can be attributed to people taking short-cuts between lines of circulation

- landscaping should not exceed 1 metre in height , nor obstruct lighting
- car-parking for residents should be located as close as possible to their dwellings
- 40% of night-time street crime occurs when lighting levels are at 5 lux or less, while only 3% occurs when lighting is above 20 lux. He also mentions the quality of lighting, it's positioning - so that faces are lit up, the vandal-proofing of the systems, the use of bollard lighting for footpaths, etc
- Traffic calming measures are advocated. These mixer courts reduce the dominance of the car, and domesticate the streetscape, thus also making the presence of strangers more conspicuous. Cul-de-sacs have both advantages and disadvantages: providing a sense of place at the front of dwellings but larger rear areas can be hidden from view
- private spaces should be demarcated, physically (fencing, eg) or symbolically (texture/colour/buffer zones)
- external access to upper storey flats must be considered too (walls, roof of garages, low balconies, trees *ie* footholds for illegal access
- hardware must be adequate (locks, doors, frames, glazing on front doors etc.

3.5.4 Low Density Housing

Poyner & Webb (1991) considered the site and dwelling characteristics which impact on crime in low density housing tracts (*ie* influence offence rates). Aspects such as sightlines at the entrance to areas and overlook of houses on curved streets are discussed, as are placement of parked cars on hardstanding in front of dwellings, and issues concerning communal parking courts away from dwellings.

Poyner at al believe that the importance of *layout* has not been appreciated. They showed a significant difference between layout and crime distribution (for recorded crime, *ie*). Crime was higher for houses on through roads, on exposed corners, end of block houses, those with access to their rears/sides, and those next to open land. Winchester and Jackson (1982) had found similar patterns previously.

3.6 Sense of Community and Crime

Stakeholders are those people who have a special interest in an issue or area. Understanding their needs and preferences, and including them in neighbourhood decision-making at all levels enhances their involvement in day-to-day caring for, and investment in, their local areas. This is also called community empowerment, or territorial appropriation, or manageable space (Perlgut, 1982). Community involvement sends a message to potential offenders that a place is 'owned' (involving rational choice/risk-reward trade-offs).

An important issue concerning community involvement is *the stage* at which they become involved. If their role is reduced to 'comment' about a new proposal, during a conventional 14-day public scrutiny period *ie* after the real decisions have been made, this is notional involvement. The community must be involved at the pre-design and pre-planning stages, when priorities and alternatives are being considered, and at every other stage of development and use, including post-occupancy management periods, and when projects are being evaluated.

For territorial functioning to be effective it should be based on *small group* dynamics *ie* at the level of the *streetblock*, not at neighbourhood level (Taylor, 1988). Taylor et al, 1984 also found an association between being younger, a woman, and of higher income, and stronger territorial functioning. Perhaps it is such individuals who should be approached to lead and organise community meetings.

The structure and organisation of a community affects the crime it experiences over and above the individual characteristics of its residents (Reiss, 1986).

Similarly, perceptions by criminals of a community's resolve and commitment to a place will influence their behaviour, and the image that comes over can be vital in this regard.

3.7 Perception of Incivilities and Crime

Neighbourhood incivilities can take the form of vandalism, graffiti, litter, abandoned property etc, and serve as indicators, or as negative environmental cues of disorder and lack of community responsibility. Coleman (1985) correlated a higher incidence of litter, graffiti and vandalism etc (malaise) to areas with 'defective' design features (the so-called index of disadvantage). Hope and Hough (1988) tested the relationship between incivilities and the experience of crime and found perceived incivilities to be

strongly linked to worries about crime, dissatisfaction with neighbourhood, and also with rates of victimisation. The latter appeared to be logarithmic *ie* the rise in crime experiences increased exponentially with perceived incivility. Similarly, Herbert et al (1989) confirmed this relationship between perceived level of incivilities, satisfaction and experience of crime in eight local authority areas in Swansea. The strongest relationships were between litter and vandalism, noise and vandalism, youth gangs and noise.

These findings would suggest that improving the quality of a neighbourhood (increasing satisfaction and decreasing fear) could have a halo effect *ie* also decrease crime rates.

- A Neighbourhood Malaise/Quality Indicator walk-through conducted in the Warwick Farm study zone, in September, 1994, is discussed in Section 5.9.8.

3.8 Offender Perceptions

Resident perceptions can indicate where disorder and threat are high in a residential context, and in such areas a *redundancy* of territorial cues (Rapoport, 1982) is required for territorial functioning to be effective - for example, both fencing and planting to keep intruders out (Brower et al, 1983). Understanding territorial judgments in a criminal's mind is of great importance to environmental criminologists and designers of public housing, and to police. How, for instance, do potential offenders 'weight' various defensible space features? What is the combination of factors that denotes a 'susceptible or immune' site? Do they read but override territorial demarcations? Do they assign importance to decoration - as a sign of occupancy and proprietary attitudes? From the resident's point of view, for instance, *decoration* was found to be the most important territorial safety marker (Taylor et al, 1976).

Carter & Hill (1977) were able to explain 75% of the variation in crime rates after interviews with convicted property criminals, with regard to their evaluations of areas where they committed the crime. The important issues were: familiarity with an area, the 'hardness' of the 'mark' (target) and the perceived socio-economic status of an area. In general, houses that looked unattended, and stores that had no alarms were considered as good targets/easy marks - *ie* having low degrees of occupancy.

There were, nonetheless, differences amongst the criminals themselves, due to their different races (and, of course, different crimes will reflect different socio-

environmental factors). The 'hardness' of the mark was particularly important for the 'whites' - including the ease of getaway. Gabor et al (1987) found, similarly, that robbers considered whether there was a 'small street close by to park a car and to remove disguises afterwards'. Familiarity with an area was particularly important for the 'blacks', who felt very visible in affluent white areas, and thus tended to commit crimes close to their own residential areas.

Merry (1981b) interviewed young men who lived on a multi racial housing project in Boston and committed robberies there, about their attitudes towards crime, the design of the project, and their choice of victims and crime opportunities. They also drew a cognitive map of the area, in which they indicated the places they considered to be good for robberies, and these maps agreed closely with the distribution of actual crime incidents. 'They try to commit crimes where they will not be observed. Favourite places are narrow and enclosed pathways where visibility is poor and witnesses nonexistent' while 'open courtyards are considered poor robbery locations since there are so many eyes there'. The street is not considered a good place except where there is little traffic or windows are obstructed by fences. The availability of good escape routes is an important aspect of environmental design considered by the robbers, and once a victim has been selected he/she is trailed until a good location is reached *ie* one with multiple routes, twists and turns, tunnels etc, where pursuers can be eluded. In general, dark places and night time are preferred since victims have trouble identifying the perpetrators later.

It was clear that the robbers interviewed by Merry knew where those residents lived who would call the police, and they avoided those areas. They took into account not only the possibility that people could look out of strategically positioned windows, but also the likelihood of this happening. A plaza outside a building housing elderly people was considered a poor location because the old people were always looking out of their windows; other people were known to shout out when they saw something happening, and such places were avoided.

Taylor (1988) reported that 'it appears that offenders against persons, as well as property offenders, view the mere presence of people outdoors as a risk factor'. Rengert & Wasilchick (1986), in their interviews with suburban burglars, provided direct confirmation of offender's desires to avoid well-peopled blocks. Similarly, since muggings occur in more deserted areas with fewer natural guardians, it can be inferred that offenders are choosing sites that lack 'eyes' (Rhodes & Conly, 1981).

In general, it seems that potential criminals consider which areas are architecturally suitable to commit particular crimes (particularly surveillability, obtrusiveness, and access/egress possibilities), and also consider social factors which influence the likelihood that local users and/or residents will intervene (territorial personalisations, ethnic and socio-cultural characteristics).

Their attitudes and behaviours are clearly socio-spatial.

3.9 Criminal Victimization

In the case of crimes against persons, wherever they occur, offenders will have to make judgements about a victim's character, strengths and weaknesses, and the likelihood that others will come to their defence (over and above situational setting judgements). Here, it is the person's vulnerability (accessibility to self) rather than that of a building, a neighbourhood (or a campus) that is interpreted. The strengthening of potential victims by dealing with 'victimisation personality types', via assertiveness training, for instance, is also crucial for crime prevention, but cannot be discussed here.

Victims, not unlike criminals, act in rational ways. An understanding of fear of crime and criminal victimisation must include socio-situational experiences both *before and after* the victimisation experience. Fear can exist before an event transpires, and fear can also 'immobilise' victims after an harassment, which helps explain low rates of reporting.

As a result of lifestyle, the typical victim is usually a young male, often of a minority group, unemployed, single (and, in the USA, black) (Bureau of Justice Statistics, 1983). Micro-victimisation surveys (Painter, 1989), on the other hand, show how women are the most frequent victims - which commonsense suggests. In any event, risk-avoidance behaviour can be effective in reducing one's risk of victimisation, albeit that people who restrict their behaviour in this way are likely to be the more fearful members of society - with or without justification.

Different crimes have different reporting rates. Vehicle thefts, for example, are reported about 86% of the time (a requirement for lodging an insurance claim), while reporting rates of only 5-7 % are common for rape in many developed countries (Reilly & Howard, 1982; Warshaw, 1988). This makes it possible to rely on recorded

rates for some crimes more than for others, where a large proportion of incidences go unreported.

It must also be remembered that where informal action (neighbourly intervention) is taken regarding acts of delinquency by local/known youths, and parents are contacted, the likelihood of such behaviour being reported to police is diminished, thus artificially reducing the rate of such offences in more neighbourly, cohesive and homogeneous neighbourhoods (Hackler et al, 1973).

3.10 Allocation Policies: Homogeneity and Heterogeneity

3.10.1 A mix of unit *size* in blocks of flats, or of house *size* in an area, creates an in-built potential for a mix of *family size* - some with few children some with more children. This mix can still allow for socio-economic homogeneity but allow for a more balanced teen/adult ratio. Child density has been shown to be the single most important factor in explaining variations in vandalism (Wilson, 1978). Coleman (1985) also showed that where children are over one quarter as numerous as adults, blocks of flats are likely to be badly abused, and as the ratio is reduced, abuse becomes more varied, reflecting the influence of design.

3.10.2 Where allocation policies can distribute elderly residents throughout a community - which is socially desirable in its own right - they become natural 'neighbourhood watchers', because they tend to 'sit and watch' as a natural part of their daily behavioural routine. Issues relating to disabled access thus become more relevant *ie* an integrated approach must be taken.

Surveillability potentials, in this case, are more likely to be translated into actual routine behaviour if windows are ergonomically designed for the elderly (sill heights relative to a seated position); while child safety issues will also have to be addressed (sill heights and openability). These are micro-design issues having macro consequences.

An unresolved urban policy issue revolves around the provision of life-cycle clusters *ie* attempting to group families in the same stage of life (similar ages, lifestyles, activities...) and thereby attain a certain measure of homogeneity and community through shared interests, but with the ever-present concern that inward-looking and parochial 'ghettos' could be created. The underlying idea is that communities with

common interests will tend to engage in common management of streets, public spaces and neighbourhood facilities.

Contrasted with this philosophy is the idea of creating a variety of dwelling sizes, and implementing an allocation policy that mixes groups, so that a variety of household types are lodged in a neighbourhood, which brings a more heterogeneous mix of residents and thus a more varied and animated neighbourhood life. Moreover, such an arrangement would mean that as resident's life-cycles change, in order to find a suitable dwelling they do not have to move out of a neighbourhood, which they know and in which they are known, and where both their own sense of security is likely to be increased as a result of this familiarity, and their tendency to take an active interest, or be involved with the area is enhanced. This also means they will intervene more readily to assist a victim, and/or be quicker to call the police or a housing manager if something seems unusual.

The counter argument is that people at different stages of the family lifecycle have different lifestyles which are incompatible. A clash of space-time routines occurs where the elderly are mixed with young families, and where separate domains have not been provided in the design and management structure.

Possibly spatial design could help ameliorate the dilemma, where groups are clustered within larger clusters, each micro-cluster with its own semi-private micro character, but all part of a greater whole, with common semi-public facilities and spaces.

3.10.3 An issue often overlooked is that of current demographic changes in post-industrial societies, where there is a clear trend towards an increase in the number of households but a decrease in the size of those households. The reasons for this change are the increasing rates of divorce, single parent households, childless couples, non-related adult households, and elderly citizens (particularly women) who often end up living alone. Housing provisions should thus match these changes, but lags far behind in reality *ie* more but smaller dwellings.

3.10.4 The allocation policy currently employed by the NSW Dept of Housing entitles applicants to nominate a locational preference. Applicants are made one offer only, and a rejection of a reasonable offer results in their name being removed from the waiting list. A legitimate reason for rejecting a housing offer is a risk to personal safety in the home (domestic violence, or child abuse). Area based

risks, other than racial vilification, eg perceived risks to personal safety or a sense of fear associated with high crime area, are not permissible reasons.

The emphasis is on matching tenant requirements to housing characteristics. Areal or neighbourhood considerations also need to be taken into account.

Crime depends on a complex convergence of socio-spatial opportunities, but key researchers now agree that resident dynamics are the key mediators of the environment-crime linkage (Taylor and Gottfredson, 1986; Bottoms and Wiles, 1988).

This has implications for the allocative and market mechanisms in society, which bring people together in communities and neighbourhoods, and are particularly relevant for public housing authorities which 'intervene' in the distribution dynamics. The move towards encouraging home-ownership amongst public housing tenants, similarly, could have an important impact on crime patterns and community sense of responsibility.

4.0 METHODOLOGY

The rationale for emphasising empirical field research methods in this research rests on the understanding that experiences and evaluations of users are both phenomenologically valid and are distinct or different from the expectations and assumptions of 'experts' - professional researchers, designers and planners of the built environment.

Both insights are required - both expertise and experience. One without the other is meaningless.

Nonetheless, this position is tempered by the understanding that expert evaluation need not be necessarily overridden by user experience where differences occur - given that users do not necessarily perceive the totality of a situation either.

4.1 Multi-Methodological Approach

The use of a multi-methodological approach using multiple and convergent methods has resulted in a wide range of methods being employed in this study, some of which have been pursued to greater depths than others. Information from each is not compared but is used in a complementary way - adding to meaningfulness.

The different methods applied in this study:

- 1 Recorded Offences, Warwick Farm Police Statistics
- 2 Situational Experience Questionnaire and Mapping
 - 2.1 Sense of Fear
 - 2.2 Sense of Safety
 - 2.3 Victimization Experiences - (micro-victimisation/community risk assessment)
- 3 Neighbourhood Malaise/Quality Indicator Mapping
- 4 CPTED Safety Audit
 - 4.1 Expert Walkthrough
 - 4.2 Photographic Record
- 5 Housing Type and Tenure Mapping

4.1.1 Recorded Crime Occurrence Statistics

Statistics for the 3-year period, 1/1/1991 to 31/12/1993 were obtained from Liverpool Police. The data were recorded by collector district. The crimes recorded here were divided into crimes against property and crimes against the person: break/enter and steal, malicious damage and vehicle theft; and assault, sexual assault and robbery/steal from person, respectively.

Data for offender residence were unavailable (privacy/confidentiality considerations) - but see Critique of Methodology.

The data thus does not indicate who is committing the offence, only where it occurs. It is thus possible to make inferences about *areal* or spatial characteristics but not the characteristics of the offenders, nor whether or not they live in the area in which they commit a crime.

4.1.2 Situational Experience Mapping (SEM)

This is a novel technique combining Fear mapping - previously trailed by researchers such as Merry, 1981b (who asked residents living in a housing project to indicate, on a map, areas of the project which were safe and which were dangerous) - with Victimization mapping. SEM is a technique concurrently utilised in the consultant's University campus research.

Victimization surveys (rather than victimization *mapping*) have of course been carried out before, both in Australia (Australian National Crime Victim Survey/1975, Braithwaite and Biles, 1980) and (Crime in Australia: the Australian component of the International Crime Victims Survey 1989, Walker, 1991) and overseas (The British Crime Surveys of 1982, 1984, 1988, for instance). Moreover, *micro*-victimisation surveys have also been conducted, in London in the latter half of the '80's, for instance, which concentrated on small areas in inner city boroughs (at the level of streets and estates, in Islington and Hammersmith/Fulham), and led to an understanding of criminal victimisation by locality, time and gender (Painter, 1988; 1989a; 1989b).

4.1.3 Neighbourhood Malaise/Quality Indicator Mapping

This is a novel technique employing a checklist walk-through that allows for a rating of an area according to a set of *territorial* items. Each CD zone was evaluated, and a corresponding location indicated on the accompanying map. The items evaluated in this instance were the following:

NEIGHBOURHOOD MALAISE INDICATORS (NMI)			
INDICATOR	Hi-Lo	CD	COMMENT
Vandalism, Graffiti (Malicious damage)		910	
Litter, Broken Glass/Windows, Rubbish			
Abandoned Property, Vehicles etc			
Street Lights etc Out			
Vacant Lots, Buildings, Shops, Flats etc			
Louts, Loiters, Drunks, Hobos, Gangs			

NEIGHBOURHOOD QUALITY INDICATORS (NQI)			
INDICATOR	Hi-Lo	CD	COMMENT
Decoration, Personalisation		910	
Maintenance, Repair			
Personal Property/Non-Private Space			
Verandah/Garden/Street Furniture			
Soft Arch - Murals, Urban/Community Art			

4.1.4 The CPTED (Crime Prevention Through Environmental Design) checklist

This is a novel schedule previously developed for the consultant's campus research, in order to systematically evaluate, through observation, the *potential* situational cues embedded in the physical fabric. It is based on the three fundamental notions underlying CPTED analysis: Surveillability, Accessibility and Territoriality. This methodology is a form of expert walkthrough, a technique now standard in Post Occupancy Evaluation (POE) surveys.

A repertoire of items considered as part of the CPTED analysis is presented as section 6.

4.2 Critique of the Methodology

4.2.1 Recorded Crime Statistics

Maps obtained from the Mapinfo service show a circle at the location of the crime, but this circle can represent "one or more" incidents. In other words, 5 incidents still show up as one circle, which is totally misleading. It must be ensured that maps with actual numbers of incidents are requested. These maps allow for an accurate evaluation of crime/place incidence. A shortcoming in the police maps is the tendency to overwrite numbers one on top of another, so that it is sometimes unclear exactly what the incidence is. Where this has occurred, an educated guess has been made as to what (the visible fraction of) the overwritten figure is.

Mapinfo can also produce a map indicating *rates* per area, which takes into account the number of crimes and the population density of the area. However, rate maps *on their own* give a false impression (called the ecological fallacy) where an entire area can be attributed with a given characteristic, on the one hand, and/or all the residents in that area associated with that characteristic, on the other.

Care must be taken to overlay the rates maps with *incident maps* (see Police Data Maps in Map section), in order to indicate where the crimes are actually being committed; and no inferences should be made about the general population in the area or the general nature of the area. It is possible to overlay the incident and rate maps using Mapinfo, and this should be the standard practice - in order to avoid 'ecological' misinterpretations.

Mapinfo police statistics can also be linked to census information at CD level; soon information from the new police data system C.O.P.S. will also be compatible with Mapinfo; spreadsheet data from the Microsoft Excel program can be downloaded into it; and statistical correlations can be performed. It would seem to be the preferable CAD program to utilise in

future research ⁴, albeit that the MicroStations program appears to have a superior graphic capacity.

4.2.2 Separating the area up into CD zones is only a convenient analytic device (because Census and Police data are also collected by CD) since it is the micro-character of an area that is salient, not an arbitrary ordering of areas into zones of convenience for data collection. CD areas are also too large to be useful categories in a situational analysis, since such analyses are, by definition, place-specific. Even adjacent streets in the same area can have totally different CPTED characteristics. It would also be critical to the overall pattern evident in each CD whether or not a particular street (Mannix st, for sake of argument) is included in it or in an adjacent CD.

4.2.3 The Situational Experience Mapping exercise was a success overall. Certain pre-test conditions should, however be carefully orchestrated before carrying out community questionnaires. Sufficient time must be built into the program to allow for proper 'consciousness raising' exercises to be carried out well in advance of the postal drop.

Community leaders, community groups, school heads, church leaders and local newspapers must all know about the impending study well in advance. It is an error to rush this part of the procedure, since the reliability and validity of the data received relies as much on the sample size (response rate) as on the careful design of the questionnaire.

The Wyong Council survey technique which apparently significantly raised the number of respondents after a second call was made, was to mark each survey, and then contact only those people who had not responded with a specific request to complete the survey. Respondents are of course always guaranteed anonymity, and it would break that guarantee if any use was made publicly of their particular responses. This is of no interest to the research, and it can be assumed that the integrity of the researchers will ensure that once the questionnaire has been returned the identification mark is immediately removed. Given that the technique is simply to re-target households that have not responded, it seems that a legitimate method would be to budget for the re-targeting of all households, irrespective. The added costs would offset any confidentiality issues raised by the cheaper method of marking surveys.

There is a further methodological issue relating to the response to the questionnaire which should be addressed in future research. The paucity of responses by the younger members of

⁴ Only the Windows format of Mapinfo should be used (not the DOS format) to ensure standardisation.

the community is the issue. They would be expected to exhibit patterns of use, fear and victimisation significantly different to those of the current sample of respondents, but they are also reluctant in the extreme to answer such surveys. Running a portion of the questionnaires under the auspices of local schools might ameliorate this lack of response. Ultimately, it should also be possible to use teenage interviewers, in the hope that their peers would be more open to talk to them. Resources would need to be made available for such interviewing.

The questionnaire *design* issues are the following:

1. The front page is distracting (too much information offered) and the important information is lost amongst the peripheral
2. The question asking "How Long Have You Lived at This Address" is superfluous
3. The example of how to fill in the maps shows an arrow pointing to an encircled area, which is unfortunate, since many respondents circled an area rather than pinpointing a precise location. This makes analysis difficult, and unnecessarily removes a vital clue in the search for situational opportunities. An X should replace the circle
4. Map 1 asks "how long ago". This also seems to be superfluous. It should either be stated (within the last year, eg) or left open-ended.
5. The instructions for all three maps should state: "please mark on this map (*with an X*) those places", and the word "area" should be deleted.
6. Some people confuse the insecurity and victimisation maps when recounting their experiences. However, an alert analyst can pick-up these errors in the narrative response, and categorise the statements correctly.

The issue of reducing the narrative, the open-ended replies, to a box that is ticked is not considered to be advisable. The very richness of the replies, the story told, is the quality of this type of research. Although a reductionist approach would simplify the analytic procedure, the meaningfulness (the 'phenomenological validity') of the data would be lost.

The analysis requires the skilful conversion of the open-ended data into categories, and presumably after several research programs have been run and analysed the category groups will begin to form a reliable pattern, at which time a checklist can be applied to the narrative data. Interpretation of the data is always required, but the procedure can be rationalised.

4.2.4 The CPTED analysis is the most problematic. It is easy to design a questionnaire, and relatively easy to analyse data (albeit laborious and time-consuming). The difficulty lies with the meaningful interpretation of the data, and the relationships with the design parameters.

Each situation is unique, and the multiplicity of situations occurring in an area the size of Warwick Farm is daunting.

The procedure to overcome this problem adopted in this pilot program was to paint a broad brushstroke picture of the area, and then focus down on a small number of micro-zones for deeper analysis. Nonetheless, if a case-study approach is adopted, a detailed analysis of each micro-zone should also include socio-economic and cultural analyses. It is suggested that in future distinct and manageable areas are chosen *ie* the scale of the research is decided beforehand. It might be that an area is selected because it is particularly prone to one or other crime (as reported to the Police) or the opposite. However, this procedure ignores the possibility that a high degree of harassment might be occurring in an area which is not reported.

The best solution might be to fund the research in such a way that a team of CPTED appraisers can analyse the area, using a standard checklist.

4.2.5 Community Safety Audits (such as that undertaken at Liverpool Station in February 1995) are a valuable method of evaluating an area, and if resources are made available, would be an indispensable addition to the current methodology, which taps into user experiences. Safety Audits are not so much 'community' audits as local area organisation audits, but could be inclusive of a wider range of local residents. Presumably there is enough interest, if not concern, in local communities about safety in their neighbourhoods that volunteers should not be hard to come by. As indicated in the Liverpool Station audit, the quality of the exercise is very dependant on the extensiveness of the preliminary briefing sessions. Where CPTED-trained police officers, or other CPTED assessors are available to take part in such audits, the likelihood that the findings of the different groups will be standardised is significantly increased.

Currently used safety audits err on the side of simplicity, for the sake of analytic simplicity, but the issues are extremely interactive and complex. It would seem the preferable solution to look at more issues, and more interrelated issues, and cull data later if needs be.

4.2.6 Housing data should be supplemented with child/adult and teenage/adult ratios, at the smallest scale possible, since these data could throw light on the make up of the population (a-social spatial behaviour is known to correspond to the numbers of young people).

Similarly, if it is permissible to obtain data on problem families from Community Services and housing managers, this could help explain socio-economic, cultural and sub-cultural

issues underlying 'problem areas', and rationalise otherwise over-emphatic attempts to *design out* crime.

4.2.7 Only offence data was made available for this research. Offender data is considered to be confidential. However, convicted criminals have been interviewed in overseas studies, and these offender perceptions have been critical to our understanding of crime patterns and opportunities. This is an issue which should be addressed. Given that the media is free to report the name of people convicted in courts of law (other than minors), at very least the address of offenders should be available for the purposes of research, where anonymity is guaranteed in any event. In particular, access to offenders known to have committed an offence in the study area would be an invaluable source of information when situational prevention remedies are being considered.

4.2.8 The inter-agency approach is correct, but a wider representation on the Steering Committee (possibly better referred to as a Community Safety Committee) should be built-in. Sydney Rail Authority (SRA) and Sydney Transport Authority (STA) should be included, given the impact of public transportation on security issues. More representation from the Dept of Planning should be encouraged, and regular representation from the local police and local council should be rigorously continued. Women's groups must be represented, as should the Estate Advisory Board, which evaluates new designs for the DoH. And, most importantly, local resident groups and tenant groups should be included.

Information transfer between agencies such as those currently on the Steering Committee (and presumably between agencies which could be represented on an expanded Community Safety Committee) should be accelerated. The issue of offender data, mentioned above, is a case in point.

4.2.9 A statistical analysis of data is possible. It would add to the credibility of the interpretations, and give a more solid ground for ultimately basing policy decisions on findings.

4.2.10 If a guideline is to be established, it should be a performance and not a prescriptive guideline. In other words, a target should be set, possibly a minimum security rating (for the sake of argument, 3 out of 5 on a 5-point scale), as an end, but the means of achieving that target should not be specified. Any range of measures which allows for a security rating of 3, in this case, should be acceptable.

The difficulty with any rating scale is to derive the parameters making up the scale, their equivalence. This might be a derivative of the longitudinal research program proposed by the DoH *ie* issues which seem important to users, the correlation of this with recorded statistics, the design factors turning up in the CPTED analyses etc should ultimately form a pattern which can then be tested statistically.

- Social welfare/well-being issues (socio-economic and sub-cultural factors) will always predominate, whatever the design guidelines might ultimately allow to be built-in as potential.

4.2.11 Feedback to the community which has responded to the questionnaire (or been involved in safety audits) should be considered an intimate part of any future research. The budget should be such that a report is foreshadowed, written in lay'man' terms, which is returned to the community. Not only is this the very least that they are entitled to, it is also an expedient to help ensure community involvement in future research in other areas (the word gets out), or during re-evaluations (in the form of post occupancy evaluations) undertaken to test the impact of any changes made to an area previously surveyed.

5.0 ANALYSIS and DISCUSSION

5.1 It is a relatively simple procedure to devise a questionnaire which taps into user experiences of an area and, albeit laborious and requiring of expert interpretation, the analysis of that data is relatively easily accomplished.

The difficulty lies in the application of that information, its transformation into built environment guidelines which recommend built in potentials to prevent crime occurrence.

We recognise that physical parameters do not cause behaviour, but increase or decrease the likelihood of certain behavioural responses occurring. We also recognise the socio-economic and personality parameters that readily overwhelm the best laid plans, and the archetypal subconscious and cultural influences which overlay different meanings on the same situations

and settings. We also recognise the interactivity of the multitude of activity factors which impact on the environment at a micro-scale - the location of pubs, of open space, of schools, or high or medium or low density housing, of privately owned and publicly owned housing, the mix of commercial, industrial, medical facilities...and so on.

In other words, it is contended here that the complexity of interpreting recorded crime statistics and giving coherent meaning to the epidemiology of user experiences in a neighbourhood, and relating these indices to physical parameters - is a task which is only possible to achieve after the conduct of a longitudinal series of research projects. Patterns could then become established to a sufficient extent so that designers and planners could rely on these insights to form the bases of policies on which credible design guidelines could be founded. Some design-based recommendations are, nonetheless, suggested as part of the CPTED analysis (see 5.10).

5.2 A micro-scale evaluation of the selected area *is* possible, grounded on CPTED principles (distilled into a checklist against which observations can be weighted). However, to undertake an evaluation at the scale of the entire study area would require a team of trained CPTED appraisers (using the same checklist). Their interpretations could then be standardised to a reasonable extent, and the checklist refined as required.

Another tactic would be to conduct a safety audit using a checklist, and involving the community as well. Current checklists for safety audits tend to err on the side of simplicity, in order to reduce complexity to a manageable level. Understanding people-place interaction demands a sophisticated approach. It is contended here that it is preferable to err on the side of complexity, cover as much of the contextual and interactive relationships as possible, and eliminate less relevant factors *after the evaluation*. Over and above the level of interpretative expertise required to satisfactorily conduct such research, this approach requires a far greater commitment of 'man'power hours, fiscal resources and time than were available.

5.3 The Warwick Farm fear/victimisation/safety mapping project is also the first of its kind, in Australia (and possibly elsewhere). It is ground-breaking, and cannot be definitive in any way. As a pilot study it sets the agenda for future studies, highlighting innovative advances and problems encountered.

5.4 A two-fold CPTED evaluation is thus presented here.

First, a overview of the whole area is presented, in terms of general principles.

Secondly, four micro-areas are evaluated in greater depth.

The 4 case-study areas consist of:-

- a high density domain, which is privately owned, but which serves as an example of potential CPTED impacts of such design and planning;
- and three public housing domains, two of which are problematic *ie* a medium density zone, and a low density zone proximate to the station tunnel; while the third is a cul-de-sac domain with a built-in design element which, it is contended, could be problematic.

5.5 The station and tunnel area, although quite evidently the domain of most concern for respondents to the survey, is only evaluated briefly here. Jurisdiction over this zone lies with the SRA, which is not party to this research. A deeper analysis of this area could be undertaken later if required. The Safety Audit about to be carried out at Liverpool Station could also throw light on this area of concern.

5.6 As background information, a sample of Bureau of Crime Statistics and NRMA statistics for crimes committed in the Liverpool area are briefly presented below, before the Warwick Farm user-data is appraised.

5.7 User experiences as expressed in the questionnaire were analysed by content analysis and are presented as tables and diagrams, with a discussion or interpretation of each.

Maps associated with these user experiences (and recorded crimes) are presented in a separate document.

5.8 Sample of Recorded Rates/LIVERPOOL

Burglary

Liverpool municipality recorded the fourth highest burglary rate for a local government area in NSW during 1991-92, a large proportion of which were break-ins to garages and garden sheds (NRMA Statistics). Many of these break-ins occur during the weekend. Similarly, homes in NSW are most likely to be burgled on a Friday or Saturday, and during the day; while sheds and garages are more likely to be burgled at night.

Car Theft

Liverpool, in 1991, ranked in second position (behind Penrith) for car thefts; joyriders are responsible for the highest percentage of thefts, (more than a third of all car thefts in Liverpool). Cars stolen off the streets accounted for almost 50% of all thefts, shopping

centres ranked second, carpark third, and railway carpark fourth. Fridays was the day when least vehicles are stolen. (NRMA statistics).

In the 10 areas of Sydney where most cars are stolen, the average pattern is the same: most cars are stolen off the street, thereafter from shopping centres and carpark. This should have implications for CPTED strategies.

Public Housing Crime Profile

With regard to the crime profile there is no correlation with public housing as a percentage of total housing type/crime rates per 100,000 residents - for both conviction rates for offences against property and the person (1987/88 figures). South Sydney, Blacktown and Liverpool did record the highest rates in both categories, and also have proportionately high rates of public housing (18.6%, 16%, and 19.7% respectively), but both Marrickville and Burwood also recorded high rates of conviction on both counts and have only 2.6% and 3% public housing, respectively. Both Wollongong and Parramatta have about 11% public housing but relatively low conviction rates in both categories. Numerous other examples testify to the lack of correlation.

At the same time, the 15 areas with the lowest public housing percentage (<5%) also have the lowest overall rates of crime convictions. They also tend to be the wealthier areas (Mosman, Lane Cove, Hunters Hill etc), irrespective of the public housing mix.

5.9 Analysis and Discussion: Warwick Farm Questionnaire Results

5.9.1 Demographic Information and Safety-at-Home Experience

It should be remembered that respondents in any survey are self-selecting, whatever the proportion of the population that responds. This is an unavoidable fact of survey analyses. It is thus not legitimate to argue that only respondents who are afraid or who have had a victimisation experience would want to answer the questionnaire, and that therefore the results are not representative. This is always the case.

Nonetheless, any discussion concerning the findings from this survey relate only to the respondent sample, and cannot be generalised to the entire Warwick Farm population. The findings might be indicative, in a micro-cosmic sense, of the general situation, or not.

Given the very high degree of respondents who indicate that they are afraid, particularly at night, and the apparently high degree of victimisation experiences (as here defined) it is incumbent on the authorities to investigate further whether this is a sign of a general malaise; or at very least to address the legitimate concerns of these people, however small in number.

TABLE 1									
AGE X Gender; Average years at address; Feel safe at home (Yes/No)									
	Male	Female	T	% 153	Yrs	Yes	No	T	
0->9	1	0	1				1	1	
10->12	4	2	6		9	2	3	5	
15->19	2	2	4		6	3	1	4	
20->24	3	0	3		18	3		3	
25->34	7	19	26	17%	6	7	14	21	
35->49	16	21	37	24%	7	11	19	30	
50->64	18	22	40	26%	18	19	9	28	
65>	7	29	36	24%	19	16	19	35	
<i>M issin g = 8</i>	58	95	161			61	66		
% o f 153	38%	59%							
Sa fe / Ye s	20%	29%							
Sa fe / No	15%	35%							

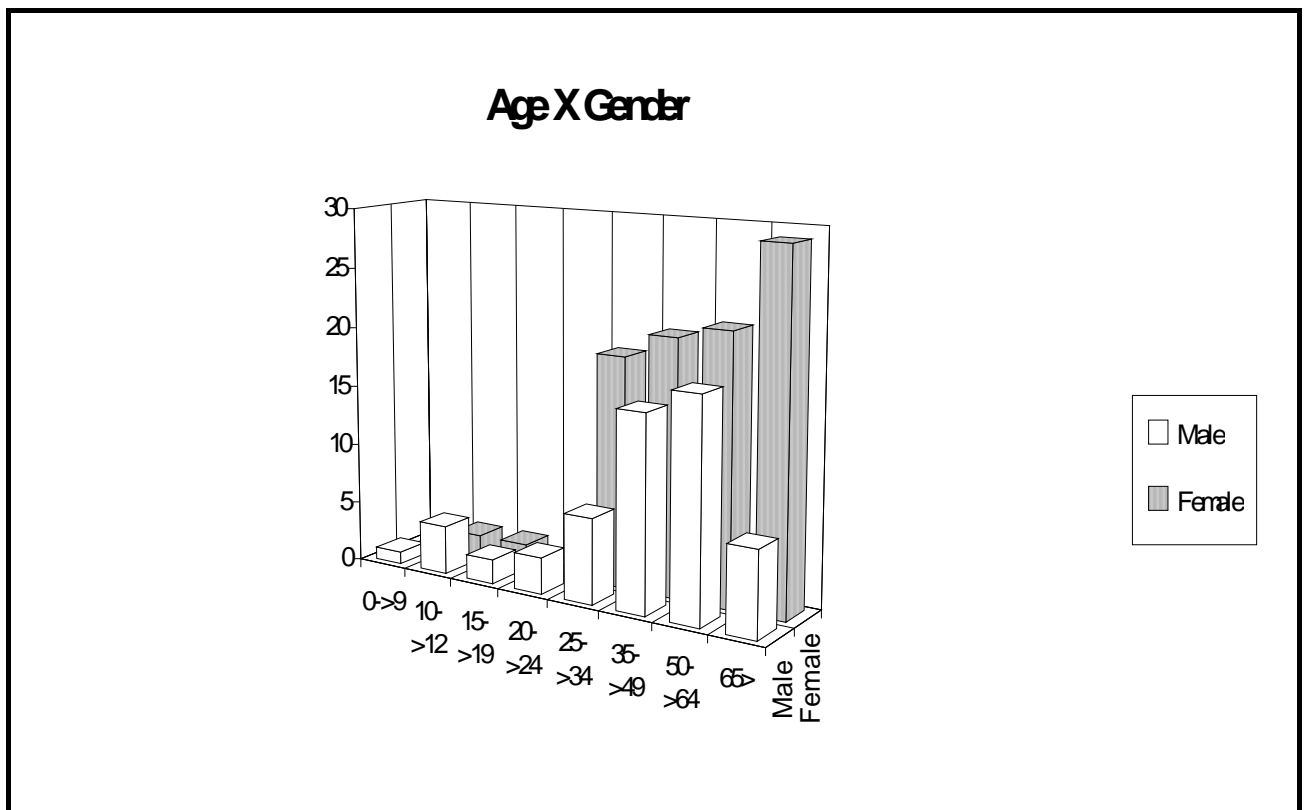


FIGURE 1: Breakdown of Age/Gender Profile of Warwick Farm Sample

5.9.1.1 Discussion/Table 1 and Fig 1

Table 1 indicates that the total number of valid responses was 161. In the 8 Collector Districts (CDs) surveyed 1,750 households were targeted. It is difficult to estimate the percentage response rate since some households consist of a single person, while others are nuclear families. Thus, the rate of response is 9.2%, but in reality the figure is somewhat less. Statistically, a 10% sample can be adequate, and postal surveys are notoriously poorly returned. Nonetheless, a longer pre-questionnaire period would appear to a vital element in ensuring a better return rate. The time period allowed for alerting the community to the impending questionnaire drop was inadequate; and a wide section of community leaders should be 'primed' before the drop.

59% of respondents were female, 38% were male (and 3% never answered the question).

The majority of respondents were adults in the 25-65+ range, which means that the sample is quite representative, and is not exceedingly slanted towards elderly single women, for instance, whose fear levels might be expected to be elevated relative to the rest of the population. Nonetheless, the largest group were females in the 65+ group, with a noticeably smaller percentage of males in the age group answering the questionnaire - either because females outlive them by several years, or because they are not afraid, on the whole. It is not possible to know which.

The highest frequency of male respondents fell into the 35-64 age group, which is interesting. This is the group which might be considered to be least vulnerable. Their lifestyles, unlike those of younger males, would not be associated with Saturday night type drinking events, which bring with it a higher likelihood of assaults, and they would not yet be entering the retirement phase, with its incumbent and increasing physical frailties. It might be that they have elderly parents, wives and/or teenage sons and daughters, for whom they are concerned.

Almost equal numbers of women in the three age groups 25-34, 35-49 and 50-64 responded to the questionnaire; with the highest response rate being in the 65+ group (over 30% of female responses). The fact of women's vulnerability is well recognised. The data confirms the trend.

The very low response rate amongst the younger groups is also not surprising. It is amongst these age groups that a high proportion of the perpetrators of the harassment mentioned by respondents would fall. In general, they would not feel fearful (although clearly some younger people do, and mentioned being afraid of gangs, or certain areas, or only feeling safe

during the day, here as elsewhere, which helps account for the daytime occurrences; and school-children who jump back fences from the reserve land also tend to be active after school, before they return home for the night.

In other words, property offences occur as readily during daylight hours as afterdark, whereas offences against the person have a greater tendency to occur afterdark, when surveillability opportunities are lower and there is less chance of a victim being able to recognise an aggressor, for instance. Alcohol will also tend to be consumed afterdark, with all the incumbent behavioural responses becoming evident later at night.

Concentration on the prevention of night-time fear would seem to be an appropriate response for authorities. As expected, there is a higher incidence of fear reported than that of victimisation experiences, although a 63% victimisation response is very high in its own right. This heightened sense of fear, nonetheless, has important consequences in reality. It influences what people do, and where and when. With people afraid to go out at night, the risk for those who do venture out is multiplied. With fewer potential witnesses or potential 'rescuers' around, the isolation of night-time users is increased dramatically.

Thus avoidance behaviour influences the general ambience of a neighbourhood, and sets the tone. If large numbers of people felt confident to walk around at night, the situational opportunity for potential offenders would be totally different.

Evaluations and interpretations of the situational setting cues
predominant in the Warwick Farm Station domain
and each CD domain in the study area
have been made in Section 5.10 - The CPTED Analysis.

Reference should be made to the descriptions in that section,
which are based on the mapping of the data appraised below.

Similarly, reference should be made to the individual and composite maps
(in the Map Section accompanying this document),
which provide a visual analysis of the data.

5.9.2 *Sense of Risk/Insecurity and Victimization Experiences* ⁵

TABLE 2				
Number of Unsafe and Victimization Reports per Collector District, Station etc				
CD	Victimization	Unsafe	T	% of T
806	18	28	46	9
807	40	59	99	19
808	33	43	76	15
809	32	31	63	12
905	26	15	41	8
906/7/10	37	25	62	12
Station	20	70	90	18
Pioneers	5	8	13	3
L. High	1	6	7	1
L. Hospital		6	6	1
Westfield	1	0	1	0
Other		5	5	1
	213	296	509	

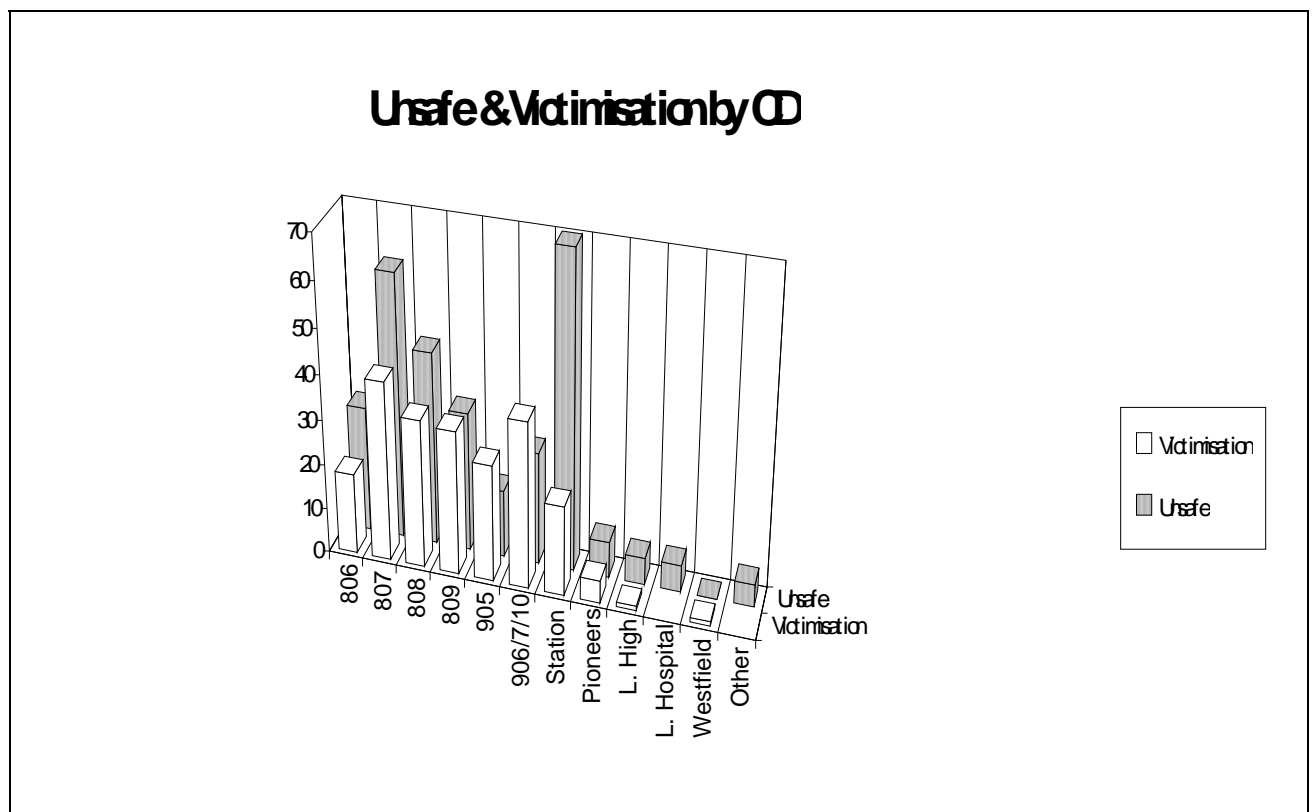


Figure 2: Frequency of Insecurity Perceptions and Victimization Experiences, by CD

⁵ The analyses include responses to some places (major facilities/park etc) which are separate from the CD areas. Other than responses to the Station and Tunnel zone, very few responses were made regarding these areas, which can be observed visually in the bar charts.

5.9.2.1 Discussion of Table 2 and Figure 2

The data displayed in the Table and Figure do not correspond to sample size. One individual might have felt unsafe in several areas, or none, or unsafe in the whole area, or unsafe at night in the whole area; and have had several victimisation experiences, or none at all. Inferences about overall ratios cannot be made from this overlapping information.

The high number of victimisation reports is also due to the inclusion in this category of events such as nuisance behaviour and verbal harassment, which can be frequent but will not normally be reported or recorded.

CD 807 (the Hinkler/McGirr domain) and the station domain (including the tunnel) account for 19% and 18%, respectively, of the overall unsafe/sense of risk and victimisation mentions. The vast majority of the mentions in the station domain concern a perceived sense of risk, rather than actual victimisation reports. This is possibly due to the fact that when commuters arrive there are relatively large numbers of people in the vicinity of the station, and this would be in the evening or afterdark, after work, when the deterrent effect would be most salient. This would be less evident for departing commuters, who would tend to converge on the station from different directions albeit at similar times (train timetables are likely to be known).

CD 807, on the other hand, also has the highest number of victimisation experiences of all the domains. The user experience data is explicit; but does not mimic either the recorded rates of crime for the area, or the incident frequency. It is discussed later (see 5.10) why this might be the case.

CD 808 accounts for the third highest expression of fear and victimisation, again, the perception of risk predominating, and here the concentration of police recorded rates is closer to expectations based on user experiences.

It is important to note that although CD 905 is experienced as the 'best' domain overall (together with CD 806) user experiences of victimisation are higher than the sense of fear. Moreover, these victimisation experiences tend to reflect the recorded police statistics - the area is more prone to crime than 806 (see Recorded Police Statistics maps). Is this an example of a false sense of security, similar to the mismatch between people's perceptions of being safe near their homes but nonetheless being victimised there, as reported by

respondents in Merry's (1981) research cited earlier? Is the proximity of Westfield helping engender this sense of security ?

A similar pattern can be noted in the high density domain CDs 906/7/10 - fear is less than victimisation. Few people seemed concerned about these areas, but, again, police data indicate that this area has the highest rates of a range of recorded crimes in the WF area.

The Westfield Shopping area was perceived as safe, (particularly during the daylight hours). This reflects the perceptions of women in the "Ask Any Women" Liverpool survey (Safe Women - Liverpool Project, 1994).

Mapping

- The *Sense of Risk and Victimisation Composite Map* shows a clustering in CDs 807 and 808, and the station domain (which because of its concentrated land-use, appears as the most problematic area of all).
- It is interesting to note on the *Recorded Police Statistics Map* that crime incidence is relatively less concentrated in the above two CD areas, while the high density, privately owned areas (CDs 906/710) are disproportionately represented (having the highest incidence of vehicle theft, break/enter/steal, malicious damage, and assault). These latter areas hardly feature on the Fear/Victimisation maps.

See CPTED Evaluation for further discussion.

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5.9.3 Sense of Fear/Risk/Insecurity

TABLE 3									
UNSAFE by Category and CD									
	A	B	C	D	E	F	G	Tot	% of T
806	4	5	4	5	2	1	7	28	9
807	10	8	8	5	6	16	6	59	20
808	9	7	5	12	3	7		43	15
809	6	1	5	13	1	3	2	31	10
905	3		2	6		1	3	15	5
906/7/10	5	3	4	7		3	3	25	8
Station & Tunnel	29	3	5	26	1	2	4	70	24
Pioneer Park	1	2	3			1	1	8	3
Liv. High	3		1	2				6	2
Liv. Hos	4		2					6	2
Hume			1					1	0
Westfld			1					1	0
Other	1	1					1	3	1
	75	30	41	76	13	34	27	296	
% of T	25	10	14	26	4	11	9		

LEGEND: SENSE OF RISK

- A = General Sense of Risk, Rumour, Hearsay
- B = Drunks, Alcohol or Drug related
- C = Youth-related
- D = Limited Surveillability & Visibility; Low Lighting, Deserted...
- E = Increased Accessibility/Porosity
- F = Decreased Territoriality, Inappropriate Neighbours, Known Criminals
- G = Other (previously robbed, low police presence, followed....)

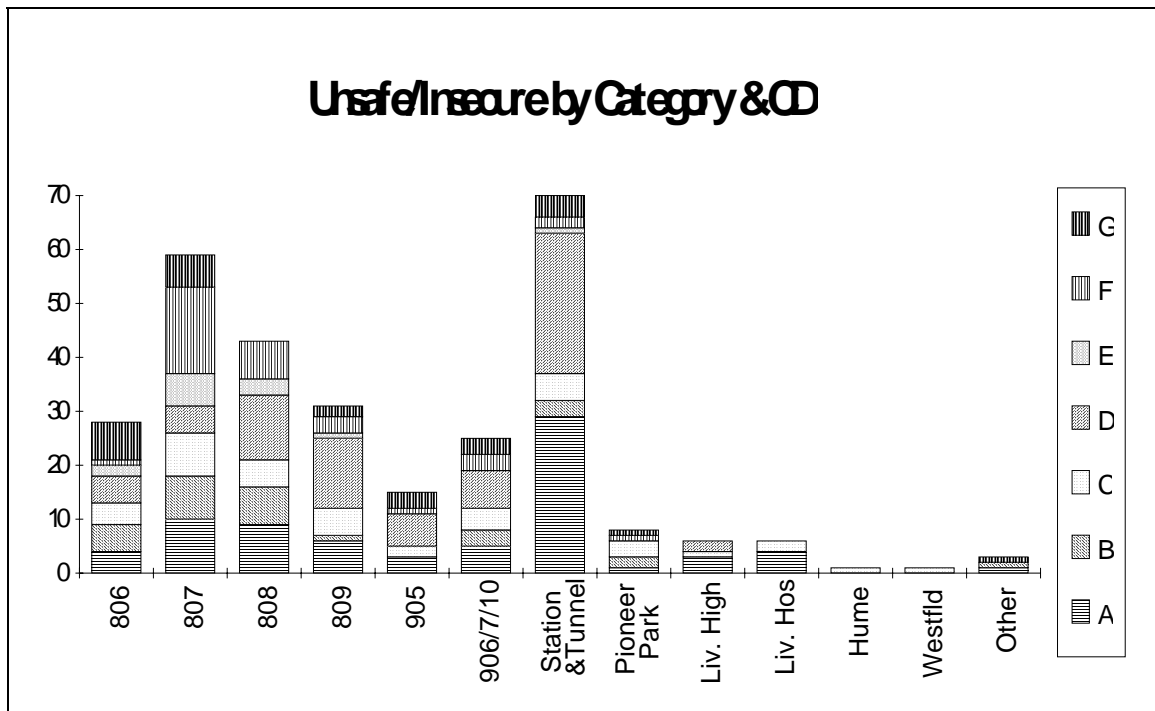


Figure 3: Sense of Risk/Insecurity/Fear, by Content Category, and CD domain

5.9.3.1 Discussion of Table 3 and Figure 3

The greatest sense of Fear or Risk is associated with the station/tunnel domain, accounting for 24% of the total; thereafter CD 807, and then CD 808. This pattern underlies the composite charts and maps.

The highest sense of fear associated with the station/tunnel domain relates to an overall sense of risk, unease, and to knowledge of people being harassed, mugged, bashed there (including rumours and hearsay), and issues related to poor surveillability potentials, including the lighting and a sense of isolation or desertion.

The highest sense of fear associated with CD 807 is the low territoriality issues, including problems with neighbours and neighbourhood circumstances generally. Similarly, several respondents named people living there who are known to be dealing drugs, burglars, or gang leaders.

When all domains are evaluated by category, the general sense of risk and rumour/hearsay category is equivalent to the decreased surveillability category; the former largely a social/motivational issue, the latter, largely a CPTED/situational issue. In third place is youth-related issues. These would be related to gangs, 'vandals', intimidation, teenagers hanging around/loitering/roaming/running in front of cars or blocking roads, etc.

Mapping

- Refer to individual Sense of Risk Maps, which correspond to the Legend Categories.

- Refer to Composite Sense of Risk Map.

This Map indicates the general sense of fear which respondents expressed with regard to Warwick Farm.

Over and above the patterns shown on it, 29 respondents circled the whole area - 11 said "everywhere at night", 8 said "everywhere, all the time", and 11 said "never safe anywhere".

See CPTED Evaluation for further discussion

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5.9.4 Victimization Experiences

TABLE 4									
VIC TIM ISA TION by Category and CD									
	1	2	3	4	5	6	7	Tot	% of T
806	1		2	4	4	1	6	18	8
807	2	2	15	4	5	3	9	40	19
808	4	2	14	5	4	1	3	33	15
809			12	2	1	3	14	32	15
905			17	3		3	3	26	12
906/7/10	2	4	10	7	5		9	37	17
Station & Tunnel		2			5	8	5	20	9
Pioneer Park					2	1	2	5	2
Liv. High							1	1	
Liv. Hos									
Hume									
Westfld					1			1	
Other									
	9	10	70	25	27	20	52	213	
% of T	4	5	33	12	13	9	24		

LEGEND: VICTIMISATION

- 1 = Steal Car or Motorbike
- 2 = Break and Enter (Car)
- 3 = Break and Enter (Domestic)
- 4 = Malicious Damage
- 5 = Assault/Robbery (Rape)
- 6 = Sexual Harassment, including stalking, being followed
- 7 = General Harassment, including verbal abuse, racial, accosted by drunks, noise

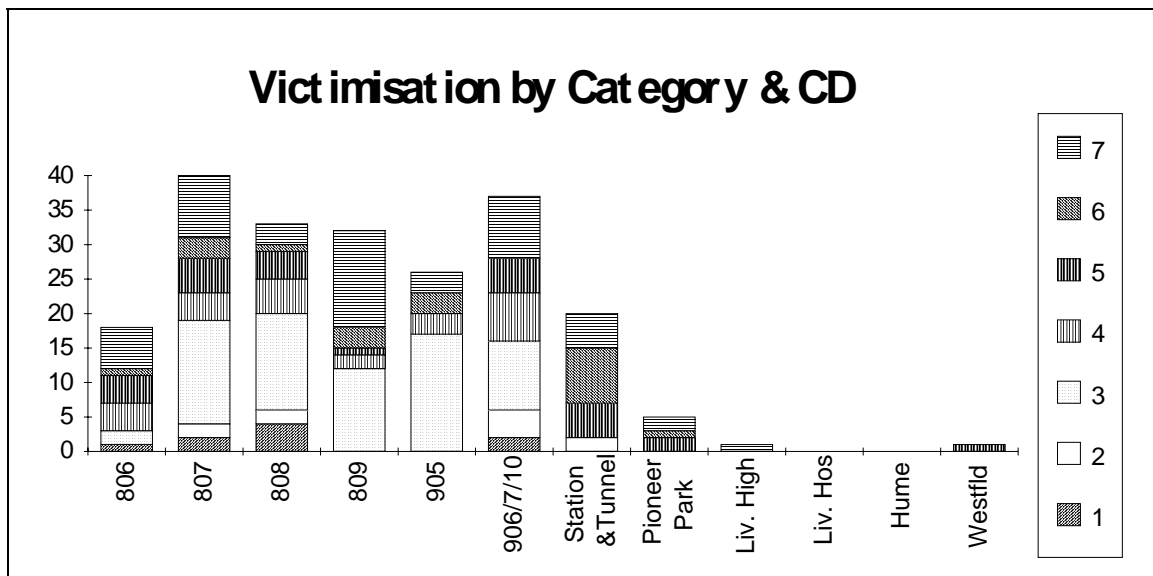


Figure 4: Victimization Experiences, by Content Category, and CD

5.9.4.1 Discussion Table 4 and Figure 4

Once again, CD 807 scores highest for victimisation experiences, closely followed by

CD 906/7/10, the high density zone, and then by CDs 808 and 809.

The issue of most concern recalled by respondents in CD 807 is being burgled. This is also true for the other CD domains listed above.

Indeed, for the WF area overall, break, enter and steal was the highest victimisation experience, accounting for 33% of recollections. CD 806 was the obvious exception to this rule (and was generally the area with lowest victimisation experiences).

The issue of General Harassment is most prevalent in CD 809, which is probably related to the tunnel entrance zone, the Golden Hind mismatch of tenants, and the Lawrence Hargrave School zone, with its poor surveillability (housing backing onto it, and the very dark and desolate Station rd zone which borders it, the railway line and reserve land).

General Harassment is also the second most prevalent victimisation issue overall, accounting for about 24% of recollections. This category would not be recorded at all in the police data, but quite clearly has a serious impact on people's quality of lives. Events recorded in this category, other than verbal abuse, include: threatening letters, racist vilification, being threatened by male youths at night, accosted and money demanded, being sworn at, spat at, harassed for food/money by drunken neighbour, etc.

Sexual Harassment experiences are related most strongly to the tunnel zone.

The station/tunnel/Berryman Reserve domain does not feature highly for victimisation generally, *but* it must be noted that property crimes are absent from this domain. If categories 3 and 4 ((break/enter/steal and malicious damage) are removed from the charts, victimisation in the station/tunnel domain is as prevalent as in CDs 807, 809 and 906/7/10.

Mapping

- Refer to individual Sense of Risk Maps, and Composite Sense of Risk Map.
See CPTED Evaluation for further discussion.

5.9.5 Sense of Security

TABLE 5										
SAFE by Category and CD										
	a	b	c	d	e	f	g	h	Tot	% of T
806	5	3	1				4		13	20
807	1	1		2	1			1	6	9
808	2			3					5	8
809		3			1			1	5	8
905	2			8	4				14	21
906/7/10	2	1		3	2	3			11	17
Station & Tunnel									0	0
Pioneer Park									0	0
Liv. High				1					1	2
Liv. Hos				1					1	2
Hume				2			1		3	5
Westfld				6		1			7	11
	12	8	1	26	8	4	5	2	66	
<i>% of T</i>	18	12	2	39	12	6	8	3		

LEGEND: SENSE OF SAFETY

- a = Know People/Friends
- b = Good Neighbours/Neighbourhood Watch/Sense of Community
- c = Quiet Area/Little Through Traffic
- d = Animated Area/Lots of People
- e = Good Lighting
- f = Police Presence/Patrols
- g = Other (Few Youths/Little Vandalism)
- h = Own House

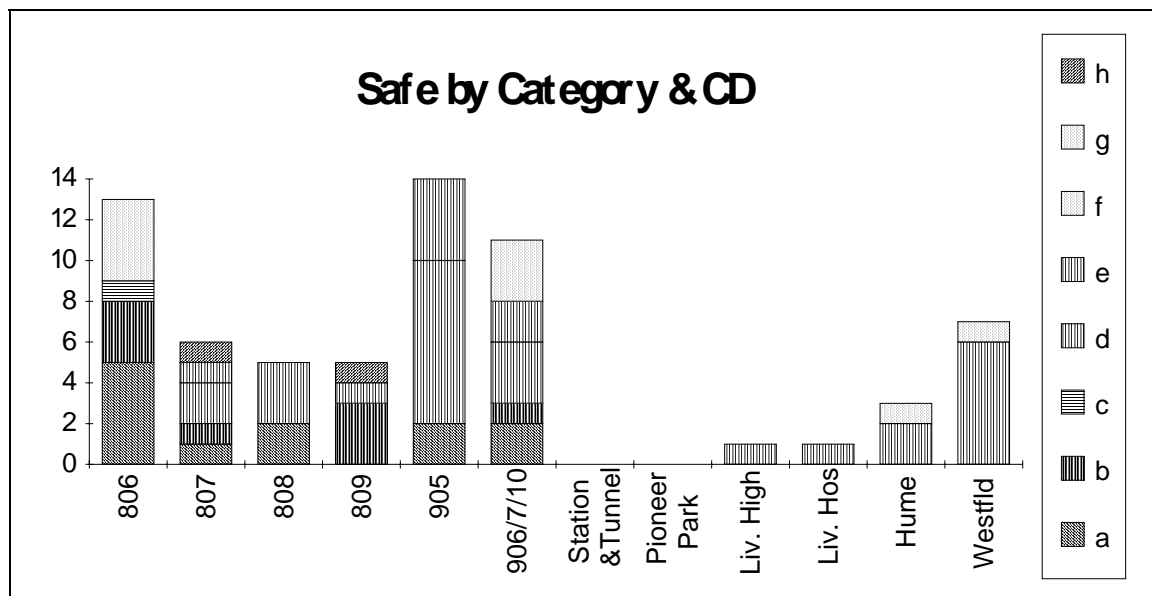


Figure 5: Sense of Safety, by Content Category, by CD

5.9.5.1 Discussion of Table 5 and Figure 5

CDs 905 and 806 were perceived as the safest in the WF study area.

In CD 806 this related to the fact of knowing people ("original residents still living there") and good neighbours, while in CD 905 the high animation issue was most important - obviously related to the adjacent Westfield Shopping precinct (and particularly during the daylight hours). We know from the police statistics that this area also has a relatively high incidence of sexual assault, and three such situations were recollected by female respondents to the user questionnaire. The validity of the situational approach is in evidence here - the specificity of crimes not being swamped by general impressions.

The high density zone was also perceived as relatively safe by the respondents, while police statistics indicate it as the worst domain in many situations. This issue is discussed further in the CPTED evaluation.

Overall, all CDs considered, the reason cited most often for feeling safe was Animation, the presence of many other people. This confirms the essential CPTED understanding, that where surveillability potentials (and hopefully intervention potentials) are high (due to the presence of others), people feel safer (and we know from criminal perception studies that criminals feel less sure about committing crimes in such situations too).

Mapping

- See Composite Sense of Safety Map

See CPTED Evaluation for further discussion.

5.9.6 SAFETY AT HOME

TABLE 6							
FEELINGS OF SAFETY IN OWN HOME REASONS							
				Male	Female	T	% of T
Avoidance behaviour				2	14	16	13
Self-Confidence (and God)				2	5	7	6
Building Security/Accessibility (and dogs)				17	50	67	54
Area/Neighbourhood				7	2	9	7
People/Neighbours				8	14	22	18
Police				1	1	2	2
Lighting					1	1	1
T				37	87	124	
% of T				30	70		

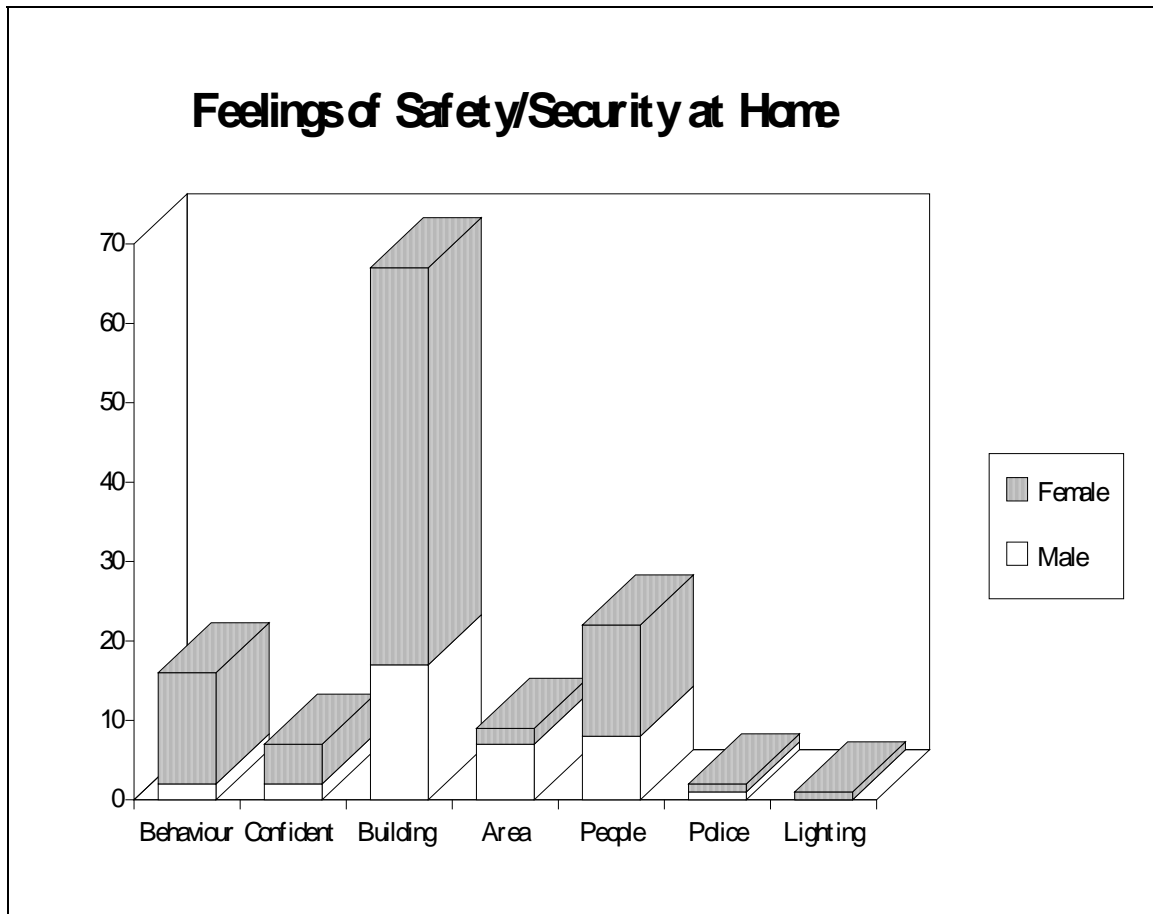


Figure 6: Sense of Security at Home, by content category

5.9.6.1 Discussion of Table 6 and Figure 6

54% of responses to why people felt Safe at Home related to building security issues. These are strongly related to the accessibility of outsiders to their homes, and hence focus on strength of front doors, locks on front doors, security doors, locks or bars on windows, and not being on the ground floor in multi-family blocks of units. Having a dog was also considered a good deterrent.

18% of responses related to having good neighbours and other people around (animation); while 13% felt safe because they *avoided going out*, particularly at night, particularly elderly women. This, if anything, is evidence of fearful expectations rather than a good reason for feeling safe at home.

A few respondents mentioned that they felt self-assured, either because they were strong, or trained in martial arts, or because God had and would continue to look after them.

From a CPTED point of view, very little emphasis was put on the capacity to see what is happening outside, and monitor or control that as a consequence. The clear impression is one of avoidance of non-private places, which is an indication of the low sense of appropriation

and responsibility which these respondents feel towards the areas outside of their private domains, or their neighbourhood. The basic instinct seems to be to protect oneself from being invaded.

Interestingly, again the issue of the presence of other people (the right kind of people) as an overall factor of security is raised. It seems relevant at both the neighbourhood and the home level. Community is a powerful force.

The presence of police patrols is not an issue for safety at home (at the neighbourhood level this is different).

It can be seen from the Table and Figure that the vast majority of respondents who felt safe at home are, in fact, women. This is the bastion, a place where (most things being equal) one can be protected from outsiders, from being treated as a woman by men rather than as a person. The study did not delve in any way into the issue of violence at home and, from the findings, this sample does not appear to have any problems in that regard. No mention was made in the replies about bashings or child abuse. This might be because if there is a perpetrator of such abusive behaviour they are also likely to be privy to the answers to such a questionnaire, which would naturally inhibit any declarations.

Similarly, Table 7 (over) does not have any indications of such behaviours at all.

Given the known facts about the incidence of violence against women at home, it is curious that absolutely no mention of it is made.

The issue is not pursued in this study.

5.9.7 INSECURITY AT HOME

TABLE 7							
FEELINGS OF INSECURITY IN OWN HOME: REASONS							
				Male	Female	T	% of T
Previous Experience, Knowledge				4	17	21	17
Situation, Sense of Hopelessness				1	16	17	14
Building Security/Accessibility				4	19	23	19
Area/Neighbourhood				1	1	2	2
People/Neighbours				6	42	48	39
Insufficient Police				1	6	7	6
Lighting				2	2	4	3
T				19	103	122	
% of T				16	84		

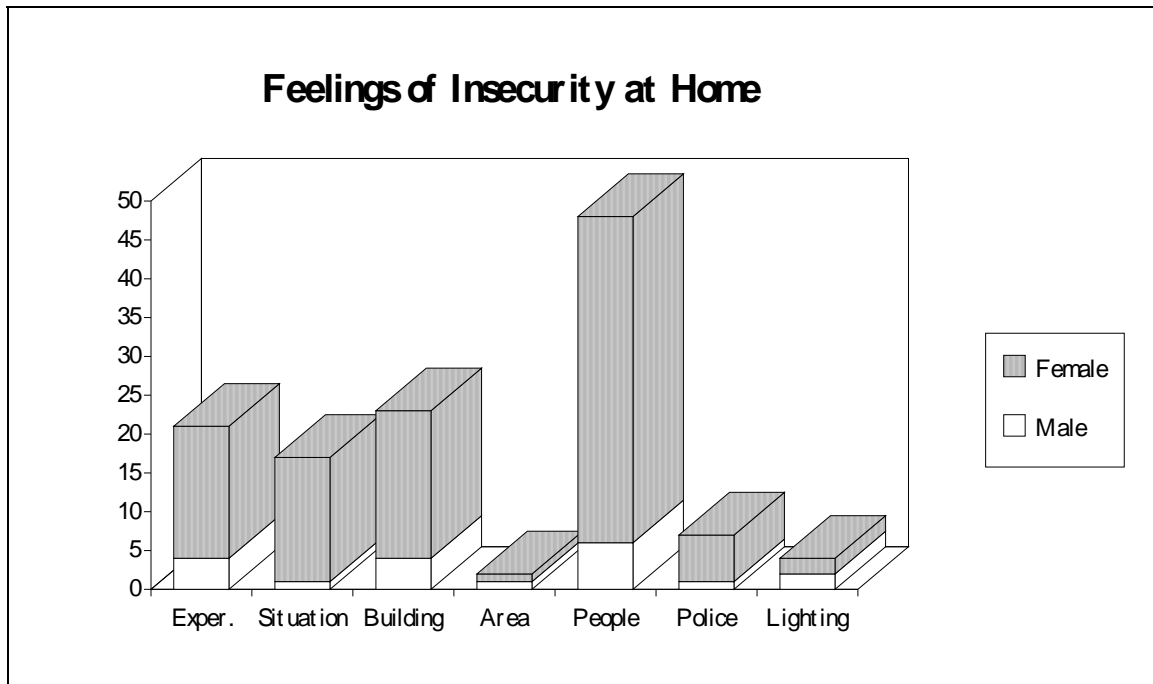


Figure 7: Feelings of Insecurity at Home, by Content Category

5.9.7.1 Discussion of Table 7 and Figure 7

The major reason why respondents feel insecure at home is because of bad neighbours (who harass or steal) and people in the area, especially drunks, 'druggies/junkies', and teenagers roaming the streets. Another issue is the mis-match between different lifestyles associated with different lifecycle phases (elderly and young).

Cross cultural issues also emerged, in the sense that certain ethnic groups were associated with certain behaviours, either illegitimate (selling drugs, eg) or legitimate but found offensive (spitting, eg).

Overall, 39% of responses relate to 'people', and only 19% to building security issues - the reverse of the reasons why respondents felt safe at home.

Another important reason for feeling insecure was recollections of previous bad experiences, especially having been burgled, or knowing of others in the neighbourhood who had been.

Latest NRMA figures indicate that a home in NSW is broken into every 9 minutes (Daily Telegraph Mirror/Dec 14, 1994) !

Again, it is women who are overwhelmingly the people who feel unsafe at home (84% of respondents). Of this group, 41% relate these fears to neighbours and other people - compared to 57% who felt secure because of the building security issues.

The reason why women respondents can be both more secure and more insecure at home is a consequence of open-ended questioning. Some home-related issues are responded to negatively, others positively - yet another reason why ticking a Yes/No box is meaningless.

It should also be noted that while the number of insecurity and security mentions are almost the same, the female/insecurity mentions are the most predominant factor of all.

5.9.8 Coincidence between Neighbourhood Indicators and Crime, Victimization and Fear

The Warwick Farm pilot study introduced the notion of the neighbourhood indicator walkthrough, as a form of post-occupancy evaluation. Two checklists were devised, one for Neighbourhood Malaise Indicators (NMI) and one for Neighbourhood Quality Indicators (NQI). Section 4.1.3 has a breakdown of the factors evaluated.

The entire WF study zone was walked through, and a night tour was undertaken by car.

Maps were produced at a micro-scale, since the quality/malaise indicators vary from situation to situation.

The composite map indicates that an area such as CD 905, which respondents generally perceived and experienced as safe, has a relatively high number of quality indicators; while an area such as CD 807, perceived and experienced as unsafe has a relatively high number of malaise indicators.

The CD areas 906/7/10, which did not seem to feature strongly in user's perceptions and experiences, but which recorded police statistics show as the area of greatest crime occurrence in many of the categories selected for evaluation, also has a relatively high level of malaise indicators occurring there.

Low density housing with gardens lend themselves to personalisation, if the will is there. However, even if a unit tenant or owner should wish to personalise their domain, it is difficult because of the physical constraints and, often, the body corporate will deny residents the right to alter the external appearance of the building. Personalisation of semi-private and semi-public spaces such as courtyards or gardens is similarly constrained.

It is thus not surprising that more personalisation occurs in detached housing.

Nonetheless, there is no predominant reason - from the resident's point of view - why malaise should occur less in detached housing domains than in high rise domains.

The prevalence of malaise indicators in the high density privately owned domain is thus probably indicative of design issues which allow high levels of porosity, for strangers to move through the area (perhaps to/from the station), a low visibility potential (poor lighting, eg) etc.

5.10 CPTED ANALYSIS OF WARWICK FARM STUDY AREAS

Incidence patterns of recorded crimes in Warwick Farm were used as one portion of the following analysis. The epidemiology of 6 crime-locations were mapped and combined with user experience maps. The frequency and distribution of 6 crimes categories were mapped: three crimes against property - Break/Enter/Steal (BES), Malicious Damage (MD) and Vehicle Theft (VT); and three crimes against persons - Assault (A), Sexual Assault (SA) and Robbery or Steal from Person (S). Crime rates were calculated as a ratio of the number of crimes recorded in a CD to the number of persons resident in that CD.

For purposes of analysis, a sample of three sub-areas in each Collector District (CD) area and the station domain were identified as having importance to respondents to the survey. In only

two cases were these sub-areas perceived as areas of safety/security. The rest were problematic either in terms of perceived fear, or victimisation experiences, or both.

CPTED case studies of 4 micro-areas are also presented. In all cases, the socio-cultural and personal factors which dominate in-built physical design potentials are acknowledged here but not pursued. Such an analysis would demand its own investigation.

There is a logistic problem with carving up the study area into CD zones. The boundary of one zone is simultaneously the boundary of another. CD 807 and 808, for instance, meet at Mannix street. Events occurring there would be 'half way up and half way down', to cite the old proverb. It is, however, necessary to package the study area in order to cope with the multitude of interacting factors under consideration, the way in which official statistics are collected, and the often distinct building typology evident in the different areas. Nonetheless, interactions occur as *discrete situations*, whether or not officially gathered data matches this.

The CPTED checklist developed by the consultant (and on which the following evaluations and interpretations are based) is sub-divided into the three fundamental CPTED factors: surveillability, accessibility and territoriality.

Within each factor is a range of elements, each with their own sub-elements.

The Surveillability Potential factor includes issues of *Seeing*, including Sight (*ie* seeing from, seeing down, and ability to see), Light, and Might (policing), and issues of *Being Seen*, including Occupancy and Animation. Interiors of buildings are excluded from the present checklist, as are complicating factors such as Privacy.

The Accessibility Potential factor includes issues of Access and Egress (positive and negative), Public-Private Domains, and Security Hardware.

Territoriality/Suggestibility includes positive issues such as Appropriation of Place and Symbolic signs of Responsibility, and negative issues such as Attractors (pubs etc) and signs of Neighbourhood Malaise (vandalism etc).

- At the level of the overall Warwick Farm (WF) study area, a broad brushstroke analysis of each Collector District is presented. The 4 case study evaluations are presented within the context of their respective CDs.

- The Warwick Farm study area contains a wide array of land-uses and activities, ranging from residential, through commercial, medical, street corner shops, two schools within its 'border' and two on its border (hence a large number of young people, thus increasing the likelihood of a-social behaviour events), an industrial zone on its one flank, the railway station on its other. And dramatically dividing up the area, a huge tract of reserve land, dark, uncontrollable, densely vegetated, public, vacant - giving ready access to the rear of about 150 houses - an accident looking for a place to happen !

Photo1: Reserve land / rear of houses

- Within this mix of uses, three basic housing types: high density privately-owned blocks of apartments, three-to-four-storey walk-up medium density DoH blocks, and low density, mainly fibro, free-standing houses with gardens, a large proportion of which are DoH properties. A wide range of fencing is evident in this latter house type: no front fence, a symbolic fence only, a fence securing off the backyard, or, in many cases a set of two fences facing the street, or reserve land. High rear fences are the rule, given the reserve land impact on the nature of the area. At the same time, very low levels of security hardware are in evidence in the low density housing, and some few of the streets give an air of middle-class ease of living.

contains one of the perceived safety zones. Respondents said this zone still contains sections of the original community, which enhanced the perception of the area as safe. CD806 also contains 5 cul-de-sac streets. Each, however, is designed with a pedestrian through path, connected to the hub or node. This design feature, it is contended, detracts from the classical enclosure quality with which this street design is usually associated, and which is thought to contribute to the lower incidence of criminal and harassment events which occur in non-through routes, and the sense of neighbourliness which contributes to the 'proprietary' experience in such domains. The circular hub at the end of each cul-de-sac magnifies surveillability potentials since houses are usually aligned overlooking the node. This is a form of 'convex syntax' (mentioned previously) where everyone can see everyone else in the space (a circular space is a perfect example). Whether the occupants actually take advantage of this enhanced sightline opportunity and monitor the area is, of course, not an automatic consequence of the design. Socio-cultural and personal factors will intervene in this equation.

General area characteristics are the following:

Average 13 dwellings/ha; 40% of the housing is DoH; 24% of the residents are single-parent families. Average recorded rates of crime, relative to the WF area, for the three year period 1991-1993, rank lowest for overall crimes against property (rate of 1.3) and for crimes against the person (also 1.3). Recorded crimes in the area are the lowest in the area for assault and malicious damage (MD), are average for robbery and on the low side for break, enter and steal (BES).

These rates for the entire CD area are influenced by the proximate location of the El Toro Hotel/pub facility (a negative attractor), which accounts for a large majority of the crime incidence. Assaults, robbery, vehicle theft and malicious damage to property can be seen to cluster in the vicinity of Homepride ave, and spill over into the contiguous section of Williamson cr. Homepride ave is also perceived by users as being an insecure area as a consequence of the drunken behaviour of some El Toro patrons, and/or they have been victimised in the area (mugged, for example). They also experience a diminished amenity as a result of the refrigerant truck motors which are left running all night in the El Toro parking lot, the dogs of the truck owners which roam the streets and bark at night, and the departure of these vehicles in the early hours of the morning.

5.10.1.1 A micro-analysis evaluation of one of these cul-de-sac zones, Stokoe st, is offered below (as an example - it is not different to the other cul-de-sacs in the area).

Users experience Stokoe st as a secure zone, with no reports of victimisation. Insecurity perceptions are related only to the use of the through-path by youths.

Stokoe st is the longest of the 5 cul-de-sac streets in the area. This is a disadvantage, in that the sense of entrapment which some people experience in cul-de-sacs could be exacerbated. Short cul-de-sacs, it is contended, are to be preferred for this reason (Carroll st being a good example).

Photo 2: Cul-de-sac hub and pedestrian through path; one street lamp; low surveillability

The level of street lighting at the entrance to the pedestrian through-path is 6 lux, which is the amount of lighting associated with relatively higher crime rates in a study cited previously. Other than this source of illumination, the path is totally dark along its length. The two dwellings that face onto the hub also face onto each side of the path, while two other dwellings back onto the path and face onto Williamson cr. High fences onto the path border the latter.

This fencing is such that visibility potentials are reduced to a minimum. This is a sign that privacy and the bounding of dwellings to reduce accessibility potentials are preferred over surveillability potential.

The effect of the pedestrian through-path extends beyond the cul-de-sac itself. It would be extremely easy for an individual, or group of individuals, to leave the reserve area to the north of CD 806 or the dog-training area adjoining the reserve, pass down the through-path into Carroll st, cross Williamson cr, enter the through-path leading to Stokoe st, walk down the street into Lawrence Hargrave rd, and then quickly be in the reserve area which separates CD 806 and 807. This high level of porosity could represent a perfect escape route type situation for a person intent on committing a crime. It is fortuitous for the residents in these non-enclosure type cul-de-sacs that so little crime occurs there. Possibly a strong community, the high surveillability potentials, and the distance from the El Toro zone are neutralising the high accessibility potentials.

Photo 3: Through-path, looking back to hub; fencing & low visibility potentials

It is of interest that Hillier (of 'space syntax' renown) rejects the notion that enclosed residential domains are safe, insisting that pedestrian through-movement discourages burglary and street crime, and that outsiders should be encouraged 'to use housing estates as short-cuts' (Ostler, 1994). Related to urban activities, the idea of increasing animation and reducing dormant spaces is correct, but applied to residential environments the interpretation seems fallacious. Residential zones should be integrated and not isolated, it is true; and pedestrian and vehicular movement is a form of natural policing, but unless users of an area have some sense of responsibility towards it, some intrinsic reason to be there, *ie are not strangers cutting through*, such spatial behaviour is an invitation for trouble. As the level of street interaction falls naturally at night, and residents retire inside their homes, an ideal low risk/high reward situation is generated by Hillier's paradigm.

The cul-de-sac, however, is a natural form of traffic calming, which allows for a more benign mix of vehicles and pedestrians and even children playing in the street - without excluding vehicles and thereby diminishing potential surveillability opportunities. It does not represent isolation but integration, by Hillier's own definition (the fewest number of intersecting lines of sight).

Nonetheless, there is no guarantee that a cul-de-sac design can eliminate fear and harassment. The example of the specific harassment perpetration and experience of two neighbouring families in an adjacent cul-de-sac is evidence of the power of socio-cultural forces to dominate in-built, physical design potentialities.

5.10.2 The Freeman Oval:

The Open Space bordering Lawrence Hargrave rd and Warwick Farm School

This micro-area has almost no recorded crime (1 event of malicious damage) but is perceived by respondents as very unsafe, largely because it is not lit at night, and has dense bordering vegetation in which people who might be intent on preying on the children playing on the swings could easily hide. It gives access to the Durrant Oval as well. After the close of school in the afternoons, the area could become deserted.

Micro-design changes (to lighting and vegetation, for instance) could alter this perception of the area. As it stands, people tend to display avoidance behaviour, and simply not use the area as it might be used.

Photo 4: Area in front of WF school; note landscaping, lack of lighting

5.10.3. CD 807

CD 807 is problematic, even more in terms of perceptions of fear and victimisation experiences, particularly relating to personal harassment and assaults, than recorded crimes. The area contains several individuals who were named by respondents as being active drug-dealers, property thieves, and members of gangs which intimidate local residents (they also call out coded war-cries late at night just prior to committing some anti-social if not criminal offence in the area). Two trouble zones seem to be apparent, one being the western ends of Hinkler st and McGirr pde, where the above individuals are largely located, and the other being the walk-up medium density DoH housing zone around the Hinkler Lane area. This latter zone has been selected for a more detailed evaluation.

The western ends of the two streets also have a curved street form, which diminishes sightline potentiality. This zone seems to be the preferred area of activity of the gangs, perhaps also related to the enhanced sense of power they can wield where sightlines are poor, given that they are in control of the area. Even people in cars are intimidated by the gang members who walk in the middle of the road. Local residents daren't hoot at them for fear of being attacked.

Photo 5: Diminished sightlines due to curvilinear road form

A third zone of some problem is the western end of Gallop st, where the road is not bounded at its extremity by any properties, but gives directly on to a sandy area bordering the reserve land. A Water Board facility further depersonalises this area. Negative user experiences of the area focused on the use of this area as a wheelie zone, where youngsters spin around in their cars, and hurtle off down the street at great speed. A design issue easily remedied (by restricting accessibility to the turning area, or eliminating it altogether).

Other problems are associated with high accessibility potentials to the rear of the houses on the northern side which are contiguous with the reserve land, with consequent burglaries being experienced, and issues of youths taking drugs and drinking alcohol behind the Water Board structure.

Photo 6: Gallop St - wheelie zone

General characteristics of the area are as follows:

29% of residents are single parent families, 74% is DoH property. Average recorded rates of crime rank 2nd highest for crimes against the person, and 2nd lowest for crimes against property. This latter result might be partially explained by the difference between occurrence rates and crime resident rates *ie* the area might contain individuals who seek out other areas in which to more profitably commit property crimes (where possibly a higher degree of consumer goods could be found), while simultaneously victimising people who come into the area itself, either unwittingly, or those who have no choice but to pass through it, or to live in it. Given that an allocation policy might locate people in such an area because they happen to be the next name on the waiting list, and that re-locations are stringently constrained, people might well be trapped in an area where their lifestyle quality is seriously compromised.

The recorded events for the whole CD, relative to the whole WF area, break down into a high assault rate, average robbery and BES rates, and a middle range malicious damage rate.

In terms of Insecurity, as derived from the questionnaire survey, the area is associated with a high sense of risk; high neighbourhood malaise in terms of neighbourliness; youth-related problems on the Hume highway zone which borders the all night BP petrol station/FoodPlus store and late night Pizza area (open until 4am Fri and Sat, 1am other nights; high accessibility due to short-cuts between the Highway and Hinkler ave (could be closed off); and low surveillability (to be examined in more detail in the micro-area section).

Victimisation experiences include B&E (cars), malicious damage, assaults, robberies, sexual harassment and harassment in general (verbal etc).

5.10.3.1 The **Hinkler Lane** area separates 2 medium density (24d/ha) two-storey rows of DoH housing, which both back onto the lane. High fences limit surveillability and rear

yards give onto the lane *ie* there is little window overlook onto the lane, while at the same time gates in the fences are often left open, affording easy access to rear areas of the blocks. Storage sheds behind the fence further diminish visibility to the lane, and also represent targets for people intent on burglary. The lane is particularly narrow (20ft wide), and bends around the back of the blocks in such a manner that sightlines are extremely short. It is impossible to see what is ahead. The whole feeling is one of entrapment. It is the residential area in which the researcher felt least secure. Indeed a decision was almost made to not even drive through it, even during the day, given the seemingly high chance of meeting with an unavoidable and hostile human 'barrier'.

Photo 7: Entry to Hinkler lane. Note sightline.

Photo 8: Hinkler lane - rear of buildings facing onto lane, lack of lighting, short sightlines

Photo 9: Hinkler lane - rear; access to rear, low visibility into lane.

On the front porches of the faceless, unpersonalised blocks facing onto Hinkler ave there are frequently groups of men drinking beer. The student assessors who traversed the area evaluating physical signs of neighbourhood malaise also reported feeling intimidated, and at one stage were approached in a threatening manner by a group of youths, some with shaven heads. And street lighting levels are dismal, which add to the sense of menace.

It would appear that such design and planning parameters, when mixed with low socio-economic status and sub-cultural and gang elements are a potent mix. It is hard to see any easy solution short of demolishing the area, re-locating and thus dispersing disruptive individuals and households, and starting again - which all smacks of social engineering of the

most dire kind ! In the short term, the laneway could be closed, and access arranged from the front of the blocks of housing (off the highway and Hinkler st).

5.10.4 CD 808

This area contains the Mannix st domain, which is possibly the worst single area in terms of both recorded crimes and user experiences. It also contains one cul-de-sac zone with a through path to the Hume highway, and the houses immediately adjacent to that path have had frequent break-ins to their garages etc.

General characteristics of the area are the following:

26% of the population are single parent households, and 85% are DoH tenants. Recorded rates for assault, robbery, and BES are average for the WF area, while rates for MD are high. The epidemiology of these crimes shows a clear clustering around the Mannix st 3-storey walk-up DoH housing blocks (density of 60/d/ha), and stretching down towards the highway. Almost all the events occurred there.

Mannix st is perceived as a zone of high risk, with youth-related fears and problems related to drugs and alcohol, and low lighting levels (surveillability potential) and a high degree of 'neighbour' malaise. Victimisation experiences include BES, car theft, BE/car, MD and assaults

The level of street lighting is particularly poor around the housing estate. Indeed, lighting is provided largely by the lamps in the grounds of the complex, and a dark, vacant grassed area and feeder lane separate the complex from the street. Interestingly, the buildings themselves are not vandalised, and appear to be clean . Similarly, the stairwell areas are lit and reasonably visible from the exterior, which affords them a sense of overlook. Respondents did not mention the buildings, but Mannix street itself. Perhaps the youngsters (who are far and away the generators of the problems and fears experienced) do not foul their own waters ? or do not even necessarily live in the complex. It might be the area which has become an attractor for certain youth, a turf of some kind. Where groups do not have a high level of mobility, they tend to perpetrate their crimes and delinquencies close to base.

5.10.5 CD 809

This area is largely low density, with the Golden Hind (block of DoH housing) and similar complexes clustered around the top end of Lawrence Hargrave rd.

Problems encountered in the Golden Hind area are more related to building issues and allocation issues than areal impacts. Many of the elderly respondents, women in particular, indicated that the mix of young and elderly tenants is inappropriate, given the huge differences in their lifestyles. The elderly retire early and rise early, while younger households have an opposite pattern. Moreover, the elderly are intimidated by the behaviour of some younger tenants, and feel trapped in their own apartments, afraid to go out, and afraid to complain for fear of retaliation.

Differing philosophies of allocation mix have differing consequences. Segregation is unpalatable, since it is a form of discrimination - packaging the elderly into special zones is clearly unacceptable. They are not 'the elderly' but individual people with protracted histories and experiences, and all the interactive needs and social requirements of other non-elderly people. At the same time, mixing young families with rowdy teenage children and the elderly is also inappropriate - neither group is satisfied with that outcome.

5.10.5.1 Freeman st is a curious mixture of possibly the most highly personalised houses in the whole study area, but also leads onto the entrance to the station tunnel - the physical design feature of the area most obviously and starkly deficient in defensibility potential. This Freeman st zone is the third case study area, and will be evaluated in more depth below.

A cluster of recorded malicious damage acts is evident at the base of the street, proximate to the tunnel entrance. Some vehicle theft, and a case of sexual harassment are also recorded. Respondents also mentioned sexual harassment and assaults in the tunnel, and one woman was harassed in the tunnel, and thereafter for months, with 5am knocking on the door of her apartment in the medium density public housing at the base of Freeman st/Station st.

Photo 10: Bottom end of Station and Freeman sts & tunnel entrance

The particular medium density cluster of housing at the foot of Freeman st. exhibits some defensibility features and some indefensibility features, and is interesting to examine in some detail. It has dense vegetation along its border with the pedestrian path that leads to/from the tunnel, and therefore accommodates flows of train commuters, albeit intermittently throughout the day and into the evening, and a communal parking area also bordering this path. Accessibility is high, visibility is low; a sense of territory is not present. Similarly, the researcher was able to walk unchallenged around the complex, enter the front door, reach to the area where clothing is dried on lines, etc. The potential, however, for high surveillability and responsible control of space is there, given the courtyard configuration of the buildings. Personalisation of the courts was not evident. They still had a public feel about them. It is possible that activity patterns during daylight hours would be more intense in those courtyard areas, but by evening it appeared that the residents had withdrawn into their own homes and drawn the curtains, which made it exceedingly easy to penetrate into the domain, and if so desired, select a target, based on signs as occupancy, measures of the risks associated with levels of security hardware etc. The gatekeeper paradigm would be useful in such cases (the concierge/caretaker/door'man' genre so popular in higher 'class' housing areas) and limited entry/exit points, with security hardware to match.

Freeman street is an example of how good public housing can be. Low density (about 15d/ha), free-standing houses with well tended gardens and high levels of personalisation (furniture, pot plants, mailbox 'zones', trellis planting etc). Cars are parked on hard standing driveways within the confines of each property, in easy sight of residents. Walking up the street alerted a half dozen dogs to the researchers presence, all of whom were contained within fenced backyards and were unable to actually accost pedestrians. This barking possibly alerted one of the residents to the researchers presence, and he came out onto the porch to investigate - a clear sign of community control.

Security screen doors were in evidence everywhere, but no window bars or alarms (much like the vast majority of the WF study area).

Mowed lawns extend right onto the street with no fencing which, while indicating a sense of proprietary control and pride, also both symbolically and physically invites access to the property.

Street lighting is low, with lamps on one side of the road only, as is common in most of the WF study area.

Photo 11: Freeman st. - personalisation, appropriation but high accessibility potentials

In the vicinity of the tunnel, the street lighting is very poor. A bright floodlight is attached to the lamppole, and the light directed towards the tunnel (discussed later). Indeed, it is this light and a similar floodlight on the opposite end of the tunnel which provide all its light. The unwitting consequence of this floodlight is that it casts a dark shadow behind it, onto the grassed and footpath area at the base of Freeman and Station sts.

Station st. is lit from floodlights on industrial buildings across the railway line. Although this lights up the street and path, this light also shines directly into the windows of the houses bordering the street. Quite naturally, curtains are drawn tight on this side of the housing, which removes the surveillability potential of residents overlooking the street. This level of

lighting declines as the base of the street is reached. Station street is also experienced by respondents with some trepidation; however, the area which extends up past and beyond the Lawrence Hargraves school is totally dark, isolated and, quite frankly, terrifying.

5.10.6 CD 906/907/910

These three CD zones have been combined into one for purposes of analysis, given their very similar character and the small geographical area of each. This is a high density zone, not so much as a result of the height of the buildings, but their very close proximity. Densities here are in the order of 130 dwellings per hectare, which generates a special character for the area. Virtually the entire area is privately owned (910 = 100%) but, as argued earlier, this housing type could just as easily be a DoH precinct, and lessons are to be learnt from its evaluation.

Over half of the recorded sexual assaults in the WF area occurred in this 'triad' sub-area, as well as the highest incidence of assaults and robberies. A high incidence of break, enter and steal, and malicious damage are found here too. Vehicle theft rates in 907 & 910 are 11 and 14 respectively - compared to 1.7 in CD 809 and 1.4 in CD 806, for example.

Again it is difficult to quantify these events as being 'caused' by the area, or even the people who live in the area. It is expected that where population densities are high the number of criminal events increases, whether in proportion or not. But just who perpetrates these crimes is unclear from the occurrence statistics. Is it the local tenants, or others from other areas (Hinkler/Mannix area ?) invading the high density zone because of its enhanced anonymity potential, and/or the greater stock of resaleable consumer items in the privately owned and thus relatively more affluent area ?

It is not the area as such that requires evaluation but the CPTED factors which afford the acting out of certain behaviours there.

The intersection of Lachlan and Forbes sts. was mentioned quite frequently as problematic. Only one street light illuminates the wide intersection, with Liverpool High school on the one flank and the church on the other surveillability and animation potentials are very low.

Photo 12: Intersection of Lachlan and Forbes sts . Poor surveillability potentials

5.10.6.1 CD 910 will be examined in a little more detail since it displays a recorded assault rate (12) some 3 fold higher than the next highest rate .

CD 910 is the border of the high density area, facing onto a wide and poorly lit street, which faces onto a large, dark, dormant piece of open land, which itself faces onto the dark parking lot area contiguous to the railway line. At its base are the open playing fields of Liverpool High School, and, of course, the school itself, and the teenage pupils who are present thereabouts during and after school hours. At the rear of the area is a lane, the high fencing defaced, broken down in many parts, or isolating. A gravel patch in the centre of the lane is apparently used as a wheelie zone, as youngsters hurtle down the lane in their cars. Across the road is the station and its parking areas, and the dark, vegetated Berryman Reserve area between the highway and Remembrance ave. Yet another lane traverses the area from west to east. Cars are parked underneath buildings, with the result that there is little animation at ground floor level, except perhaps along the front of the buildings. Entrances are communal, without a sense of semi-privacy. No street furniture, no sense of street life at all.

Photo 13: Hart st; high density domain -impersonal face, entrances off-street...

Photo 14: Hart St: dark, dormant open spaces and wide dark street

Added to this is the extreme porosity of the area. Access can be gained from one building's grounds to another's. People can circulate out of sight, rapidly getaway if needs be, and disappear as rapidly as they appear. The only CPTED element to possibly counter this situation is the potentially very high level of surveillability which residents have. But are they interested enough to look out of their windows ? Do they feel a sense of community ? Would they intervene in a crime if it were not their own property being removed? There are no signs of personalisation, no indicators of a neighbourhood watch spirit There are no community spaces or buildings at all -nowhere that concerned or even interested residents could gather. This is a problem with many privately owned areas.

The fact that this high density zone has high recorded rates of crime, and high incident frequencies (see maps) but is privately owned reflects on the argument that public housing areas generally exhibit higher rates. Quite clearly, the issue is much more complex than such a reductionist approach would have us believe.

Interestingly, the questionnaire survey did not finger this area, or indeed the 'triad' area, as problematic at all ! It was not felt to be safe, in a positive sense, it is true, yet besides a generalised feeling of a sense of risk, and mention of the youth/car/speeding issue down the back lane, and some harassment related to things thrown from windows, there was no real sense of problem here.

It is quite possible that the private residents of the area did not answer the questionnaire, or if they did, to a much lesser degree than DoH tenants, who might have felt this was an opportunity to let the Department know of their concerns (perhaps in the hope that something might be done about them).

DoH tenants might hardly use this area anyway - it has no shopping or other attractors, and is not on the way to anywhere in particular. Further, teenagers, of which there are likely to be high proportions in this dense zone, do not answer questionnaires anyway, and/or are also likely to make up a fair proportion of the actual perpetrators of the crimes and delinquencies recorded in this area.

Clearly, it is necessary to combine as much information from as many sources as possible if we are to begin to gain an understanding of the reality of the situational environment.

5.10.7 CD 905

This zone has a relatively low rate of single-parent households, and is only 29% DoH owned. There are localised assault problems in the upper sections of George and Bigge streets leading onto the Hume highway, and some recorded sexual assaults in their lower reaches - (survey respondents indicated an inadequate lighting zone centring on the Campbell street intersections with Bigge and George sts). There are also assault problems associated with the late-night shopping precinct along the highway, particularly associated with drunken youths. Indeed, other than the particularly high rate found in CD 910, CD 905 has the 2nd highest assault rate. It should be remembered that this upper zone of CD 905 is opposite the Hinkler

st zone with its gangs and associated problems, and is contiguous to Pioneer Park, mentioned by many people in the survey as being an area to avoid because of the youths and gangs that hang out there.

Pioneer Park is lit from the edges, with high-power spotlights, with all the concomitant problems with such lighting (dark shadows where vegetation interrupts the light beam, shadows behind the light, and the blinding glare when looked at directly). The park is vegetated, opens onto the highway and then onto the reserve land, and is also proximate to the El Toro and to the Sydney City Mission facility (on the edge of Pioneer Park).

The area closest to the Hume Highway edge of the park was mentioned in the survey as an area frequently burglarised. Other respondents mentioned sexual harassment events in that vicinity - being trailed by men in cars, for instance; and one pensioner mentioned being robbed close to the Westfield shopping area.

The Westfield shopping area, however, was found to be one of the safest areas in the district, during the daylight hours at least. This is not surprising, given the intense animation that occurs there, and hence the very high level of natural policing as a consequence. Other shopping areas, in the study area in general, were also sometimes cited as being safe because of the activity that occurs there during the day, although where youngsters also hang out the ambience is altered.

In a general sense, respondents to the survey indicated the CD 905 zone as being one of the safest in the study area. It also has a good deal of commercial activity, and medical clinics within its bounds, which tend to raise the general quality of the area.

5.10.8 The Warwick Farm Station, Pedestrian Tunnel and Berryman Reserve

This area is not included in the recorded crime data, but is quite clearly the area of most concern amongst the respondents to the survey. Jurisdiction for the station itself lies with the SRA, but the tunnel and reserve area are Liverpool Council responsibility.

The tunnel is the epitome of what not to do. It is virtually unlit, with no lighting of its own, and only the light of two floodlights attached to street lampposts at either end. The effect is an eerie, ghostly light with a dark central area where neither source reaches. Barriers at either end enhance the feeling of possible entrapment. It would be difficult to outrun a pursuer. One

would have to twist around the barriers, or duck deftly underneath. There is no indication at all of who might be waiting at the other end of the tunnel, which, in any event, leads onto unpopulated zones, themselves poorly lit and unanimated, or heavily wooded and unlit, as in the case of the Berryman reserve area. It is not surprising that respondents mention preferring to take their chances crossing the highway than to use the tunnel.

Photo 15: The Tunnel, from the railway station side

If the tunnel is to form part of the pedestrian network it must be integrated, not isolated. It is not enough to light it better. If it is retained, it is contended here that only a CCTV system would provide the level of surveillance which commuters are entitled to expect. This is naturally a costly intervention, given that the monitor would have to be proximate to the tunnel, so that a rapid response time would be possible, and would have to be 'manned' at least until all trains had stopped running. It would be expedient, if such a system were installed, to also advertise the fact as publicly as possible, given that the deterrent capacity of the CCTV system is more relevant than its detection capacity. Prevention, not reaction. It is sometimes the case that signs indicate that a Closed Circuit TV (CCTV) system is installed, but it is not; or is installed until several offenders have been caught and the word gets out, and is then dismantled without the public being alerted. This is an expedient that could work because of the symbolic signals which have been set up. At the same time, should an untoward event occur, and a victim claims that they modified their behaviour or acted in the belief that CCTV surveillance was in place, a liability action might ensue.

The paths leading through the Berryman Reserve should be lit with vandal-proof lamps just above head level. Placing floodlights on trees would cause distorted lights and shadows, and the foliage would impede the normal distribution of the light

Frequent but irregular police foot patrols should monitor the station/tunnel/reserve area irrespective.

The Station itself suffers the fate of most suburban stations - when commuter numbers decline at night a corresponding sense of risk is experienced. Moreover, WF Station is located in a spatial vacuum - it is not on the path to anywhere in particular, but is the end of the line. No other pedestrian flows intersect with the station domain. It is totally reliant on the arrival and departure of commuters for its animation, and during the in-between periods is a dormant space. This is exacerbated by a lack of police foot patrols, or station guards. This all adds up to not only a sense of risk, but an increased vulnerability for people using the area during the dormant periods. In a survey of women in Liverpool, Liverpool station was the most frequently mentioned unsafe place (41%) (Liverpool Safe Women project, 1994).

Animating the area, and providing it with an obvious sense of surveillability could go some of the way to ameliorating the problems perceived with it. Employing a station master, lighting of approaches and paths to the station and parking areas, re-designing the area into a convex node where lines of movement intersect and locating other, compatible activities proximate to it, as well as public telephones on the platform, a taxi rank, and possibly even a shuttle bus service.

6.0 TOWARDS GUIDING PRINCIPLES: DESIGN/PLANNING RECOMMENDATIONS/Framework

6.1: SURVEILLABILITY:

6.1.1 Visibility In And Around Buildings

Inside Buildings

* avoid multiple alternative escape routes, corridors; and stairwells should be glazed or open (Rouse & Rubenstein, 1978)

Project And Building Size

- * the higher a residential building, the larger the project, the greater the number of dwellings per entrance - the higher the crime (Newman, 1972);
- * the greater the number of dwellings per block, the number of storeys, and/or the number of interconnected exits, the higher the level of social malaise (vandalism etc) Coleman (1985).

Siting of Buildings And Houses

- * Align entrances, driveways, gardens and especially windows to generate enhanced opportunities for vigilance, by overlooking adjacent spaces =intervisibility
- * orient entrances to multiple-family dwellings towards adjacent city streets (Angel, 1968; Perlmutt, 1986; Merry (1981b).
- * units visible from roads and/or well-travelled walkways suffer less crime (Rouse & Rubenstein, 1978).
- * entrances not to project out from the facade (obstructs sightlines)
- * corner houses with L-shaped gardens face both streets, (end-houses often have a windowless wall facing onto one of the streets).

Street And Footpath Design

i) Pedestrianisation, and footpath design

- * paths located where they can be seen from windows of houses
- * 'natural routes' from home to school and other local facilities reduces the number of pedestrians cutting through non-public places
- * WOONERF/mixer courts/traffic calming strategies give priority to residents and pedestrians (widen footpaths, install street furniture, change surface materials etc).

ii) Grid-type street design, and cul de sacs

- * Grids allow long lines of sight (for residents, and police), even if they are cul-de-sacs. Avoid narrow alleys & blind spots.
- * Cul de sacs:

enhanced cohesiveness (Whyte, 1964), more neighbouring (Mayo, 1979), neighbourhood ties stronger (Brown and Werner (1985).

Cluster/Court Design (Medium Density Housing)

* allows for privacy (no overlook onto private open space) and surveillability (overlook semi-private open space), garages visible from residences, short (well-lit) walking distance from parking to dwellings, non-continuous balconies, common well-maintained central zones, child spaces, teenage spaces, street furniture, one entry per few families, secure lock-up areas
. Clearly delineated public space, community space and private space, and transitional filters through which pedestrians pass from one to the other.

Physical propinquity is complemented by functional distance (Festinger et al, 1950), which depends on design and positional relationships such as the orientation of dwellings to one another (front and back doors, windows), location of paths to commonly used facilities, position of letter boxes, garbage bins etc. This functional distance depends, thus, on recurring and shared activities in time-space, which in turn provide situational opportunities for social contact.

* Because of scale and design, clusters also allow for clear hierarchical demarcation (gradation) of public, semi-public and semi-private domains - physically & symbolically (Brill, 1976a&b; Perlmutt 1982).

* repetition of building styles within a multitude of spatial configurations is confusing (Merry, 1981), unintelligible (Coleman, 1985), illegible (Lynch, 1960), poor space syntax (Hillier, 1984).

Window Size And Placement..

* Placement/location for overlook/surveillability of non-private spaces

* window height for elderly (sit and look out)

* Bay windows allow for surveillance from three angles.

Lighting (And Visibility)

- * level (and type) of internal and external lighting is VNB.

- * high spectral quality lighting increases sense of well-being (less headaches, less fatigue (Samuels and Ballinger, 1992)

Vandal-Proofing

- * for lighting and glazing, in particular (but not fortress image).

Surveillability Of Parked Vehicles

- * CCTV & controlled access for parking garages; open-air parking proximate to owners & visible from residences.

Integrated Open Space

- * Small open areas, built-into residential and commercial domains; or narrow (strip) parks with high visibility from all sides - not large, separate, wooded parks, urban forests.

Open Landscaping

- * Low bushes and hedges, and high canopy trees; level ground

Boundary Walls

- * offer hiding places, but open fencing overcomes (also anti-graffiti measure).

6.1.2 *Urban Visibility*

Enclosed Spaces

- * Underpasses (replaced by overpasses), railway stations, shopping malls, parking stations, etc require transparency (via lighting, & CCTV, & open design, & guardians)

Urban Places

- * Design for overlook (from surrounding buildings and facilities).
- * Design for extended time-space animation vs. deserted streets. Zoning CBD for residential, juxtaposition of activities used at night.

Street Design

- * Streets intelligible and legible - easily 'read', labelled/named, clear nodes & landmarks (Lynch, 1960; Hillier, 1984). Secluded alleys, dark back-lanes make people feel apprehensive and vulnerable.

Targets, And Target Dispersal

- * Target dispersal (licensed premises, clubs, electronic games arcades) diverts potential offender flows.
- * the more lightly used a facility (convenience stores, eg) the more vulnerable it is (Duffala, 1976).
- * Large open spaces unused at night require special consideration: playgrounds, sports facilities, school playing fields, reserve land *ie* have accessibility strictly controlled, and lighting carefully considered.

Vacant Sites

- * minimal territorial control where shops and houses are vacant (Ley & Cybriwsky, 1974). Strict access control is required, and special attention should be paid to vacant zones by police foot patrols.

6.2 ACCESSIBILITY

Access/Egress Control:

- * gatekeepers, concierges, supervisors, park attendants

- * relationships of external/out-buildings to main buildings *ie* access from roof, fences and walls, etc should be controlled by ensuring there are no footholds, or balconies within reach, or ladders left lying around.

- * target hardening *viz.* locks/bars, security doors, swipe cards & entry-phones; front door peepholes. Social constraints include: reluctance to refuse someone entry, propping open of doors, children's use of doors...

Street Design

limit accessibility to residential domains via woonerfs and cul-de-sacs (without pedestrian through-paths). This limits the chance for outsiders/potential burglars to become familiar with area (Repetto, 1974)

Front Yard/Front Door Relationship To Street

- * entrances flush with the street are least vulnerable to crime; and those which face away from the street are the most vulnerable of all (Newman, 1972)

- * every segment of a well integrated circulation system should have at least one building entrance opening on to it (Hillier, 1984)

- * backyards & side entrances require controlled access.

- * symbolic barriers (link chain fences, eg), indicate a territory is claimed.

Distinctiveness of Entrances

- * textures/levels/patterns & setback ('out of bounds' messages) help create semi-private space

- * Prominent naming & numbering (also useful for crisis police visits)

Boundaries

- * remove short-cuts for strangers (gaps in boundaries); but do not block territories in *ie* segregate groups into small, walled zones

Parks

- * transparency/lighting & contiguity to other facilities

Children's Playgrounds

- * Limited accessibility for adolescents; clear visibility from surrounding windows; open landscaping.

Adolescent Places

- * separate provision, paved areas for roller-blading, skate-boarding, bike riding; and casual meeting, with/without structured activities.

6.3 ENVIRONMENTAL SUGGESTIBILITY AND TERRITORIALITY

Environmental or Territorial Markers, or Environmental Cues

- * indicators of ownership, occupancy, investment, caring...and include explicit elements such as "Keep Out" signs, and implicit elements such as upkeep and beautification and symbolic signs of uniqueness, etc. These are non-verbal messages (Rapoport, 1982) *ie* there is an association between physical cues and appropriate social behaviour.
- * Front gardens (min 3m depth) perceived as buffers, should also have waist-high walls/fences, and gates (and gateposts).
- * Territorial marking of entrances to housing distinguishes them as individually controlled domains. A large number of families using one entrance diminishes such territorial suggestibility. Entrances, and domains in general, need to be designed to have a low level of ambiguity.
- * However, Signs of occupancy can also convey a negative image - signs that a place is uncared for, eg: old fridges on verandas, abandoned property in streets, garbage bags left out on streets...(malaise)

Stigma

- * Attached to building type/style/form and/or location and influences proprietary attitudes and defensible behaviour. Counter by generating a streetscape similar to other buildings in street

Legibility

- * territorial cues such as *landmarks* (Lynch, 1960) built into areas (sense of being somewhere).

Jurisdiction (Dominion Over Domain)

- * clarification of public/private territory (primary territory, secondary etc); demarcation and transition between private and public spaces

7.0 TOWARDS GUIDING PRINCIPLES: COMMUNITY CRIME PREVENTION FRAMEWORK

The cohesion of a community affects the crime it experiences. Crime prevention depends on transforming strangers into neighbours, and involving these neighbours in identifying outsiders.

The involvement of citizens in schemes such as Neighbourhood Watch appears to have had little long-term success (Hope and Shaw, 1988); and crime often comes from within a community itself.

At the same time as enhancing citizen involvement and informal social controls, formal policing techniques need to become decentralised and personalised (beat police/community liaison) and housing policy, allocation procedures and management style needs to become resident-sensitive - a multi-agency approach.

Community Safety Patrols (CSP)

In 1980, a CSP (in California) made up of local retirees with walkie-talkies linked to the police network, began strolling the streets, the parks, the shopping centres - and crime in the neighbourhood declined by 48% (Castleman, 1984). The principle is based on capitalising on an assertive elderly person's moral authority *ie* it is clearly a 'scolding and shaming' campaign. It is estimated that some 5 million Americans in 20,000 communities have become involved in community civilian patrols.

The organisation of these patrols was considered critical. Crime maps (based on their experiences) were drawn-up by participants, which helped develop a sense of belonging; ethnic balance of the groups helped foster interaction (ethnic food-fests for participants brought different peoples together); the local media were alerted to these activities, which gave a moral boost to participants - being acknowledged in their local press, and also acted as an advertisement of community preparedness to local criminals.

The development of local crime maps periodically updated, pinpointing crime also helps residents chart their progress, and regular victimisation surveys similarly help chart true incidence and progress towards a safer neighbourhood. Often there is an apparent increase in crime as people become more open to reporting, and this must be taken into account. Before and after maps are considered ideal.

The NSW DoH is currently experimenting with community policing centres, 'manned' on several days a week by community volunteers, which act as referral centres (on the Riverwood Estate, for instance). These are neither 'mobile police' stations nor the equivalent of the community safety patrols found in the USA. Before CSP's could be introduced in Australian cities communities would first have to be asked whether they

find this acceptable, as would police bodies which would have to liaise with such volunteers. And issues of indemnity assurance and personal insurance for volunteers would be vexing issues to resolve. The image of armed elderly vigilantes roaming the streets is of course inaccurate - at best they would be in radio contact with each other and the local police. The state of crime in Australian cities is also nothing near the scale of crime in American cities, and much debate would have to ensue before the introduction of community policing could be justified or even considered.

Neighbourhood-based conflict resolution programs

One difficulty with neighbourhoods is getting on with your neighbours. Loud music, barking dogs, noisy cars, loitering, mischief, juvenile delinquency, acts of vandalism etc are often sources of community disorganisation if not actual belligerence. A program of community conciliation boards was experimented with in the USA where neighbours could bring disputes before non-judicial panels of neighbours for mediation. This returns responsibility and accountability to the neighbours, and hearing of 'cases' can take place in local community facilities and churches where they exist, or funds should be sought to build or convert a building for this purpose. Without a place to meet, meetings will not be readily convened.

Clean Up/Maintenance

Visibly damaged targets attract abuse; untended property becomes fair game for vandals. The remedy tried and proving successful is to reface the defacements. Over and above the built-in CPTED defences such as shatter-proof glass, and cast iron fences (largely immune to graffiti, and vandalism, and allow surveillability), it comes down to regular repair and maintenance - and graffiti-removal campaigns. Graffiti tags must be mapped, owners permission sought to repaint, funds found for paint and painters, and local residents including local teens enlisted to repaint. In this way they become stakeholders in graffiti-free walls, and undamaged neighbourhood infrastructure.

Teen participation

Teenagers need recognition as a legitimate group with needs to be satisfied. Provide venues, activities, financing for pro-social behaviours. Possibly teens could do jobs for the elderly (trimming bushes, cleaning cars, cleaning houses etc) and/or even

provide escort services for senior citizens, which could involve them in local crime-prevention activities.

Soft Architecture

* *Decorating* and adorning public and private places (stations, walls of buildings, boarding around building sites or vacant sites, urban squares etc, and creating *graffiti walls*) can involve the local community, local artists, local school-children and adolescents. They are less likely to foul their own water.

Decoration and personalisation are forms of place attachment, and are used as an extension to (or symbol of) an individual's sense of identity (Cooper, 1976; Tuan, 1980), or home exterior decorations can symbolise membership of a group, community or neighbourhood (Taylor et al, 1976), or both individuality and communality (Altman and Gauvain, 1981). Greenbaum and Greenbaum (1981) found that exterior home decorations on houses and in yards were indicators of long-term residence and strong social ties to the neighbourhood; and Beck and Teasdale (1978) found that neighbours often initiated their contacts with other residents when attending to their yard personalisations.

* The more articulated a facade, the more likely are residents to add their own personal signs to the design (Cooper Marcus & Sarkissian, 1986).

i Soft Architecture and Community Spirit

Partnerships between planners, artists and urban communities can reclaim streets for the community. Kath Walters (1992) reports on several recent and successful partnerships in Australian cities, where public space has been acculturated and appropriated.

In Adelaide, the Pinda Street Mural Group was formed, which enlisted the help of artists, and professionals experienced in developing community projects, and the Community Arts Network, and liaised with the local council and the local community. The idea was to paint a mural on the wall of a large factory which dominated the area. The project quickly caught the imagination of the locals, who turned up to help and also brought with them photos and other memorabilia, images of which were included in the mural. The mural, some 200 meters long, has

transformed the area physically and socially, brought neighbours together, and, although graffiti is widespread throughout the Kilkenny/West Croydon area, the mural has remained untouched.

Other examples are of a cultural mapping exercise, initiated by Community Arts Marrickville, where multiple local ethnic groups worked with artists and translators to produce artefacts based on their personal experiences of the shire. This not only brought together the different groups, but showed them each other's visions of the area; and culminated in an exhibition of the cultural maps. This 'rich bank of imagery will also form the basis of many artworks to be installed within the fabric of the physical environment, in new footpaths and walls'. As a result of its strengthened links with the locals, Community Arts Marrickville has been able to persuade the council to undertake broader consultation about the Newtown Bridge redevelopment, and the reshaping of the area around Newtown Railway. In similar vein, a unique playground, with a path mural, has been created working with local children and their parents in St Francis Street, Newtown.

The final example is of a mural on the corner of Everleigh and Caroline Streets, Redfern, now in its third year of display. Mick Mundine, Secretary of the Aboriginal Housing Company said: "The mural was painted to change the image of the place, to bring a bit of love and unity to the place". The design itself was determined from the community through questionnaires, and two aboriginal artists from Skillshare painted the mural. Sydney City Council has plans for another mural along a wall near the railway tracks. And the Community Development Project (CDP) which has been recently introduced, aims to contribute to a better community environment, by providing employment for young aboriginal people in Redfern, and by starting community run facilities, all of which, it is believed, will increase community involvement and commitment to maintaining the quality of the physical and social environments - and thereby change the nature of the situational environment.

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