

Final Report

Linkages between housing, policing and other interventions for crime and harassment reduction in areas with public housing concentrations

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authored by

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AHURI Ltd is an independent, non-political body which has supported this project as part of its programme of research into housing and urban development, which it hopes will be of value to policy-makers, researchers, industry and communities. The opinions in this publication reflect the views of the authors and do not necessarily reflect those of AHURI Ltd, its Board or its funding organisations. No responsibility is accepted by AHURI Ltd or its Board or its funders for the accuracy or omission of any statement, opinion, advice or information in this publication.

Analysis of crime data has been performed by the authors using unpublished police data. Crime statistics used are not official statistics of State Police agencies and in some cases uses different boundaries to those used by Police agencies; therefore figures are to be treated as estimates only. Where mapping has been performed this has also been undertaken by the AHURI researchers to boundaries they define.

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
AHURI	Australian Housing and Urban Research Institute
ANCO	Australian National Classification of Offences
AutoCAD	Computer Aided drafting software
CAPS	Community Action Plan
CEI	Crime Experience Indicator
CAD	Computer Aided Drafting
CD	Collector District (Australian Bureau of Statistics)
CData	Census Data (Australian Bureau of Statistics)
CPO	Crime Prevention Officers
CPTED	Crime Prevention Through Environmental Design
CSHA	Commonwealth-State Housing Agreement
CRI	Crime-Reduction Indicator
GDA	Geocentric Datum of Australia
GIS	Geographic Information Systems
HEI	Hotspot Experience Indicator
LGA	Local Government Area
MapInfo	Geographic Information System software
MGA	Map Grid of Australia
NGO	Non-Government Organisation
Photoshop	Computer graphics software
POP	Problem oriented policing
SEIFA	Socio-Economic Indicator for Areas (Australian Bureau of Statistics)
SHA	State Housing Authority
SPSS	Statistical analysis software

TERMINOLOGY

Area: An entire study area comprising both publicly- and privately-owned housing areas

Cadastre: Map showing property boundaries (GIS-based in this case)

Community Policing focus: Community based crime prevention approach (with/without CPTED training).

Community Renewal: Coordinated physical/spatial and social strategies aimed at improving the quality of life in disadvantaged areas.

Context Area: Socio-geographical zones circumscribing each study area; ranging from CD to suburb scale.

Crime Experience Indicator (CEI): The proportion of a given population in a given area expected to experience crime in an average year (a crime-experience probability indicator).

Crime Reduction Indicator (CRI): Change in property and personal crime at specific hotspots in each Area.

Crime Prevention through Environmental Design (CPTED): Theory and practice of crime and fear reduction strategies, focused on the design of the built environment as the primary factor ('Surveillability' and 'Accessibility'). The salience of 'Territoriality' is better appreciated in contemporary CPTED paradigms.

Criminocentric: Spatial concentration of crime.

Criminogenic: Situational potential – facilitating emergence of crime and/or harassment.

Defensible Space: Focus on the vulnerability of housing to crime due to poor design and ambiguous space; later, recognition of territorial responsibility, communities of common interest, and social welfare as parameters of defensibility too.

Diffusion: Negative affects of socio-economic disadvantage and/or socio-cultural marginality radiating or diffusing through adjacent places.

Displacement: Shunting of crime between adjacent areas, where an intervention strategy appears to be positive in one area but has 'dis-placed' the problem rather than re-solved it.

Epidemiology: frequency/incidence/occurrence (of 'events') x distribution/location in space; thus, socio-spatial indicators; frequently mapped.

Halo (effect): Positive affects of strategies radiating out to benefit adjacent areas.

Hotspot: Zone of intense criminal prevalence, and experience.

Hotspot Experience Indicator (HEI): The intensity of crime occurring at specific hotspots in an Area during an average year, correlated with population numbers in the Area. While the CEI relates to all crimes across a whole area, the HEI locates this experience in *space*: an indicator of the degree to which people might expect to experience crime *at hotspots*.

Problem Oriented Policing (POP): A pro-active rather than re-active approach to policing involving targeted action based on intelligence (research), and aimed at essential issues and/or problem individuals.

Radburn Housing Layout: 1930's American design for housing precincts derived from a housing project in Radburn, New Jersey characterised by back-to-front houses i.e. the front facing open space and pedestrian lanes at the rear (rather than the street), and with 'backyards' facing onto cul-de-sac streets, frequently with high fencing.

Radburn-reversal: Reversing Radburn housing layouts to conform with standard suburban configurations.

Situational Crime Prevention: Crime opportunity-reducing measures involving the manipulation of the built environment - in order to increase perceived risk and reduce reward. Can involve both design and management strategies.

Superlot12: A large tracts of public housing under a single title (not Torrens) with properties not readily sold off individually.

Surveillability: Ease with which surveillance is possible.

Victimisation: An individual's experience of suffering as a result of crime or other anti-social behaviour.

EXECUTIVE SUMMARY

The context for this research is the problem of crime and harassment experienced by residents in areas with large concentrations of public housing, and the intervention programs that have been developed by State governments intended to combat this. At question is the extent to which community renewal, policing and other crime reduction strategies are effective. Two generic intervention approaches are evaluated: physical/spatial and social.

Aims

The aims of the study were to investigate:

1. The range of crime reduction strategies employed in three States (NSW, QLD and SA).
2. The degree and nature of program integration between housing and other agencies.
3. The extent and nature of community partnerships within these programs.
4. Changes in the frequency and distribution of crime and victimisation over a five-year period, and
5. Best practice models to inform policy development, reflecting likely associations between crime and policy.

This report concentrates on Aims 2-6 above, Aim 1 having been covered in the Positioning Paper (see: Judd et al, 2003).

Methods

The methods used for this study include:

1. Interviews with key stakeholders (housing and police personnel).
2. Spatial analysis of mapped crime (5¹ year prevalence data) at micro-urban scale.
3. Analysis of crime context data *i.e.* for surrounding areas.
4. Neighbourhood survey, to ascertain levels of neighbourhood cohesion, perceptions of fear and crime, and crime experiences of a sample of residents.
5. Walk-through CPTED² analyses of areas to identify possible environmental design features related to the spatial distribution of crime.

Central to the spatial analysis of crime data was the development of three indicators:

1. A **Crime Experience Indicator (CEI)** which relates crime prevalence to population size in a given area, and indicative of the relative probability of experiencing crime during a given year;

¹ Four years of data only was available from one state

² Crime Prevention Through Environmental Design (see 'Terminology' section in main report for definition)

2. A **Hotspot Experience Indicator (HEI)** which measures crime trend experiences at specific hotspots which can then be associated with social and physical/spatial intervention strategies; and
3. A **Crime Reduction Indicator (CRI)** which distinguishes the degree of change in property and personal hotspot-crime in each area.

Three States were selected for analysis, each with significant renewal programs for areas with high public housing concentrations because of their differing approaches to public housing estate renewal and its funding. Within each state, three areas of public housing concentration were chosen for study in consultation with the State Housing Authority: one involving significant physical/spatial intervention; one involving primarily social interventions; and a 'control' estate with minimal intervention strategies over the study period. To ensure privacy and avoid stigmatisation, the identity of the states and the nine study areas are kept confidential in the main report, including the removal of spatial identifiers from all maps. However, State specific Volumes 2, 3 and 4 containing the detailed analyses for each area will be made available to housing and police agencies along with an 'In-Confidence Appendix' that includes spatial identifiers.

Findings

Community Renewal and Crime Reduction Strategies

The emphasis in contemporary community renewal programs is on an interagency and whole-of government approach. It is widely practiced in all three States.

Strategies adopted in the three so-called 'physical/spatial intervention' areas focus on housing quality upgrades in the first instance; sometimes public areas are ameliorated, or community centres built and activated. Importantly, spatial de-concentration via property asset sales was widely employed as a strategy, but to varying degrees, essentially to de-concentrate social disadvantage. Two areas were designed on Radburn principles, yet subject to strongly divergent physical/spatial and social strategies, allowing for comparative analysis. Intelligence strategies based on spatial crime mapping is a policing approach adopted in all areas, to varying degrees.

In the 'social intervention' areas, strategies varied from minimal crime prevention initiatives to sophisticated community policing strategies, usually supported by a broad range of preventative initiatives and occurring in an active interagency context (memorandums of understanding between housing and police agencies are at the core). Social renewal programs typically involved a range of agencies including local government, juvenile justice, education, employment or youth/family services. In some areas housing management has a strong local base and high tenant involvement. Policing was also often strongly community-based, supported by broader preventative inter-agency programs. The deployment of locally-focused CPTED-trained crime prevention officers working in partnerships with their communities - emerges as a crucial positive development.

While the 'control' areas were not formally subject to community renewal programs, inevitably they too had undergone some minimal degree of physical and social intervention. However, they have less crime prevention liaison with police.

Program Integration Between Housing and Other Agencies

All nine areas had inter-agency groups advising on or coordinating targeted programs. In more than half (two physical and three social intervention areas) high levels of program integration were evident, and police crime-reduction initiatives were often supported by a range of broader intervention and family/community conferencing programs aimed at addressing drug/alcohol abuse, delinquency and domestic violence. This more holistic approach reflects the growing recognition of the importance of whole-of-government approaches to addressing problems of spatially concentrated disadvantage and crime.

Nature and Extent of Community Partnerships

All but one area³ had some degree of community consultation and participation process involving housing management and tenant groups. In the six areas with formalised community renewal programs a community development worker had been employed, expressly to help build partnerships between key agencies and the community. This reflects a growing recognition of the importance of tenant participation in the community renewal process. Intensive tenant involvement includes membership of steering committees and participation in capacity-building training programs.

While police engaged with the local community at some level in all study areas, those with falling crime tend to have strong community partnerships in place. This might include a visible local police presence (shop front, or street beat) and/or a range of community-involving strategies (safety audits, crime prevention education, graffiti management, and liaison with multi-cultural elders), and early intervention programs.

Frequency and distribution of crime⁴

Several general observations can be made from the mapped crime data concerning associations between crime and public housing concentrations:

1. Crime is both endemic (widespread) and recurrent (concentrated at hotspots) throughout *all* study areas.
2. Crime is strongly associated with public housing concentrations.
3. Crime is evident in adjacent areas of private ownership as well, and hotspots occur there too, although to a conspicuously lower degree.

Crime Reduction

The key findings regarding crime reduction in the nine study areas are as follows:

³ Based principally on individual consultation with tenants

⁴ Epidemiology, i.e. frequency x distribution

1. In two high crime-experience areas *crime trends are decreasing* (down 4% and 3.5% respectively) and CEI trends are also falling (down 10% and 4%), over the 5-year period. In both, hotspot intensity is reducing too. These are areas that have been subjected to intensive social intervention, and to broad interagency approaches. In one of the areas, however, high physical intervention is apparent whilst in the other, it is very low (confounding the physical determinism hypothesis).
2. The one control area in which crime is also decreasing (CEI is stable) is located in the State with the strongest whole-of-government approach.
3. In all three areas located in the State with the strongest spatial de-concentration policy crime reduction is not apparent. Included is the area with the strongest rising crime prevalence (up 10%), and a crime experience index up 9%.
4. In the Radburn-reversal area there was no evidence of a reduction in crime, even given the moderate level of agency partnerships with community groups. In contradistinction, in the other Radburn area - with high social but virtually no physical/spatial intervention - crime is reducing.

A number of associations between interventions and crime patterns can be identified from the analysis of the crime data:

1. Social rather than physical/spatial interventions are associated with reductions in crime.
2. Whole-of-government strategies and intensive inter-agency collaborations create a context within which social interventions flourish.
3. Empathetic housing management and 'non-traditional' community policing interventions occurring at neighbourhood *and* individual level seem effective in reducing crime.
4. Neither de-concentration (tenure mix via asset sales) nor Radburn-reversal are associated with reductions in crime. Possibly, benefits were not yet apparent given the time-scale of this research. Future research could reflect on this.

Displacement/Diffusion Interpretations

1. A 'diffusion' distribution pattern can be detected in the mapped crime data of all nine study areas; possibly crime is 'flowing' from hotspots into 'cooler' zones.
2. From an analysis of the context data (crime in surrounding areas) no inference can be made regarding displacement or halo effects since no distinct patterns emerged.
3. The two areas where crime trends are reducing are surrounded by areas experiencing predominantly increasing crime. This further suggests and re-confirms the apparent potency of social intervention strategies in crime reduction.

Neighbourhood Survey Results

Notwithstanding small sample sizes in some areas, and hence difficulties establishing statistical significance, findings from the survey appear to support findings from the police data analysis - concerning relationships between intervention, crime reduction and neighbourhood cohesion; in particular:

1. Increased community cohesion was found in those areas with intensive social interventions where crime trends had also reduced.
2. The lowest levels of cohesion were found in the control areas in each State.
3. The two areas with most crime reduction were the only two areas where a majority of residents rated crime and harassment as 'better' over the last few years.

Furthermore:

1. An 'improved physical environment' is the change for-the-better cited most often, followed by 'improved community facilities' and 'improved safety/security'.
2. Crime, nuisance and annoyance are most commonly cited as changes for-the-worse, followed by 'closure or lack of services'.
3. 'Selling off public housing' was the most commonly cited change for-the-worse in the area experiencing the highest reductions in public housing stock.

Fear and victimisation mapping indicate that:

1. Fear afterdark is endemic, encompasses entire areas in all cases, and is frequently associated with public housing concentrations.
2. Victimisation appears to occur equally during the night and day; and is frequently associated with public housing concentrations.

CPTED Walk-Throughs

The following associations between environmental design factors and crime patterns were evident:

1. Design parameters of likely significance are illumination and dormancy (lack of activity), both associated with places at night/afterdark. Housing is frequently located adjacent to large dark and vacant public places, including school grounds, and streets are very poorly illuminated, in all study areas. 'Criminogenic' physical/spatial configurations such as these increase opportunities for crimes to take place (assuming the motivation is there).
2. Other probable factors are the very low-density residential setting (permitting easy access to property) and the emphasis on *personal* territory (fenced properties are endemic). There is little sense of public place; and the shopping malls and sports fields are dormant afterdark. Community policing is nowhere evident.

3. Few people use the streets during the day, and cars predominate at all times, in particular at night when almost no-one is walking about; possibly also evidence of 'avoidance behaviour'.

Best Practice

A best practice model for crime reduction in areas of public housing concentration is implied by strategies adopted in the two areas where crime is reducing, namely:

1. A broad whole-of-government, place-management approach involving housing, police, local government and a wide range of other government and non-government agencies.
2. Extensive community consultation and participation in problem identification, development and implementation of strategies.
3. Integrated initiatives targeting: early intervention, drug and alcohol abuse, training and employment, social enterprise development, domestic violence and family/community conferencing for offenders.
4. A locally based, empathetic housing management team with community development training.
5. A strong community policing approach, empathetic crime prevention personnel interacting with multicultural communities, and a social-control mechanism involving elders in informal liaison with local youths. Hot spot analysis and intelligence-based targeting of problem-generating households supplements these people-oriented approaches.
6. Organisation of community and cultural events to build community spirit and break down stigma.
7. As a general principle, the replenishment of social capital: aiming to enhance individual well-being and self-esteem, increase social cohesion and augment sense of responsibility and natural policing.

Policy Implications

A number of policy implications emerge from this study:

1. Support for whole-of-government, integrated, multi-agency approaches to community renewal and crime reduction.
2. Preference for social over physical/spatial strategies in renewal programs.
3. Recognition of the endemic and recurrent nature of crime in areas of public housing concentration, warranting a high priority being placed on crime reduction as a strategy in community renewal policy.
4. Review of allocation policies that result in the concentration of socio-spatial disadvantage.
5. The importance of community-oriented policing, and empathetic partnerships between crime prevention officers and local residents.

6. The importance of locally-based housing management teams, and empathetic partnerships with housing communities.
7. The need for systematic monitoring of crime profiles over time, as a form of socio-economic cost-benefit analysis.
8. Evaluation methodologies developed in this research could be widely applied. Although complex contextual realities cannot be controlled, coexisting relationships between intervention strategies, their cost, and epidemiological crime patterns can be inferred.

1 INTRODUCTION

1.1 Background

This report presents the findings of a research project developed as part of a wider body of research by the authors and others involved in the UNSW-UWS AHURI Research Centre into the renewal of areas with high concentrations of public housing (Randolph and Judd, 2000a; 2000b; 2000c; Randolph et al, 2001; Samuels, 2001; Wood et al, 2002; Wood, 2002, Randolph and Wood, 2003).

Public housing estates developed across Australia from the 1950s to the mid-1980s have increasingly become sites of economic and social disadvantage, physical deterioration and crime. This is due to a number of interrelated factors, including reduced Federal funding for public housing, increased demand, targeted allocations, geographic isolation, inadequate investment in local infrastructure and services, and poorly maintained housing stock (Arthurson 1998; Bowey, 1997; Monro, 1997-98; NSW DH, undated; O'Brien 1997, 1999 and 2001; Randolph and Judd 2000a and 2000b; Spiller Gibbins Swan, 2000).

The response of Governments has been to develop community renewal⁵ programs in many areas of concern. Prominent amongst the objectives of many of these programs is crime reduction (Randolph and Judd, 2000) – often seen as a barometer of community wellbeing. Crime reduction initiatives associated with these programs often involve partnerships between housing, police, local government and other agencies such as Attorney Generals or Justice departments.

While there is some anecdotal evidence to suggest that in some cases these programs have reduced (or displaced) crime (e.g. Randolph et al, 2001), to date little empirical evidence exists as to their success or otherwise. Previous work by the authors studied spatial patterns of crime using mapped police operational data and victim surveys at micro-urban level in public housing areas, but did not associate this with renewal intervention policy (Samuels, 1995; Judd et al, 1999; Samuels, 2001).

Following a detailed policy and literature review reported on in the Positioning Paper (Judd et al, 2002), this report investigates crime reduction outcomes in nine areas of public housing concentration in three different State jurisdictions over a five-year period.

Strict ethical constraints on the use of police and housing data to ensure privacy and anonymity, as well as concern about stigmatising the study areas, prevent the identification of the particular states and housing areas in this report. Rather, they are referred to by code numbers. Similarly, State and area specific references have been omitted to preserve anonymity in the policy review below. Although this complicates the reporting and reading of this document, State housing and police agencies will receive an In-Confidence Appendix identifying locations and hotspots and a State-specific Volume containing crime maps and trend analyses, and

⁵ Also referred to as 'neighbourhood or estate improvement', 'community regeneration' and 'urban renewal' in various jurisdictions.

comparative police, survey and ABS data for areas under their jurisdiction. This process is also necessary for verification purposes since specific information – on which the interpretations made in this report rest - cannot be made public.

Mapped operational police data provides a useful tool for analysing spatial patterns of crime (including displacement) at neighbourhood and micro-urban levels (see Positioning Paper: Judd et al, 2002 for a detailed discussion). However, these data do not reveal unreported crime, harassment and fear of crime that are best understood from complementary victimisation surveys, also incorporated into this study.

1.2 Public Housing Renewal and Crime Prevention Policy Review

A comprehensive policy review of public housing estate renewal and crime prevention policies for the three States under study is included in the Positioning Paper for this study (Judd et al, 2002). A brief summary is included below. Details of strategies implemented in each of the nine areas of public housing concentration are included in Table 3 on pages 36-38.

1.2.1. Public Housing Renewal Policy

Renewal policies have been introduced by all State Governments and include a range of strategies which fall broadly into three main categories (Randolph and Judd, 2000; Spiller Gibbins Swan, 2000):

1. Improvement of the physical environment – housing, streets, parks, infrastructure and community facilities. In some cases including demolition/redevelopment or sales of public housing to reduce concentrations and introduce social and tenure mix; and reversal of Radburn layouts.
2. Social or community development including tenant consultation, participation, and community partnerships; establishment of community centres; social and recreational activities for various groups; employment and training programs; social enterprise development; and a wide range of crime prevention initiatives. In some cases these are delivered via spatially focussed whole-of-government integrated service delivery programs.
3. Changes in the management of public housing – e.g. via small, locally based client service teams; transfers to community housing; and partnerships with local government, NGOs, the development industry; and other government agencies.

Areas are generally selected for renewal according to indicators of disadvantage including: unemployment rates; proportion of households on low incomes; percentages of sole-parent households; public housing concentration; social problems related to alcohol and drugs; inadequate infrastructure and support services; poor health and educational outcomes; lack of recreational facilities; shortage of employment and training initiatives; incidence of crime; and high vacancy and turnover rates (QLDH, 2001a and 2001b; Randolph et al, 2000; SAHT, 1998).

The current set of community renewal policies in the three States under study are a product of the 1990s, commencing in the early 90s in State 1, the mid 90's in State 2 and the late 90s in State 3. Similarities in the programs (particularly States 1 and 2) include an early bias toward physical regeneration followed by a growing recognition of the importance of social and community development initiatives, community consultation and the need for a whole-of-government approach involving partnerships with other service agencies (including the police).

From the housing agency perspective, differences between the three States include a strong emphasis on overall stock reduction, de-concentration and redevelopment in partnership with local government and the private sector in State 1; higher levels of stock retention and emphasis on reconfiguration of 'Radburn' planned estates and intensive tenancy management in State 2; and auspicing of renewal activities through local government and other public agencies in State 3. Funding arrangements are also different for the three states with State 2 funding renewal from within CSHA funds, State 3 from a broad across-government Crime Prevention Strategy, and State 1 using a self-funding approach from redevelopment within each renewal project.

1.2.2. Crime Prevention Policy

Crime prevention policies in Australia are broadly in line with recent developments overseas in moving toward a strong local focus, a multiple agency approach, and a more active role for local government. There is also a growing awareness at State and local government level of the need for a wide range of stakeholders to act cooperatively with local communities. A large number of government and non-government agencies can be identified as stakeholders in crime prevention, but Premier's, Attorney General's/Justice, and Police departments generally take a leading role with important collaborations with other agencies and local government.

In two of the States under study (2 and 3), Premiers' departments take a leading role in crime prevention. All three States have central crime prevention agencies, two of which (States 1 and 2) are based in Attorney Generals' Departments, and the other in the Premiers Department. All agencies have a strong emphasis on local community-based crime prevention initiatives funded from central agencies and recognise the critical role of local government and the importance of a multi-agency approach. Stakeholder interviews undertaken as part of this study confirmed that policing policy in all three states has simultaneously shifted towards a 'problem oriented policing' (POP) crime-mapping approach and the appointment of crime prevention officers (frequently with CPTED training) to work with local communities.

1.3 The Literature on Crime Prevention and Public Housing

1.3.1. Crime Prevention

Crime prevention is defined in legal terms as "any action or technique employed by individuals or public agencies aimed at the reduction of damage caused by acts defined as criminal by the state" (Hughes 2001:63), but includes a wide range of activities and initiatives other than those purely legally defined. Approaches to crime

prevention reflect different perspectives on the causes of crime - structural, psychological and circumstantial (Pease 1997). A distinction can be made between *social* and *situational* strategies, the latter being fundamentally concerned with opportunity reduction (Clarke 1992/97; Hughes 2001) and the former with community partnerships. Both approaches are of central interest to this study, which evaluates renewal projects from a socio-spatial perspective.

1.3.2. *Situational Crime Prevention*

The notion of situational crime prevention originated in the British Home Office Research Unit in the early 1970's but draws heavily on Newman's (1972) ideas about 'defensible space', Jeffrey's (1971) concept of 'Crime Prevention Through Environmental Design' (CPTED) in the USA and Cloward and Ohlin's (1960) seminal notion of '*opportunity*' and delinquency. It is a preventative approach primarily concerned with reducing opportunities for crime through measures targeted to specific forms of crime, involving particular interventions in the physical environment. The aim is to increase effort and risk and reduce the rewards of crime, as perceived by offenders (Clarke 1992). Over the last decade situational crime prevention strategies have been used increasingly by police and planning agencies to reduce risk.

1.3.3. *Environmental Criminology*

Environmental Criminology is an approach initiated by Brantingham and Faust (1976) and developed by Brantingham and Brantingham (1981, 1991) drawing on medical epidemiological terminology referring to 'primary' (opportunity reduction), 'secondary' (modifying behaviour of potential criminals) and 'tertiary' (treatment of offenders) crime prevention. Four dimensions of environmental criminology are identified: legal, offender, target or victim, and place or spatial dimension. Bottoms and Wiles (1997:305) define it as "...the study of crime, criminality and victimisation as they relate, *first*, to particular places, and *secondly*, to the way the individuals and organizations shape their activities *spatially*, and in so doing are in turn influenced by *place-based* or *spatial* factors." It is informed by two powerful contemporary criminogenic paradigms that help explain and locate criminal events – *rational choice theory* (Clark and Cornish, 1985) and *routine activity theory* (Cohen and Felson, 1979). Both embody two complementary notions: opportunistic decision-making and conscious intent, with socio-spatial settings interpreted here as *situational contingencies* acting as catalysts for criminal behaviour. It is now well appreciated that settings (and design) do not 'cause' behaviour, in a deterministic sense, but embody opportunity - and thus influence the likelihood or certain behaviours emerging.

1.3.4. *Epidemiological Mapping*

Epidemiological mapping is a development of the urban mapping work of the Chicago School of Social Ecologists early in the 20th century. The process was advanced in a variety of related disciplines: cognitive/spatial imagery, social indicators, human geography, environmental psychology, environmental criminology, victimisation surveying, and ultimately via Geographic Information Systems for crime mapping.

GIS crime mapping is the technique applied in this research, since it is capable of spatially locating frequencies of occurrence (incidence and prevalence of reported crime) at a wide range of geographic levels.

1.3.5. Crime and Public Housing

Social housing is not necessarily an indicator of social disadvantage but links between concentrated public housing, areas of degraded privately rented/owned housing and the incidence of disadvantage is strong. Elements that act to produce deprivation/social exclusion include poor geographic accessibility to job opportunities, reduced provision of public facilities and services and stigmatisation of areas and their residents. Crime rates have long been known to be higher in areas and among individuals affected by economic disadvantage, and crime is a major concern of residents living in high concentrations of public housing. There is evidence that disadvantaged people are more likely to be both perpetrators and victims of crime, and that concentrations of economically disadvantaged young males in particular are a major factor in crime, but also that only a very small percentage of resident offenders commit the majority of crime in residential areas (NSWPS, 2001a; NSWDH, undated; Stubbs and Hardy, 2000).

While criminologists recognise that public housing areas are not necessarily criminogenic, certain design features (eg building size and height, and 'ambiguous' public-private space) have been associated with elevated levels of crime (Newman 1972). Matka (1997), however, found no statistical relationship between public housing (type, design *or concentration*) and crime in the Sydney metropolitan area (based on postcode level data), arguing rather that the link is with disadvantage and socio-economic factors. The AHURI research reported here moderates these notions, indicating strong associations between concentrations of public housing and crime, and between social interventions and crime reduction.

1.3.6. Public Housing Estate Renewal and Crime Reduction

Recent Australian evidence suggests that where physical interventions (reconfiguration of 'Radburn' planned estates) has been undertaken in an outer suburban public housing estate, there is a *perception* by residents and other stakeholders that crime has reduced (Randolph, Judd and Carmichael 2001). Stubbs and Hardy (2000) in comparing three different approaches to estate renewal in south western Sydney, found that there was a positive impact on crime and nuisance in each estate. This was demonstrated by a reduction in the rate of convictions *and* perceptions of crime by tenants – in particular on those estates with intensive tenancy management and subject to changes to allocation policy, as opposed to those with significant physical interventions. In UK research, Osborn and Shaftoe (1995), for instance, also found that physical intervention (removal of overhead walkways) was not helpful in reducing burglaries. These insights are confirmed by the research reported here. Irrespective, determining relationships between renewal interventions and changes in patterns of crime is complex and uncertain, since factors contributing to a 'crime environment' necessarily implicate a wide spectrum of contextual influences.

It is well appreciated now that a comprehensive mix of measures (physical, governance/management, family, social, community and educational) are necessary to raise the quality of life by increasing social capital and decreasing exposure to crime - in a sustainable way. Long-term resolution is the goal. Tackling multiple problems needs to include resourcing and empowering local residents, strengthening local community organizations and NGOs and ensuring long-term cooperation, partnerships and consultation (Taylor, 1998). However it is also recognised that complex holistic, inter-agency and integrated approaches are also the most difficult to realistically sustain.

1.4 Aims and Scope of the Research

This project aimed to investigate:

1. The range of crime reduction strategies employed by housing, police and other agencies in public housing areas in three States (NSW, Qld and SA);
2. Details of the crime reduction strategies in nine selected areas of public housing concentration - six of which have been subject to estate improvement interventions and three 'control' estates subject to minimal or no renewal;
3. The degree and nature of program integration between housing and other agencies,
4. The extent and nature of community partnerships within these programs;
5. Changes in the frequency and distribution of crime and harassment in the selected areas after specific interventions; and
6. Best practice models for crime prevention in areas of public housing concentration to inform policy development.

The study focuses on the five-year period 1997/99-2001/02⁶ which coincides with significant implementation of community renewal initiatives and interagency partnerships in the three States under study, involving housing, police, other agencies and local communities.

Three study areas were selected from each State representing three main intervention types:

1. areas with significant physical/spatial strategies;
2. areas with predominantly social/community development initiatives; and
3. areas with minimal interventions (the 'control' areas).

⁶ Four years in one state due to availability of police crime data

2 METHOD

2.1 Methodological Overview

A detailed discussion of the rationale and methodology proposed for the research is included in the Positioning Paper for this project (Judd et al, 2003) but broadly includes the following elements:

1. Literature review - local and international, on interagency approaches to crime prevention/reduction, with particular reference to public housing areas
2. Policy review – based on documentation from key agencies and stakeholder interviews
3. Field research – within three areas of concentrated public housing in three selected states, including:
 - Demographic data
 - Walk-through CPTED evaluations
 - Victimisation mapping survey of residents
4. Spatial analysis of crime data – from the following sources and for the following geographical levels and time frames:
 - Operational police data, mapped over a four- or five-year period for each area
 - Operational police data, over the same period, aggregated for the band of Collector Districts or Suburbs⁷ immediately surrounding each area
 - Recorded crime statistics (from Crime Statistics Offices and ABS) over the same period at postcode, LGA and metropolitan geographic levels.

In practice, some modifications became necessary as a result of operational data issues: delays in availability, unavailability at some geographical levels and some requirement for geo-coding; and the difficulty of recruiting respondents for the victim survey in some areas. These are discussed in more detail later.

2.1.1. Selection of Cases

The selection of case study areas is also discussed in the Positioning Paper, but broadly involved three areas of public housing concentration in each of three States. As previously discussed, neither the States nor housing areas are identified in this report to fully comply with ethics and privacy requirements of the UNSW and participating housing and police agencies. Each of the three States has significant public housing renewal programs, accessible police operational data, central crime prevention agencies and community based policing policy, but with some differences in governmental structures and administrative and funding arrangements for crime prevention.

⁷ Collector District data was not available in one state.

Three areas of public housing concentration were selected to include:

1. An area with a renewal program involving significant physical/spatial intervention
2. An area with a renewal program involving primarily social/community development
3. A 'control' area with minimal intervention strategies.

An attempt was made to match these estates according to location, age and size, and renewal program commencement date.

2.2 Methodological Issues and Constraints

2.2.1. Disclaimer & Preconditions

Interpretations of crime maps utilised in this research cannot be attributed to Police Services; neither should evaluations of victimisation maps be associated with State Housing Authorities. All interpretations remain those of the research team. Analysis of crime data has been performed by the authors using unpublished police data. Crime statistics used are not official statistics of State Police agencies and in some cases uses different boundaries to those used by Police agencies; therefore figures are to be treated as estimates only. Where mapping has been performed this has also been undertaken by the AHURI researchers to boundaries they define.

The UNSW Ethics Committee require wide-ranging ethical action relating to respondents in human research. Moreover, maps generated from crime data supplied by Police Services and from victimisation experiences elicited during the field survey phase contain sensitive data and are subject to strict conditions regarding their ethical use. This constraint strongly influenced the conduct and reporting of the research, and must be further elaborated here. To comply with confidentiality and anonymity criteria no individual is named, and all 'semantic' spatial identifiers have been removed: States, cities, areas, buildings, streets, schools and parks are not named. It also avoids stigmatisation or labelling, by association. Unavoidably, even neutralised maps display spatial characteristics that might be identifiable by people who know an area; and participating Agencies know the areas under their responsibility.

A coding system has been employed to accommodate these stringencies; although a separate State specific Volume and an In-Confidence Appendix including the spatial identifiers will be made available to housing and police Agencies in each of the three States under study. All Agencies funding or providing information or data for this research: the Police Services, Housing Authorities and AHURI, will have reviewed the present document prior to publication.

Statements made by Agency representatives during the fieldwork interviews are not reported, but policy frameworks are partially derived from them, for analytic purposes. Cross-comparison between States, areas or Agencies is also minimised by the utilisation of a standardised index, which reflects the average proportion of crimes likely to be experienced in a year, by the resident population of an area.

Inferences made from this crime-reduction indicator (CRI, see below) are based on associations with strategies adopted in individual areas.

2.3 Stakeholder Interviews

A total of 20 stakeholder interviews were undertaken prior to the commencement of the neighbourhood survey, including a minimum of two people from each housing area – one the local housing manager and the other a local police officer with direct involvement in crime prevention in the area, and specifically with the community renewal program where one existed. A small number of additional stakeholders were interviewed on the recommendation of the housing or police officers. The interviews were open-ended focussing on the community renewal and policing policies and strategies adopted over the last five years (both generic and particular to the study areas), any other agencies involved in partnerships and perceptions of change in crime and or community satisfaction. Copies of any documentation relating to the above were also requested. A summary of the findings of these interviews are also incorporated in Table 4 in Section 3.1 of this report. The interviews were also used to identify community networks and locations that might be of assistance in the later neighbourhood survey.

2.4 Crime and Victimization Mapping

2.4.1. Epidemiology of Crime and Victimization

At question in this research is the relationship between strategic interventions and crime movement in areas of public housing concentration. *Epidemiological* data underpins the critical analysis i.e. *spatially* distributed crime intensity and trends and the experiential reality of resident cohorts, are related to spatially targeted strategies – thus addressing the research question. The patterns observable in the maps are emergent; the picture of where crime and victimisation occur in space and time builds up progressively.

At issue is not whether these areas are ‘high or low’ relative to regional crime rates. *Change* in crime is the crucial factor; and in crime experience probabilities in each area (and at hotspots: see HEI below). Knowing who commits a crime or who is victimised is also of no utility to this analysis. In sum, crime occurrence (incidence and prevalence) and hotspot intensity can be related to concentrations of public housing and to focussed intervention strategies, by means of the epidemiological mapping.

2.4.2. Data-sets

Police Services in the three States provided data on selected reported and recorded crimes for either 4 or 5 years between 1997/98 and 2001/02 (1/7/97 to 30/6/02), in the nine study areas. Data-sets exclude serious crimes such as murder, kidnapping, paedophilia. Crimes occurring in the home such as domestic violence,⁸ sexual

⁸ According to recent ABS data, almost half of assaults reported against female victims occur in their own homes. Interpersonal interaction in the privacy of a home is, paradoxically, a whole-of-society issue, far beyond the ambit of housing and policing policy.

assault and child abuse are also excluded, as is fraud. The focus of attention here is on crime in the public realm, and at the interface between public and private space. The total data set consists of 48,562 crime incidents, across the nine study areas

Crime categories⁹ provided vary slightly across the States, particularly crimes against Public Order (drug offences¹⁰) and sexual offences, but all data sets contain the same crimes against Property (dwelling break/enter/steal &/or damage; vehicle offences, and theft/other) and against Person (assault, robbery). Although these data do not provide a complete crime profile of a neighbourhood, the very great proportion of commonly-committed crimes are represented in the sets.

Resident data was obtained from surveys conducted in the study areas at community centres or other local facilities. Participants were recruited through community networks using a 'snowballing' technique. The crime categories used in the survey were similar to the police data, but also relate to victimisation (and fear) experiences over the past 5-year period, which might or might not have been reported. Victimisation and fear maps were constructed from these surveys. Neighbourhood cohesion ratings established using a modified questionnaire developed by Buckner (1988) complete the data set. The small number of respondents in one State limits interpretation there but, overall, the 300 resident responses provide a useful interpretative base.

2.4.3. Analytic Methods

The primary evaluation tool is longitudinal trend analysis¹¹ of area-specific and hotspot crime occurrence against which intervention efficacy can begin to be assessed. The *modus operandi* evaluates areas at micro-urban scale as area-wide mapping masks situational reality. Re-combined and overlaid in a composite map, the hotspot pattern that emerges is a robust reflection of thousands of criminal events and experiences.

Repeat victimisation (the same person experiencing a crime more than once) might or might not occur at these places. Similarly, given that only location of offence is known and not the place of residence of the offender or victim, it is possible that one person or household could be responsible for a disproportionate number of crimes in the same area. It is, rather, *recurrence* that is the guiding analytic principle employed in establishing crime patterns: frequent emergence, year after year, at the same place.

The lexicon employed in the discussion is as follows: 'area' indicates one of nine Study Areas, a 'suburb' composed of between 3,500 and 10,500 people (6,500 av.); 'physical' intervention refers to architectural changes to housing (both internal and external); 'spatial' is reserved for changes in urban/suburban configuration or public

⁹ Extracted from: The Australian Classification of Offences, ABS 1985

¹⁰ Drug offences (State 1only) represent, on average, only a low 2.9% of all offences in the dataset; no primary relationship with crime change, thus.

¹¹ Calculated using a least squares method

domain upgrades (including streets, parks landscaping); and 'social' for those interventions involving social or community based services or activities.

2.4.4. Crime Experience Indicator

The overall number of crimes committed (or reported) in any area is not a valid comparative measure, since geographic extent and relative population size vary. A Crime Experience Indicator (CEI) is thus proposed as a standardised measure. Once annual crime intensity and trend data is known, a CEI can be calculated indicating the proportion of a given population in a given area expected to experience crime in an average year.¹²

It is an expectancy, or probability ratio and allows for robust comparison between areas: the higher the percentage the higher the victimisation experience. The CEI reflects the crime dataset; the more complete the set the more valid the CEI.

2.4.5. Hotspot Experience Indicator (HEI)

The Hotspot Experience Indicator measures crime trend experiences at specific hotspots which can then be associated with social and physical/spatial intervention strategies. The HEI correlates an average year with actual population numbers in each area giving a relatively robust indicator of the degree to which people might expect to experience crime at hotspots. While the CEI indicator relates to crimes across the whole area, the HEI locates this experience in specific *spaces*, as a percentage of all crime in each study area.

2.4.6. Crime Reduction Indicator (CRI)

The Crime Reduction Indicator distinguishes the degree of change in property and personal hotspot-crime in each area, and on which the final analysis is based.

2.4.7. Mapping Procedure

For the mapping of crime and victimisation data a combination of CAD, GIS, spreadsheet, web technologies, Illustrator and PowerPoint were employed in order to collect, process, disseminate and ultimately analyse crime patterns. Crucially, public and private housing areas could be distinguished (by 'layer'). An icon-based system was developed assigning each crime incident a descriptive symbol (and each year a unique colour). Survey data of respondent experiences were also collected in digital form (mapped directly onto a computer screen), permitting direct overlays during the fear and victimisation mapping procedure.

All this data was then incorporated into an online GIS where it could be accessed for precise mapping and subsequent analysis by the researchers. A password protected local intranet system was also required to meet requirements of the police service of one State.

Each phase used different software:

¹² Collector Districts (CDs) define 'areas'; population numbers are derived from ABS C-Data.

- *MapInfo* for Police GIS crime data preparation, and utilisation at interpretation stage, where maps at a wide range of scales were generated, analysed and stored (in PowerPoint image banks).
- *AutoCAD* for survey data collection and presentation (fear and victimisation maps)
- *Alovmapper* for internal/web-based data dissemination.

2.5 Neighbourhood Survey Process

2.5.1. Recruitment

Survey respondents were recruited by community workers (i.e. paid workers and volunteers) based in local community centres in each of the housing areas studied. A fee was paid to the community centres to cover the cost of resources required to undertake this process. This method of recruitment was thought to offer the greatest possibility of engendering local resident interest in the survey. Only a certain proportion of residents in these housing areas use the community centres and/or the services provided, and they could be personally approached and asked to participate and to provide other residents with information. Local workers were also ideally placed for recruitment activities, such as putting up posters advertising the survey in strategic locations across the housing area, and 'letter boxing' residents. No 'door knock' recruitment was undertaken due to safety considerations. Residents were offered an incentive to participate in the survey – being placed in a "lucky draw" for a \$100 shopping voucher, held on completion of the survey in each housing area.

Letters were emailed or faxed and then mailed to local high school principals (public and private) requesting that their students be informed that the survey was being held. Even though a small number of principals expressed their interest in students participating, this form of recruitment did not generate any respondents. During survey visits the researcher also engaged in recruitment activities. These activities included making personal approaches to residents attending the community centres, phoning and/or visiting other centres located in the study areas to encourage their resident users to participate.

2.5.2. Response Rate

Table 1 below shows survey respondent characteristics. The notation for areas with significant physical/spatial intervention is 'Phys/Spat', areas with primarily social intervention are labelled 'Soc', and control areas with minimal intervention are 'Cont'.

The response rate was lower than anticipated in States 2 and 3, and in one area in State 1, due to a variety of factors. Community centres in State 1 and in one area in State 3 had relatively high resident use rates and established community networks, which aided the recruitment process. However, two of the centres in State 3 and those in State 2 had lower usage rates and community involvement, due to centre activities and services being limited by funding restrictions. Thus recruitment was more difficult. Moreover, residents living in close proximity to the community centres were more likely to attend the centre and participate in the survey than those living further away. And self-selection is always an issue in respondent samples.

Table 1 Neighbourhood Survey Respondents and their Characteristics

	State 1				State 2				State 3				Total
Area No.	1.1	1.2	1.3		2.1	2.2	2.3		3.1	3.2	3.3		Total
Intervention Type	Phys Spat.	Soc	Cont	Total State	Phys Spat.	Soc	Cont	Total State	Phys Spat.	Soc	Cont	Total State	All States
No. Responding	41	52	52	145	20	17	12	49	50	24	32	106	300
GENDER	Percentage of respondents												
Male	32	12	46	30	15	24	50	27	34	42	28	34	31
Female	66	88	54	70	80	76	50	71	66	58	69	65	68
Not stated	2	0		1	5			2			3		1
Total	100	100	100	100	100	100	100	100	100	100	100	100	100
AGE GROUP	Percentage of respondents												
14-19 yrs	10	10	2	7	5	6		4	8	4		5	6
20-29 yrs	2	4	4	3	5	18		8	14	17	13	14	8
30-39 yrs	12	21	12	15	25	18	8	18	24	17	13	19	17
40-49 yrs	10	21	17	17	15	24	25	20	22	21	22	22	19
50-59 yrs	15	21	27	21	20	24	17	20	22	21	22	21	21
60-69 yrs	24	17	25	22	25	12	33	22	8		13	12	19
70 + yrs	20	6	13	12	5		17	6	2		19	7	9
Not stated	7			2								1	1
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

Note: Rounding errors account for minor discrepancies with totals

While the sampling method and response rates in some areas are not adequate for significance testing, the experience of interacting with members of local communities does provide an array of insights to complement the mapped crime data. The overall sample size of 300 (from all nine areas) is representative of people who are likely to be of very similar demographic status (all living in areas with concentrations of public housing) and considered in total provides a reasonable basis for analytic interpretation at this larger scale.

A number of personal reasons as to why residents chose to participate or not, became evident. Some were motivated to participate by their personal experience as victims of crime, or because they are community minded. Reasons for not participating included the nature of the survey (eg, a belief their housing area was being stigmatised as crime-prone); fear of being known to have participated in the survey, or of repercussions. Besides the now well-known disinterest of people in community surveys, factions had also sometimes developed with some residents willing to use the centre (where the interviews were held) and some not.

In hindsight, a more effective future recruitment method might have been a mobile interview van with two people to conduct/assist with the interviews, combined with a “letter box drop” advising residents of the location of the van (e.g. a strategic location such as the local shops or a nearby street). This method could make the interview far more convenient to attend and could increase the geographic spread of the interviewees.

2.6 Interpretation: Intervention Efficacy and Epidemiology of Crime

At a micro-scale each place has a unique ‘signature’ (or trend). Interpretation can be at the level of property and person, or down to the scale of a discrete offence at a discrete address. Detail at the latter scale is beyond the scope of this research, and would impact on anonymity. Ultimately, both local hotspot and area-wide patterns and trends are taken as reflections of intervention efficacy and contributory evidence for or against a reduction in crime.

Inevitably, the time factor confounds any interpretation: the period required for each strategy to take root and become manifestly evident is inherently uncertain. A rising crime trend, thus, is not necessarily indicative of an intervention not working, but, rather, could reflect level of evolution. Moreover, no two situations are ever the same, however similar, and a strategy might be effective in one place but not in another. Individuals also have powerful effects on crime patterns, from persistent offenders to committed leadership at opposite ends of the spectrum. Confounding the situation further is the wide range of interventions applied, combinations of physical, spatial, social, economic, cultural and policing strategies.

Thus, to attribute a trend to one or other strategy with certainty is impossible. Associations made between interventions, crime and victimisation via crime pattern and trend interpretations are, however, indicative of a likely relationship only. Essentially, a specific set of strategies is noted, crime change is noted, and a relationship is posited - within a complex contextual and situational reality which is unmeasurable. Simultaneously, there is little probability of proving *no* relationship between co-incident evidence or events. If it is impossible to prove a causal relationship, it is equally impossible to disprove that an association exists. This is the reality of policy-crime research.

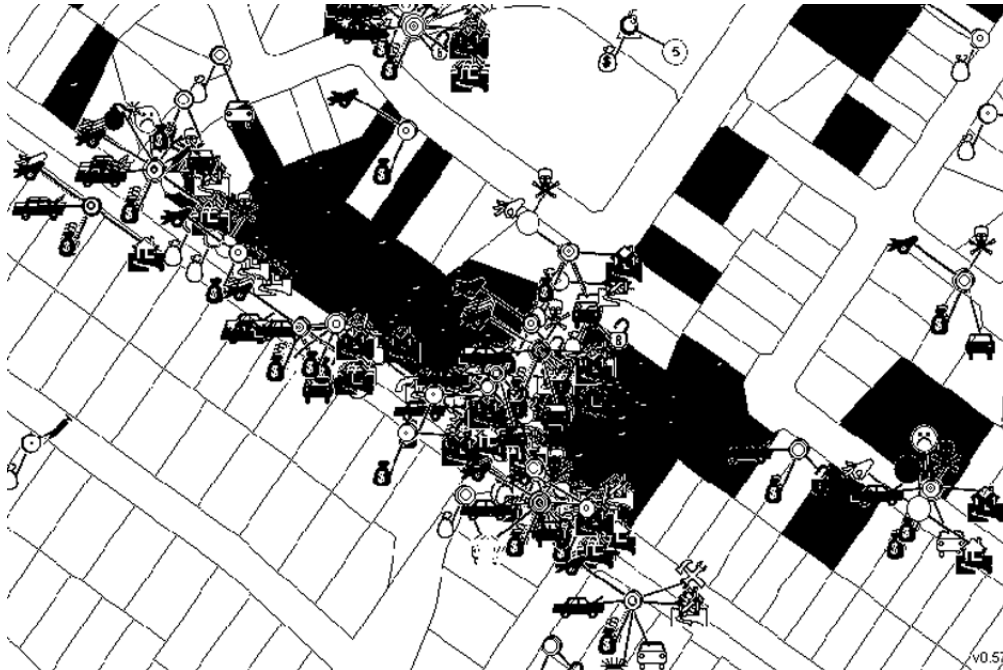
2.7 Generic Case Study

In order to demonstrate the research approach and techniques employed, a generic case study is briefly presented below, with exemplars drawn from any of the 9 areas. Specific maps and trends for each area will be included in Volumes 2, 3 and 4 and made available to State housing and police agencies.

As an example of a hotspot spatial configuration Figure 1 shows the crime pattern evident at a micro-urban scale. Multiple maps of a similar nature were generated and interpreted for each area. Each crime type mapped is designated by an identifying symbol: a hand means a theft, an unsmiling face is an assault, etc. Roads and privately-owned lots are shown in white and public housing properties in black. The

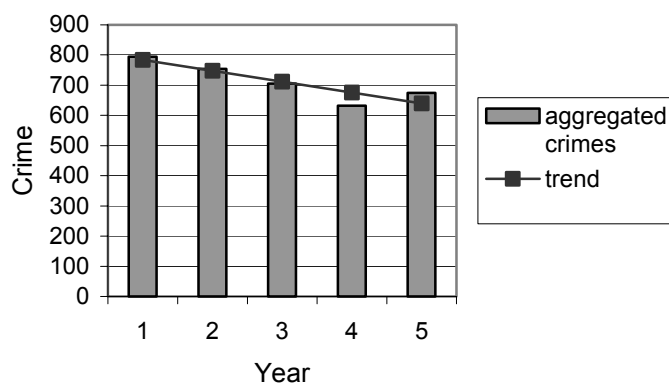
use of 'icons' to represent crimes helps give interpretive meaning to the patterns; a sense of experience can be elicited. Every crime, be it targeted against a person or property, has a victim – and each represents an experience.

Figure 1 Hotspot Crime Map¹³



Trend analyses of police crime data were calculated and graphed for aggregated/total crime and a range of sub-categories of property and personal offences. Figure 2, for instance, is an example of total crime reducing over the five-year period in one particular area, and as such would be interpreted as an indicator of strategic effectiveness.

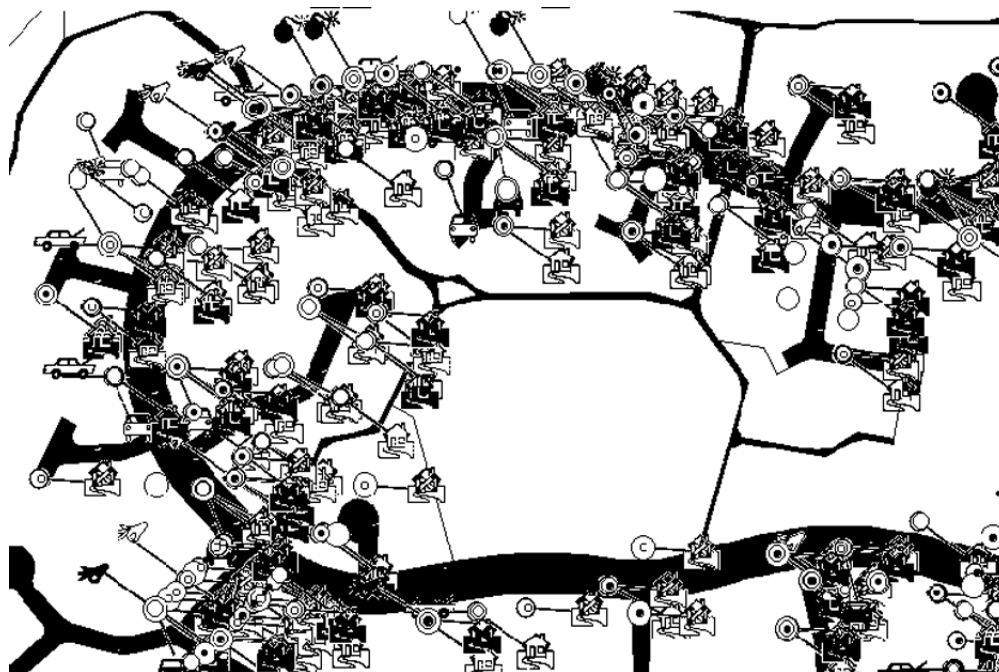
Figure 2 Typical Trend Analyses



¹³ All maps shown are designated North at the top, as in standard architectural notation. This allows for description without identification - using the points of the compass rather than street names.

Figure 3 is an example of a looped-road configuration, with many cul-de-sac enclaves connected directly to open land and a prominent rear-path system typical of many Radburn layouts – which, in environmental design terms, would be considered ‘criminogenic’. Crime intensity here is significant. The maps aid analytic interpretation.

Figure 3 Cul-de-Sac Radburn Hotspot Configuration



In Table 2 below an excerpt from a larger **hotspot** table generated for a particular area indicates numeric frequency/incidence and trends (↑ & ↓ symbols) and distinguishes between property and person crimes (which themselves are ultimately subjected to trend analyses in the HEI evaluation). Hotspot tables for each area are presented in the State specific Volumes 2, 3 and 4, with place names identified in an In-Confidence Appendix.

Table 2 Hot-Spot Trends by Property and Person Categorisation

Hotspot No	Place	Freq	Property	Person
1		61↑	39	22
2		122↑	79	43
3		158↑	75	83
4		262↓	150	112
5		196↑	110	86

Figure 4 below is an example of a composite hotspot map for one area. It has been generated after analysis of the crime patterns evident in the area over the given time period. The circles are hotspot locations; black zones indicate public housing concentrations while the white allotments are privately-owned. A relationship between recurrent crime and public housing is thus evident.

Figure 4 Hotspot Composite Map

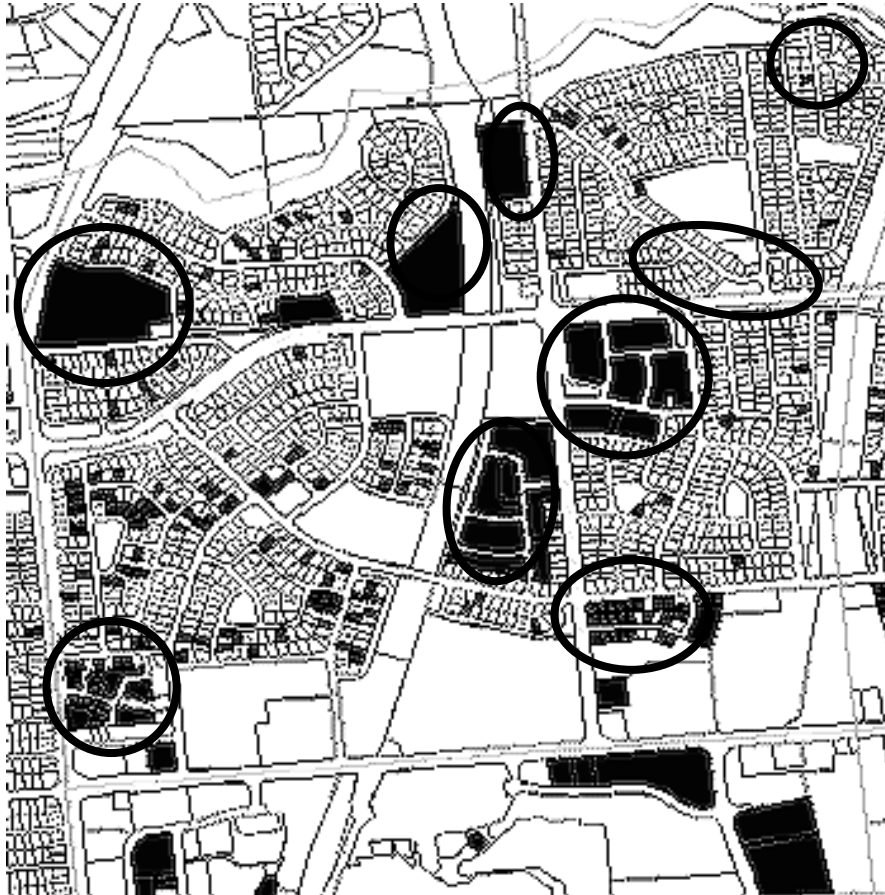


Figure 5 below is an example of a Fear map generated from responses to the victim survey, indicating areas considered unsafe at night, the darker the area the more fearful the place.

Figure 5 Fear Map - Unsafe Afterdark

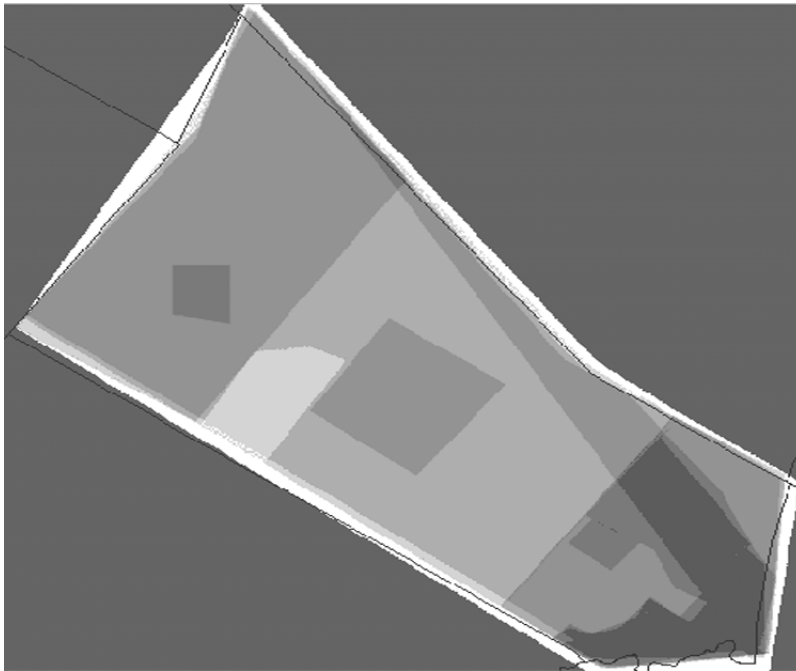


Figure 6 is an example of a victimisation map, frequently indicative of a coincidence between victimisation experiences and public housing clusters.

Figure 6 Composite Victimisation Map



Indicative in the following photograph (Fig 7) are a range of salient environmental design parameters which might be considered as criminogenic: widely-spaced street lighting on one side of the road only and an unlit path along the edge of a large, unlit open space. No people are around.

Figure 7 Criminogenic environmental design parameters



The ultimate purpose of the mapping exercise is to inform interpretations regarding the apparent effectiveness of particular sets of strategic interventions in reducing crime. Specifically, changes in personal and property crime patterns/trends at hotspots are taken as indicative of policy 'efficacy', and related to the policy-matrix (generated after interviews with key stakeholders and reference to secondary sources).

3 INTERVENTION AND CRIME ANALYSIS

3.1 Interventions

Interviews were undertaken with key housing and police stakeholders in each housing area to determine the nature of physical and social interventions undertaken by housing, police and other agencies over the past 5 years or so. This information was supplemented with secondary sources, official websites, eg. Table 3 is a summary of interventions in each area, from a social and physical/spatial perspective. A qualitative rating system applies to the matrix. Where a broad range of strategies were implemented a high rating was afforded, and so on; thus ratings reflect level of intervention. No sophisticated comparisons concerning human resources or funds allocated, intensity of intervention or hypothetical 'efficacy' are made. The categorisation system simply adds another dimension with which to further explore associations between interventions and crime change.

Table 3 Summary of Intervention Strategies by State and Study Area

Area and Agencies	Social Intervention Level	Physical/Spatial Intervention Level
STATE 1		
1.1 Commenced: 1998 Stock reduction: 30% Agencies involved: <ul style="list-style-type: none"> ▪ Housing ▪ Local government ▪ Police ▪ Human Services ▪ Attorney Generals 	High Change social and tenure mix, community development worker, individual and group community consultation, interagency social services coordination, youth worker, crime prevention and area specific police liaison officer, multi-agency crime prevention committee, safety audit and hot spot identification, graffiti management program, early intervention program, housing security education, interagency domestic violence strategy, community conferencing	High Public housing upgrades, significant reduction of public housing concentration through sales, demolition and redevelopment by private sector, public domain upgrades, community centre, youth recreation facility
1.2 Commenced: 1995 Stock reduction: Few Agencies involved <ul style="list-style-type: none"> ▪ Housing ▪ Local government ▪ Police ▪ Attorney Generals ▪ Education & training ▪ Community services 	High Increase social/tenure mix, interagency collaboration and referral group, multi-cultural programs, family programs, youth at risk program, family conferencing, domestic violence program, housing security education, local government crime prevention officer, problem oriented policing – targeting offenders, licensed premises opposing bail...	Moderate Upgrade public housing (since 2000), some sales and new purchases in low concentration areas, tree planting by local council

Area and Agencies	Social Intervention Level	Physical/Spatial Intervention Level
1.3 Commenced: N/A Stock reduction: Few Agencies involved: <ul style="list-style-type: none"> ▪ Housing ▪ Police ▪ Family/youth services ▪ Mental health ▪ Transport 	Low Interagency meetings, community development (since 2000), gardening training, community policing, crime prevention program, safety audit, hot spot monitoring & targeting, targeting individual offenders (POP focus)	Moderate Public housing upgrades, security upgrades, some sales to tenants, community centres
STATE 2		
2.1 Commenced: 1998 Stock reduction: 5% Agencies involved: <ul style="list-style-type: none"> ▪ Housing ▪ Police ▪ Juvenile Justice ▪ Mental Health ▪ Employment agencies 	Moderate On-site management team, community development worker, tenant consultation and advisory groups with interagency representation, tenant employment & training, police liaison via crime prevention officer, aboriginal liaison officer, POP	High New street connections, dwelling upgrades and reorientation, infrastructure upgrades, community & youth centre, community garden, open space upgrades (Radburn reversal)
2.2 Commenced: 1998 Agencies involved: Stock reduction: Nil <ul style="list-style-type: none"> ▪ Housing ▪ Community housing provider ▪ Police ▪ Local Government ▪ Education & Training ▪ Health ▪ Community Justice ▪ Centrelink ▪ Regional tenants association ▪ Numerous private agencies 	High On-site community housing management in selected areas, flexible allocation strategies, interagency meetings, integrated whole-of-government service provision, tenant participation and consultation, employment and training initiatives, social enterprise development, food coop, community social events, various social and mutual interest groups, youth drop in and computer centre, youth activities, play groups, problem oriented policing, two crime prevention officers with CPTED training, community policing and mobile van accompanied by local cultural elders, hot spot analysis and targeting, culturally specific crime prevention strategies, security awareness education,	Low Street cleanups, improved maintenance response, community gardens, target hardening, repair vandalism damage.

Area and Agencies	Social Intervention Level	Physical/Spatial Intervention Level
2.3 Commenced: N/A Stock reductions: Few Agencies involved: <ul style="list-style-type: none"> Housing Police 	Moderate Tenant group in one area, police liaison with community groups, safety audit, housing-police exchange of information, inter-agency safety committee	Low Some property sales, tree and shrub pruning
STATE 3		
3.1 Commenced: 1998 Stock reduction: 5% Agencies involved: <ul style="list-style-type: none"> Premiers Dept Housing Police Education Health Juvenile Justice Local government 	High Multi-agency liaison group, tenant participation on steering committees, community workshops, employment and training projects, community festivals, family support project, community bus service, domestic violence worker, community arts & crafts projects, youth drug & alcohol prevention/early intervention, community capacity building worker and program, community enterprise education, indigenous community centre, community radio/training program, sport & recreation officer, school based enterprise education, active neighbourhood watch, problem oriented policing, community crime and safety education, community safety strategy, legal advice centre, police 'open door' general policy to engage with multi-cultural groups.	High Public domain improvements (parks, streets, pathways, traffic controls, lighting), public housing upgrades (internal and external), security upgrades, sales of stock to tenants, public transport infrastructure upgrade, indigenous community centre
3.2 Commenced: 1998 Stock reduction: 2% Agencies involved: <ul style="list-style-type: none"> Premiers Dept Housing Police Education Health Juvenile Justice Local Government 	High Multi agency liaison group, tenant participation, community reference group, community renewal workshops, community festivals, youth and community arts & crafts projects, community bus service, school based enterprise education, various employment and training projects, family support project, youth drug and alcohol prevention and early intervention, domestic violence worker, active neighbourhood watch, on-site community policing centre, local police beat, juvenile justice project for youth at risk, sport and recreation worker,	Low Park upgrade, some sales of public housing stock

Area and Agencies	Social Intervention Level	Physical/Spatial Intervention Level
3.3 Commenced: N/A Stock reduction: N/A Agencies involved: <ul style="list-style-type: none"> ▪ Housing ▪ Police ▪ Local Government 	Low Tenant groups, monthly inter-agency meetings, place management group, community police advisory service for liaison with community, community crime prevention education	Low Public housing sales, public housing upgrades, accommodation for the elderly, police community youth centre (recent).

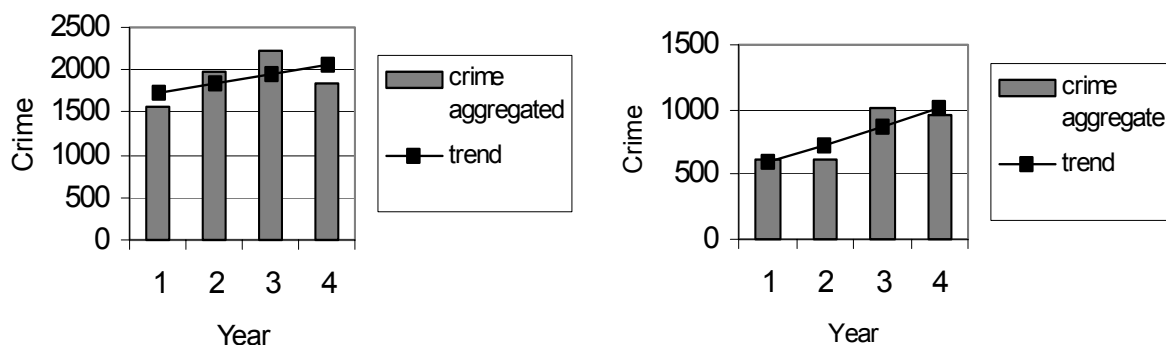
3.2 Crime Categorisation and Trend Analyses

In order to meet ethical constraints placed on the use of the police data, specific information has been modified or abstracted before being presented in this Main Report. Raw data from which the Tables presented below have been constructed, and a selection of the accompanying graphic representations of trend analyses, are included in three additional Volumes which will be made available to key stakeholders in each of the States¹⁴. For instance, Tables 5, 6 and 7 allow for comparative analysis but give only percentages not actual crime occurrences by identifiable category (assault, eg).

Generally, trend analyses show that crime is rising in two-thirds of the study areas.¹⁵ Relatively more reduction in crime is occurring in State 3 while State 1 is experiencing rising crime. One important exception in State 1 is evident in the 2001/02 figures for area 1.1, when a relative decline occurred. Here, it is feasible that a locally-born crime prevention officer's exceptionally committed input might be having some positive affect.

Analyses are over a 4-year or 5-year period depending on the datasets made available. Below two graphic representations (from State 1) are shown, as examples.

Figure 8 Trend Analyses for Areas 1.1 (left) and 1.3 (right) over 4 years



¹⁴ All Trend Analyses are stored in Excel databases; for verification purposes. Maps are stored in Powerpoint databases.

¹⁵ On average, about a dozen Collector Districts of about 225 households (per CD) make up an 'area'.

Traditionally, crime is categorised into crimes against the person and those against property. Different patterns emerge in the three States, but property-to-person ratios are skewed towards property in them all, particularly in State 3 where the ratio is 9:1. No inferences are made here concerning these distributions. The division of crimes into these two categories is convenient for analytic purposes, however, and the final HEI estimations are made at that scale: property and person crime trends at each hotspot. Ultimately these evaluations are associated with the social-spatial strategy sets (Table 5, above), to reflect on the intervention-crime research question.

The crime patterns tabulated and described below are consistent across all three States. Assault is the most common crime against the person, about 13% and 17% of total crimes¹⁶ in States 1 and 2 respectively. The figure is considerably lower in State 3 (5%), where 90% of crimes are against property, but assault is still the most common crime against the person. Areas in State 2 record similarly high levels of abusive behaviour (about 18% on average), in particular verbal harassment. It is also the State with the highest concentrations of public housing, suggesting a possible link. In the property categories, dwelling crimes predominate in all States (ranging from 39% to 46% of total crimes), divided roughly equally between damage to property (graffiti would be an example) and actual break, enter and steal. Vehicle crime of varying nature, and theft (other) follow, in that order.

In the following 3 tables, *relative percentages* pertaining to specific crime occurrences (person and property subcategories) are tabulated for all nine study areas. Trends are indicated by the $\uparrow=\downarrow$ symbols (rising, stable, falling).

3.2.1. State 1

Trend analyses of police crime data undertaken for State 1 (see: Table 4 below) indicate that 20 out of 27 (74%) of crime categories are rising; and trends analysed at hotspots conform to a similar pattern (71% rising).¹⁷ Based on the assumption that only reductions in crime are indicative of intervention efficacy, positive results over the time period of the research are not evident here. The utility of the CEI as an explanatory tool is evident too. More than twice as many crimes are perpetrated in Area 1.1 (n=7606) than in Area 1.3, yet when considered proportional to population size, the expectation of crime experience in both areas is relatively similar. Further, CEI is considerably lower in Area 1.2, despite having a similar number of crime occurrences as Area 1.3. These are meaningful measures.¹⁸ Of the three areas in State 1, Area 1.3 is the most problematic overall: crime rose 10.5% over the four-year period, and virtually all trends are up. It also has a rising CEI, up 9% on average over the period.

¹⁶ in the police crime datasets accessible for this research

¹⁷ These figures represent *overall* trends at hotspots. In the HEI analysis (see Table 13) crime change at hotspots is analysed by property and personal categories, separately.

¹⁸ CEI percentages represent *the average* over the time period evaluated. See Table 11

Table 4 State 1 Four Year* Crime Profile (1998/99 – 2001/02)

State 1 4 yr Crime Profile	Study Area			Total State 1
	1.1	1.2	1.3	
Police Data Trends (No. of crime categories)	↑ 7 = 2 ↓ 3	↑ 5 = 0 ↓ 2	↑ 8 = 0 ↓ 0	↑ 20 = 2 ↓ 5
Hotspot Trends (No. of hotspots)	↑ 8 = 1 ↓ 4	↑ 9 = 1 ↓ 3	↑ 8 = 0 ↓ 1	↑ 25 = 2 ↓ 8
PERSONAL CRIME	%	%	%	Mean
Assault	12.0	13.5	12.2	12.6%
Sexual	0.2	0.3	0	0.2%
Robbery	1.1	0.8	1.2	1.8%
Drug offences	3.2	2.5	2.9	2.9%
Total (person)	17%	17%	16%	17.5%
PROPERTY CRIME				
Dwelling	41.9	45.4	44.2	43.8%
Vehicle	24.2	19.5	21.3	21.7
Theft other	16.9	18.0	18.2	17.7
Total (property)	83%	83%	84%	83.5%
TOTAL	100%	100%	100%	100%
SUMMARY				
Total no. of incidents (4 yrs)	7607	2606	3205	
% crime change over 4 yrs	+3.5%	+3.8%	+10.5%	
CEI (total 4 yrs)	22%	11%	17%	
CEI Change over 4 yrs	+4%	+3%	+9%	

Note: % = percentage occurrence * Only four years of crime data available from this state

3.2.2. State 2

Two thirds of crime trends in **State 2** (Table 5) are rising, somewhat less than in State 1, and although almost as many hotspot trends are falling as rising, the two Radburn 'superlot estates' (54% and 81% of housing is public) display almost opposite patterns. In Area 2.2 interventions seem to be effective; all the more so since this is the area of highest CEI across all States, and highest concentration of public housing amongst the nine areas by far. Is social disadvantage being countered with infusions of social capital? In both Areas 1.1 and 1.3, crime and CEI trends are rising, despite the intensity of interventions in the former and the paucity in the latter. Assault and dwelling crime figure prominently in all three areas.

Table 5 State 2 Five Year Crime Profile (1997/8 – 2001/02)

State 2 5 yr Crime Profile	Study Area			Total State 2
	2.1	2.2	2.3	
Police Data Trends (No of crime categories)	↑ 6	↑ 4	↑ 8	↑ 18
	= 0	= 0	= 0	= 0
	↓ 4	↓ 5	↓ 1	↓ 10
Hotspot Trends (No. of hotspots)	↑ 10	↑ 1	↑ 4	↑ 15
	= 0	= 0	= 0	= 0
	↓ 2	↓ 9	↓ 1	↓ 12
PERSON	%	%	%	Mean
Assault	17.6	16.8	16.4	16.9%
Sexual	1.5	2.0	1.6	1.7%
Robbery	1.6	1.9	3.0	2.2%
Abusive behaviour	3.2	2.5	2.9	2.9%
Total (person)	41%	40%	36%	39%
PROPERTY				
Dwelling	46.3	50.8	39.5	45.5%
Vehicle	7.3	6.4	17.8	10.5%
Theft other	5.1	3.5	6.0	4.9%
Total (property)	59%	60%	63%	61%
TOTAL	100%	100%	100%	100%
SUMMARY				
Total no. of incidents (5 yrs)	4911	3560	2989	
% Crime Change over 5 yrs	+2.8%	-3.5%	+5%	
CEI (total 5 yrs)	17%	21%	7%	
CEI Change over 5 yrs	+4%	-4%	+1.5%	

3.2.3. State 3

Relatively, State 3 (Table 6) is performing most effectively, within the parameters set in this research. More crime categories are falling than are rising, when considering both crime data and hotspot patterns. In Area 3.1 this change is occurring most significantly, more so since it is the area with the highest CEI of all nine study areas (suggesting efficacy). Mean annual crime occurrence peaks at over 3,000 in Area 3.1, but CEI is also dropping more strongly here than in any of the other nine areas. Although control Area 3.3 has crime falling over the five-year period, it is simultaneously in *status quo* – changes averaging out - when evaluated more subtly (at hotspot trend level). This conforms to theoretical expectation (minimal affect related to minimal intervention).

The emphasis on property crime is disproportionate in all three Areas (90:10). Areas selected for evaluation in State 3 have the lowest proportion of public housing provision (averaging 18% of total households). Theoretically, more valuable property *targets* might associate with higher income households.

Table 6 State 3 Five Year Crime Profile (1997/8 – 2001/02)

State 3 5 yr Crime Profile	Study Area			Total State 3
	3.1	3.2	3.3	
Police Data Trends (No of crime categories)	↑ 2	↑ 4	↑ 4	↑ 10
	= 0	= 2	= 1	= 3
	↓ 9	↓ 2	↓ 4	↓ 15
Hotspot Trends (No of hotspots)	↑ 6	↑ 5	↑ 3	↑ 14
	= 3	= 0	= 3	= 6
	↓ 10	↓ 2	↓ 5	↓ 17
PERSON	%	%	%	mean
Assault	5.2	4.9	4.8	5%
Sexual	1.2	1.2	1.0	1.1%
Robbery	1.6	0.9	0.8	1.1%
Abusive behaviour	1.8	1.4	2.4	1.9%
Total (person)	10%	8%	9%	9%
PROPERTY				
Dwelling	34.6	38.6	43.1	38.8%
Vehicle	24.5	27.2	22.9	24.9%
Theft other	31.0	25.8	25.0	27.3%
Total (property)	90%	92%	91%	91%
TOTAL	100%	100%	100%	100%
SUMMARY				
Total no. of incidents (5 yrs)	15,895	3947	3841	
% Crime Change over 5 yrs	-4%	+2.5%	-3.7%	
CEI (total 5 yrs)	30%	16%	10%	
CEI Change over 5 yrs	-10%	+2%	-0.5%	

3.2.4. Summary of Crime Trends

Tables 7 and 8 indicate crime trends for the nine study areas. Table 7 indicates the relationship between overall crime trends and the Crime Experience Indicator (CEI).

Table 7 Crime Trends & Crime Experience Indicator (CEI)

Study Area	Crime Trend	% Change in Crime	Time	Relative CEI	CEI
1.1*	Up	+3.5%	4 years	High	22%
1.2	Up	+3.8%	4 years	Low	17%
1.3	Up	+10.5%	4 years	Mod/High	11%
2.1	Up	+2.8%	5 years	Mod/High	17%
2.2	Down	-3.5%	5 years	High	21%
2.3	Up	+5.0%	5 years	Very Low	7%
3.1	Down	-4.0%	5 years	Very High	30%
3.2	Up	+2.5%	5 years	Moderate	16%
3.3	Down	-3.5%	5 years	Low	10%

(Range: -4% to + 10%) * 8.9% over 3 years

The CEI helps guide interpretations of rising and falling crime trends - since this probability indicator relates both crime and population in a geographically distinct place. It is a more robust method of analysis than considering crime occurrence trends, or rates, only. The table shows the three Areas that have reducing crime trends (Areas 2.2, 3.1 and 3.3). The first two of these are Areas with high to very high CEIs, which gives this finding special significance.

Table 8 is a ranking of the study areas according to mean percentage CEI indicating trends, and percentage change in CEI over the study period. This shows that the experience of crime is reducing primarily in two study Areas (3.1 and 2.2) and is close to stable in Area 3.3. In all other Areas it is rising – especially in Area 1.3 which has the worst crime trajectory of all housing areas.

Table 8 Ranked CEI Range and Trends

Study Area	Average CEI	Range over 4 or 5 yrs	Trend	% change CEI
3.1	30	35 to 25	↓	-10
1.1	22	20 to 24	↑	+4
2.2	21	23 to 19	↓	-4
1.3	17	13 to 22	↑	+9
2.1	17	15 to 19	↑	+4
3.2	16	15 to 17	↑	+2
1.2	11	10 to 13	↑	+3
3.3	10	10.5 to 10	=	-0.5
2.3	7	6 to 7.5	↑	+1.5

3.2.5. Trends and Interventions

Table 9 relates type and level of intervention to crime trends, level of neighbourhood cohesion and residents' perception of changes in crime. It shows the association between 'high 'social interventions', crime reduction, higher neighbourhood cohesion (relative within a particular state) and perceptions that crime is improving.

A salient principle extracted from community renewal strategies implemented in the two study areas with high crime prevalence but falling crime trends (Areas 2.2 and 3.1) appears to be: engaging with the community at diverse levels, working together as partners. Interestingly and importantly, both Areas are coming down from high rates, which suggests the positive impact of these specific strategies.

Table 9 Interventions, Crime Trends, Cohesion and Residents' Perceptions

Intervention Level	Housing Area	Crime Trend	N'hood Cohesion ¹	Perceptions (% better)
High Social and High Spatial	3.1	↓	2.13	52%
	1.1	↑↓ ²	2.37	34%
High Social and Moderate Spatial	1.2	↑↑	2.35	20%
High Social and Low Spatial	2.2	↓	2.48	59%
	3.2	↑≡ ³	2.33	30%
Moderate Social and High Spatial	2.1	↑↑	2.70	30%
Moderate Social and Low Spatial	2.3	↑↑	2.84	41%
Low Social and Moderate Spatial	1.3	↑↑	2.50	23%
	3.3	↓≡ ³	2.52	19%

¹ The lower the number the higher the level of neighbourhood cohesion, based on a 1-5 scale.

² Strong reduction in the last year

³ Close to stable

Area 2.2 is a Radburn superlot still in its original urban configuration, while Area 3.1 has the lowest public housing concentration of all nine study areas (yet the highest crime prevalence and CEI). In the former, empathetic housing and policing interventions are in place, housing management has been transferred to a respected and locally-based community housing provider who interacts at neighbourhood level, and cultural elders ride in a police bus with crime prevention officers – who have a community perspective and CPTED training. In the latter, a wide range of intensely community-focussed and multi-cultural crime prevention activities, both formal and informal have been implemented (as well as physical interventions). From the policing point of view, 'non-traditional' methods and an 'open doors' focus: interaction with communities, deepening understanding of multi-cultural belief systems and customary ways of life, seem to be bearing fruit.

In the case of the reducing Radburn Area (2.2), not only is overall crime on the decline, but this is evident in the majority of crime categories; and almost all micro-urban hotspots have falling crime too suggesting an association with the intervention strategies.

Extrapolating from the rising trend in the Radburn-reversal Area (2.1), reversing long standing environmental design settings that are inhospitable to community cohesion - given entrenched behaviour patterns and associated attitude sets, is likely to be effectively hampered unless accompanied also by an intense community focus. Active reversal includes closing off rear lanes and incorporating open land into private backyards, and reversing back-to-front entrances, remodelled into traditional street-frontages, with palisade fencing. Notwithstanding, little apparent reduction in crime prevalence is evident. In contradistinction, making little or no change to the physical design but implementing intensive community-oriented programs (as in Area 2.2) seems to have a positive impact on crime.

Figure 9 Radburn Design



Garages lining the road/high fences screen activity in the public realm from view of residents at home

A third study area (1.1) shows a clear upward crime trend but with a strong reduction in the last year evaluated. Possibly, a natural cyclic variation in trends, but here too intense social/community and spatial interventions are current. The remarkable dedication of housing and Crime Prevention Officers to community partnerships here underpins this; the CPO, locally-born, is only a mobile-phone call away.

In the three 'control' study areas where only minimal intervention has taken place, crime is continuing to increase in two (Areas 1.3 and 2.3), and is 'half-falling half-flattening' in the third (Area 3.3). Interestingly, these areas also have the three lowest crime experience indicators. Possibly this helps explain why they have not be targeted for urgent or intense renewal; yet, the two strongest rises in crime (5% and 10.5%) also occur in two control Areas (1.3 and 2.3).

It is probable that inadvertently counteractive outcomes have arisen from an otherwise well-intentioned targeted allocation policy now implemented by housing agencies in all three States - that gives priority to severely socially disadvantaged people.

It is always possible that the time necessary for interventions to take effect masks evolving benefits. However, it is equally reasonable that some crime-reducing indications should become evident within a 4- or 5-year span.

3.3 Hotspot Trend Analyses

In all Areas the pattern is similar: large numbers of crime hotspots, frequently associated with public housing areas in a background of endemic crime diffused through the privately-owned areas. Most hotspots coincide with public housing clusters, however dispersed throughout an area they may be. A selection of maps reflecting this phenomenon are included in the State-specific Volumes 1, 2 and 3.

3.3.1. *Generic*

While crime appears to be endemic in all study areas, of most significance is the consistent pattern of recurrent crime hotspots coinciding with public housing concentrations. Any such concentration, however small, emerges as a likely place for a hotspot. It is possible to estimate relative hotspot strength, or the degree to which each contributes to the overall hotspot intensity in each Area. Hotspots Nos. 10 and 13, for instance, the hottest spots in Area 3.1 represent 11% and 10% respectively. A deeper analysis than permissible here could help unearth specific factors associated with such phenomena. The issue here, nevertheless, is *not* the relative intensity of hotspots, given that each place is of a different geographic and population size. Rather, it is crucial to know whether a spot is heating up or cooling down - since this is indicative of *likely experience of crime* at each hotspot (or HEI), and crime-reduction efficacy (further elaborated in Table 13 and Figure 10, below).

3.3.2. *Specific: Hotspot Pattern Evaluations - crime trends & intervention effectiveness*

In terms of intervention effectiveness, where crime is rising or staying much the same (i.e. not improving) this would constitute a lack of efficacy - in terms of the research question. The most trenchant measure is whether crime falls. The analytic advantages of generating hotspot maps are many, including precisely indicating which places are hotter and which are cooler. Assessment at even finer grain, distinguishing between property and personal crime trends at each hotspot, is the ultimate 'measure' associated with crime-reduction strategy here.

3.3.3. *Hotspot Experience Indicator (HEI)*

The HEI locates the experience of crime in specific spaces as a percentage of all crime in each study area. Areas are ranked in Table 10, the higher the HEI% the higher the probability of experiencing crime. Distinguishing the HEI from the CEI is its specificity: the HEI alone relates to discrete hotspot locations. Geographically, these hotspots represent only a small proportion of the total study area, and therefore the HEI measure indicates a lower probability of experiencing crime than in the Area generally (CEIs are as high as 30%). Therefore for HEI the range is much lower: from 1 to 10 per cent (of crime for the whole study area) - where 10 represents 10 times the expectancy of one. Hotspot experience indications are unique.

Nonetheless, a general relationship is apparent between Areas with high and low CEIs (Table 8) and high and low HEIs (Table 10), which is intuitively consistent.

Table 10 Hotspot Experience Indicator (HEI) – all areas

Study Area	Crime Prevalence at Hotspots	Mean Incidence per year*	Area Population (n).	HEI%
2.2	1746	349	3422	10.2
3.1	4719	944	10,532	9.0
1.3	1657	414	4799	8.6
1.1	2227	557	8805	6.3
2.1	1417	283	5848	4.8
3.3	1771	354	7318	4.8
1.2	1000	250	5698	4.4
3.2	1026	205	4829	4.2
2.3	375	75	8734	0.9

* 4 or 5 years respectively

A deeper HEI pattern is now also apparent. In the two Areas where crime is reducing, Area 3.1 (with the highest CEI) is now out-ranked by Area 2.2 - which can thus be described as embodying the most intensive crime experience at hotspots of all the Areas – despite it having the smallest population numbers. Furthermore, Area 1.3 – where crime is increasing most significantly - is ranked third by this indicator, consistently. Hotspot crime experience is almost double here than in Area 2.1, for instance, which has the same CEI. In other words, the HEI refines the areal CEI and is a closer approximation to the reality experienced on the ground.

3.3.4. Crime Reduction Indicator (CRI)

An even deeper, and final level of analysis based on the HEI patterns can then be undertaken, providing a measure here termed the Crime-Reduction Indicator (CRI) (see Table 10 over), which distinguishes the degree of change in property and personal hotspot-crime in each area. Given the changes apparent in each of the areas, given the unknowable whole situational context, this is likely to be a reflection of the extent to which specific sets of intervention strategies have been effective during the research period – thus informing the research question.

Once the CRI measures extracted from Table 11 (below) are associated with the 6 intervention types, relationships can be inferred – i.e. given the *co-incidence or synchronicity* of given practices and observed crime changes in the same place, thus despite the contextual complexities - reflections on relative efficacy can be made. These interactive concepts can then be mapped in *conceptual space*, relative to a scale of 100 (effective) to zero (ineffective). This conceptual diagram is found at Figure 10 (over). The CRI is a rigorous measure since it represents *only crime that is reducing*, in apposition to crime that is both stable and increasing, which would have to be defined as ‘ineffective intervention’, and is not represented in the diagram.

Table 11 Crime-Reduction Indicator: Hotspot Crime Trends & Strategic Interventions

	High Social High Phys/Spat				High Social Moderate Phys/Spat				High Social Low Phys/Spat				TH	Mean CRI%
Area	1.1	CRI %	3.1	CRI %		1.2	CRI %		2.2	CRI %	3.2	CRI %		
↑ prop ≡ ↓	10		5			9			0		5		29	
	1		3			2			0		1		7	
	2	15 %	11	58 %		2	15 %		10	100 %	1	14 %	26	42%
↑ pers ≡ ↓	5		9			7			1		5		27	
	1		2			0			2		0		5	
	7	54 %	8	42 %		6	46 %		7	70 %	2	29 %	30	48%

	High Phys/Spat Moderate Social				Moderate Phys/Spat Low Social				Low Phys/Spat Moderate Social				TH	Mean CRI%
Area		2.1	CRI %		1.3	CRI %	3.3	CRI %		2.3	CRI %			
↑ prop ≡ ↓		7			9		5			3			24	
		1			0		1			0			2	
		4	33 %		0	0%	5	45 %		2	40 %		11	30%
↑ pers ≡ ↓		10			7		6			3			26	
		1			0		1			0			2	
		1	8%		2	22 %	4	36 %		2	40 %		9	24%

Legend

1.1 – 3.3	Coded Study Area, by State
TH	Total number of Hotspot Crime Changes (↑ ≡ ↓)
CRI%	Crime-Reduction Indicator, or percentage hotspots where crime is reducing (the basis for the conceptual diagram)
Mean CRI%	Percentage hotspots where crime is reducing, across intervention types (in 5 high social-intervention areas, compared to 4 mixed areas)

The utility of using hotspot analysis to reflect the apparent degree to which intervention strategies are effective rests on its massive and spatial dataset. Such refined analysis cannot be undertaken using the police crime data *per se* which represent either individual events or provides area-wide perspectives. However, hotspots are representative of almost 16,000 events here, located spatially at micro-urban scale, and distinguished by the CRI according to both property and personal crime patterns, allowing for meaningful interpretation.

We can now also question how effective are the social as compared to the spatial strategies (by assessing reduction in property and personal crime at hotspots).

Table 11 is a double-matrix; an amalgam of many factors considered in this research. It can be read both horizontally (across areas grouped by intervention type, culminating in a mean CRI%) and vertically (movement within each area, and percentage crime reduction). *Hotspot trends* for both property and personal crime are calculated. In the upper portion of the matrix, five areas of high *social* intervention are tabled (with accompanying levels of physical/spatial intervention varying from high to low); while in the lower portion, four mixed-focus areas range from high to low *physical/spatial* intervention with varying levels of social intervention.

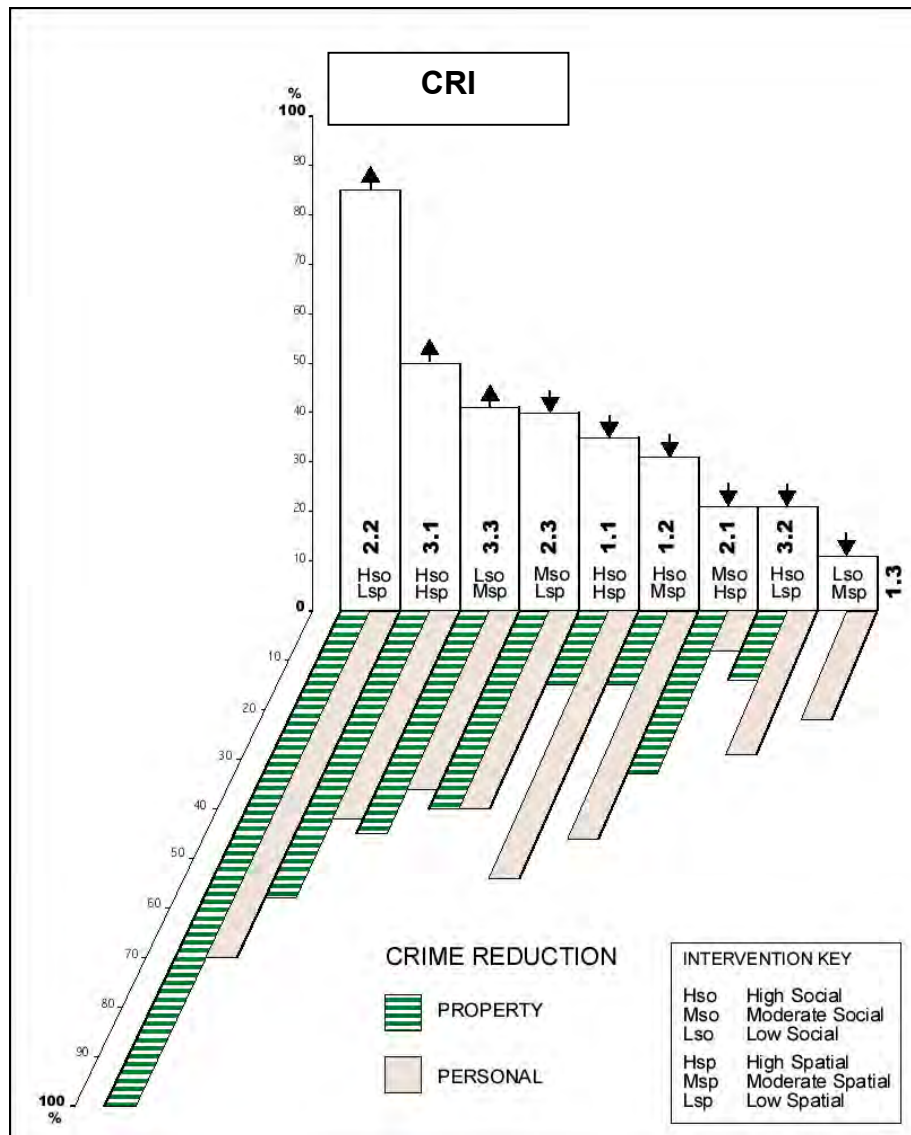
The Mean CRI% is a gauge of efficacy at hotspots across areas grouped by intervention strategy. A Mean CRI of 42% for property crimes (i.e. reductions at 26 of a total of 62 hotspots) and 48% for personal crimes are evident in the high social intervention areas, compared with only 30% and 24% respectively in the mixed intervention areas. This indicates the apparent advantage of social intervention strategies. Moreover, crimes against the person reduce more than those against property, a logical relationship: social input to personal output. In the mixed strategy groups, where efficacy is lower overall, there is apparently more reduction in property than personal crimes, which would be consistent with spatial interventions of the Radburn type, for instance, which reduce accessibility to property.

The CRI% is proposed as a measure of relative efficacy within each area. For instance, in Area 1.1 property crime is reducing at only 2 of 13 hotspots (a 15% CRI, thus), but at 7 of the 13 hotspots for personal crime (CRI of 54%). These CRI percentages are the basis for the Crime-Reduction and Intervention Strategy diagram, below (Fig 10).

The diagram is constructed around two dimensions indicating, first, where each study area locates in terms of its hotspot crime reduction profile, thus reflecting possible intervention efficacy. Secondly, specific reductions in property and personal crime at hotspots indicate apparent intervention efficacy, relative to each other. In each case the greater the number on the CRI scale (0-100%) the greater the number of hotspots where crime is reducing, or the greater the influence on property or personal crime reduction.

The diagram is constructed from the following principles: 100 on each scale is 'effective' and zero is 'ineffective'; the length of each study area bar in the vertical dimension (upper portion of the graph) represents overall, average or mean efficacy; thus Area 2.2 locates at 85% but Area 1.3 at only 11%. The length of the property and personal crime reduction bars on the lower part of the diagram indicates the extent to which intervention has been effective in these dimensions within each area. All calculations are derived from Table 11; and only reductions at hotspots are utilised as efficacy indicators, i.e. rising or stable crime is ignored. The arrows indicate the direction in which the study area is moving (derived from Table 7) thus, where crime prevalence is increasing (e.g. in Area 1.3 by 10.5%, eg) its movement is indicated on the chart as downwards, towards inefficacy.

Figure 10 Crime-Reduction and Intervention Strategy Diagram



Interpretations from this diagram include the following:

At the ten hotspots in Area 2.2 (high social, low physical/spatial intervention area) property crime is reducing every time (CRI=100%) while crimes against the person are reducing 7 out of 10 times (CRI=70%), together representing 17 of 20 possible scenarios. Area 2.2 as a whole thus representing 85% mean efficacy. The diagram also indicates the relative intervention success in reductions of property and person crimes. Generally, Area 2.2 is well ahead of all other areas, and is moving in the right direction.

Area 3.1 (high in social and physical/spatial interventions) locates at the 50% CRI mark, with property crime at 58% and person at 42%; and moving in the right direction. At the opposite end of the spectrum is Area 1.3 (low social, moderate physical/spatial interventions) at the 11% mark generally, and indicating zero efficacy in property crime reduction; while also moving in a negative direction. Two 'control'

Areas (3.3 and 2.3) are stable at the 40% level on both dimensions, and are not improving; while the three State 1 Areas and the Radburn reversal area (2.1), all with high or moderately high physical/spatial interventions, cluster at the lower end of the efficacy space.

It can be observed therefore, in a broad sense, that social-partnership focused interventions tend to occupy higher positions in the efficacy space, and spatial strategies lower positions - indicating their relatively higher and lower effectiveness. Given the wide range of strategies applied in the different areas and local contextual variations however, these relationships are too complex to reduce to a one definitive social-spatial statement here.

Micro-urban crime-reduction analysis can indicate to policy makers which *specific interventions coincide with crime reduction* at hotspots. Within the multi-dimensional framework of strategic intervention, this knowledge can help inform policy and practice. (Refer to Tables 3, 8, 9 and 11; and Figure 10).

3.4 Victimisation and Fear Analysis

Much like the association between public housing clusters and recurrent crime, it seems evident that victimisation events elicited in the survey also have a relationship with such areas. Possibly this reflects sample bias: i.e. that most respondents are likely to have been drawn from there, and that is where many of their experiences take place. Yet, extrapolating from all 300 respondents as a 'class' the experience is common; and composite victim maps reflect composite hotspot maps too. Fear maps also seem to reflect a similar reality: often coinciding with public housing concentrations. At the same time, fear is relatively wide spread in the study areas; unsurprisingly, given the endemic nature of crime experience there. Figs. 11, 12 and 13 below show the relationship between victimisation, hotspots and fear for one of the study areas.

Figure 11 Composite Victim Map

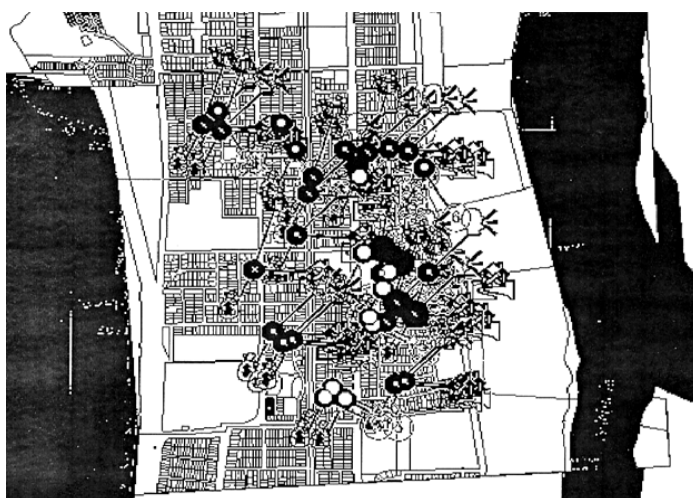


Figure 12 Hotspot Map

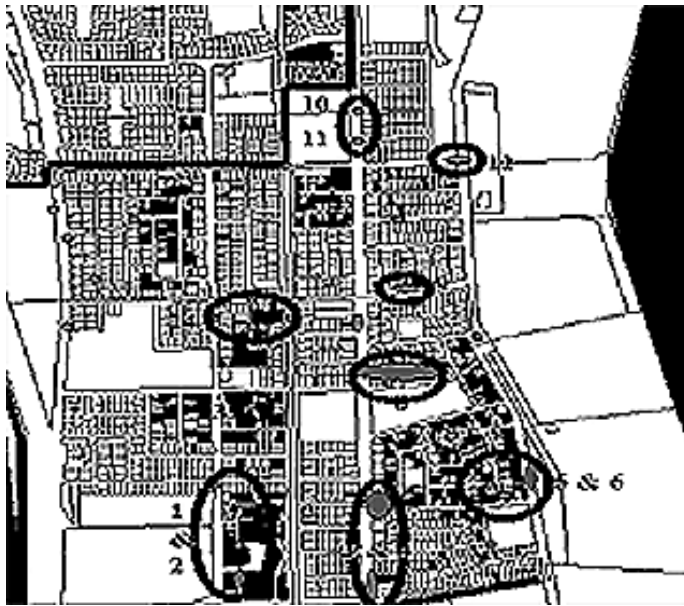


Figure 13 Fear Map



Note: Dark areas represent greatest fear afterdark

Victimisation incidents are summarised on Table 12 below. A total of 417 victimisation incidents were reported. Of these, 63% had been reported to the police.¹⁹ The 37% unreported cases would not appear on police records such as those employed in this research (or used to generate crime rate statistics). Extrapolated across a population this could alter known crime profiles to an extent. Large-scale victimisation surveys (ABS) go some of the way towards complementing our understanding of crime, but not its finite spatial distribution. Hence the value of the spatial mapping technique.

¹⁹ In unpublished prior research undertaken in a high-rise, inner-city public housing area, 62% had not been reported.

Table 12 Victimisation Incidents

Victimisation	Study Area									Total
	State 1			State 2			State 3			
	1.1	1.2	1.3	2.1	2.2	2.3	3.1	3.2	3.3	
Afterdark	18	51	47	3	4	8	30	15	34	210
Daytime	36	42	39	6	6	5	23	24	32	213
Reported	16	62	60	5	10	11	44	16	39	263
Unreported	33	31	26	3	0	2	9	23	27	154
Total										417
Crime Category*										%
Assault	4	4	2	1	0	2	3	1	2	5
Offensive	36	65	53	6	6	4	25	20	19	56
Dwelling	8	4	18	0	3	1	19	14	42	26
Vehicle	13	19	12	2	0	6	3	2	1	14
Victimisation Ratio										%
Property										40
Personal										60

* Note: very low frequency events are not tallied here; but all events determine the victimisation ratio

Almost exactly half of the incidents occurred during the day and half afterdark.²⁰ More personal victimisation was elicited (60%), possibly reflecting residents' inevitable movement through the areas. The offensive behaviour category accounts for the very great proportion of these events; possibly those 'harassment' events that go unreported. Sexually offensive behaviour dominates too – perennially under-reported in official records. Here, 44 and 22 sexual incidents respectively were reported in two areas of State 1 where crime prevalence is rising. Thereafter, 'verbals' figure, possibly also relating to assault events.²¹ A recurring coincidence between verbal abuse and assault is sometimes evident in the police data too. In Area 2.1 over the 5-yr period, for instance, 864 assaults and 906 verbal abuse incidents occurred; in Area 2.2, the ratio was 599 assaults to 622 verbals.

Property crimes are generally known to occur both day and night, depending on situational opportunity factors, especially occupancy of homes. Interestingly, the ratio of property to personal crimes is inverted, not reflecting the police data ratios. Extrapolating from this pattern, it is again possible that recorded crime ratios might not be giving a full picture of crime on the ground. Personal events are much more complex than property crimes, could involve known offenders, fear of recrimination, and reluctance to make police or medical reports or possibly to be called to court as a witnesses or to give evidence, all of which distorts the reported reality.

The fear and victimisation survey represents the accumulated real-time experience of residents in areas of very similar nature. The aim of the survey is not statistical validity but to elicit spatial and temporal experience.

²⁰ In the unpublished research, a 50:50 day:night breakdown was also elicited.

²¹ Sexual crimes other than those committed in public places were omitted from police data from State 1

People naturally feel more afraid 'afterdark' and modify their lifestyles to accommodate their fears (Samuels 1995, 2001). Nonetheless, they cannot totally avoid using the public domain or public transport systems even if they fear them, even afterdark. They must move through their neighbourhood, to whatever little degree, and will inevitably encounter other people moving through the area.

The highest level of victimisation experiences reported (86 incidents) related to the area where crime prevalence is also rising fastest.

3.5 Perceptions of Residents

This section is based on answers to questions in the neighbourhood survey concerning neighbourhood cohesion, perceptions of change in the study area due to the community renewal process and perceptions of changes in crime in recent years.

3.5.1. Neighbourhood Cohesion

Question 1 in the survey uses Buckner's (1988) 18 statement instrument to determine neighbourhood cohesion and its three sub variables 'attraction to neighbourhood'; 'neighbouring' and 'psychological sense of community'. Cohesion is based on the mean response to statements via a 5-point Likert scale. The *lower* the value the *higher* the neighbourhood cohesion.

The neighbourhood cohesion for each housing area, state and total respondents is indicated in Table 14 below. Due to the small sample (particularly in some housing areas) care must be taken in drawing inferences from these data in relation to interventions and changes in crime. However, it can be observed that in States 1 and 2, neighbourhood cohesion appears highest in the areas with primarily social interventions – and less so in areas with physical/spatial improvements. In State 3, cohesion is greatest in an area with notable physical improvements and with strong social interventions. In all states the 'control' areas (i.e. those with minimal physical/spatial and social interventions) rate the lowest for neighbourhood cohesion.

Table 13 Neighbourhood Cohesion for Housing Areas and States

Sub-variables	State 1				State 2				State 3				Total
	1.1	1.2	1.3	Total	2.1	2.2	2.3	Total	3.1	3.2	3.3	Total	
	Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		
Attraction to Neighbourhood	2.15	2.06	2.42	2.21	2.62	2.82	2.75	2.73	2.23	2.36	2.29	2.29	2.41
Neighbouring	2.50	2.54	2.75	2.60	2.82	2.31	3.06	2.73	2.56	2.42	2.74	2.57	2.63
Psychological sense of community	2.31	2.32	2.35	2.33	2.66	2.48	2.72	2.62	2.01	2.25	2.44	2.23	2.39
OVERALL COHESION	2.37	2.35	2.50	2.41	2.70	2.48	2.84	2.67	2.13	2.33	2.52	2.33	2.47

(After Buckner, 1988) Refer to Appendix 2 for summary data on all 18 variables.

In terms of the Buckner sub-variables, 'attraction to neighbourhood' appears to be associated with physical improvement strategies in all States. In States 2 and 3, 'neighbouring' appears to be associated with areas with primarily 'social' intervention programs (Areas 2.2 and 3.2). Associations between 'psychological sense of community' and intervention type are less evident – but are associated with intervention programs rather than 'control' areas.

3.5.2. Perceptions of Change

The neighbourhood survey included questions about perceptions of change for the better and worse in the suburb over the last 3-5 years, and whether crime was becoming better or worse. Table 14 shows responses to changes for the better for each housing area. In all but one study area, 'improved physical environment' is the most commonly mentioned change for the better. 'Improved community facilities/activities', 'improved safety/security' and 'improved transport' are factors often mentioned in other study areas, possibly reflecting particular initiatives there. There appears to be no clear relationship between these and the broader community renewal intervention categories or crime trends.

Table 14 Resident Perceptions of Changes for the Better

Answer Category	State 1				State 2				State 3				Total
	1.1	1.2	1.3	Total	2.1	2.2	2.3	Total	3.1	3.2	3.3	Total	
	Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		
General, non-specific improvements	32			9	5			2					8
Improved physical environment	29	15	25	23	25	29		20	30	25	19	25	42
Improved community facilities / activities	5	12	23	14	20	24		16	4	4	19	8	27
Improved social/ community services		2		1					2	4		2	3
Improved social/ community wellbeing		8	8	6	5	12	17	10	22	4	9	14	18
Improved safety/ security	10	2	8	6	5	6	33	12	14	21	3	12	23
Improved transport	2	15	15	12	5			2	18	4	13	13	20
Improved housing management											1		1
Other					5	6		4			3		3
Total % responding	78	54	79	71	70	77	50	66	90	62	67	74	145

(Multiple response – percentage of respondents)

Perceptions of changes for the worse are indicated in Table 15. 'Crime/nuisance/annoyance' is the most prominent response in 6 of the 9 study areas. In the other three areas 'closure/lack of services' is the most common response – particularly in State 2. Selling off public housing was seen as the worst change in Area (1.1) with the highest stock reductions (approx 30%) during the period under study.

Table 15 Resident Perceptions of Changes for the Worse

Answer Category	State 1				State 2				State 3				Total
	1.1	1.2	1.3	Total	2.1	2.2	2.3	Total	3.1	3.2	3.3	Total	
	Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		
Deterioration/ neglect of area									2		3	2	1
Closure/lack of services	7	27	4	13	20	29	25	14	8	4	13	8	18
Crime/nuisance/ annoyance	10	17	25	18	30	6		29	14	33	9	17	39
Other social problems		2	2	1	5			2	4	4		3	3
New residents/ social changes	2	4	2	3	5	6		4			3	1	4
Sell-off/reduction of public housing	17	6		7							6	2	6
Appearance/cleanliness/ design of area	2		2	1		12	8	6	4	8	9	7	7
Poor/inadequate roads & transport	10	15	10	12	5			2	2		9	4	9
Housing management		2	2	1		12		4					3
Other	5	2	4	3	5		8	4			3	1	6
No Response													
Total	53	75	51	59	70	65	41	65	34	49	55	45	96

(Multiple response – percentage of respondents)

Table 16 Resident Perceptions of Change in Crime and Harassment

Perceived Change in Crime & Harassment	State 1				State 2				State 3				Total
	1.1	1.2	1.3	Total	2.1	2.2	2.3	Total	3.1	3.2	3.3	Total	
	Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		
Better*	34	20	23	25	30	59	41	43	52	30	19	37	32
About the same	20	23	21	21	20	24	8	18	14	21	38	23	21
Worse**	39	36	56	44	40	12	42	30	20	42	31	28	36
Uncertain	7	19		9	10	6	8	8	12	8	13	11	10
Not Stated		2		1					2			1	1
Total	100	100	100	100	100	100	100	100	100	100	100	100	100

* Includes 'a little better' and 'much better'

** Includes 'a little worse' and 'a lot worse'

Table 16 shows resident perceptions of change in crime and harassment. In only two Areas (2.2 and 3.1) did a majority feel that crime had improved. Although sample sizes for this data were small, these are also the two of three study areas where crime trends were found to have most strongly reduced over the five-year study period. One of these (Area 2.2) did not involve any significant changes to the physical environment (other than clean-ups) and the other (Area 3.1) included both substantial physical/spatial and social initiatives. Both were in areas also targeted by broader whole-of-government strategies.

Perceptions of safety amongst the residents interviewed are shown below in Table 17. This is based on Vinson's (1995) extension of four safety variables to Buckner's 18 statements. Results are therefore presented as ordinal means based on the same five point Likert scale as the Buckner instrument (refer to Section 3.2). Again, the lower the score, the higher the level of perceived safety.

Table 17 Safety Perceptions of Residents, Day and Night

Sub-variables	State 1				State 2				State 3				Total
	1.1	1.2	1.3	Total	2.1	2.2	2.3	Total	3.1	3.2	3.3	Total	
	Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		Phys Spat.	Soc	Cont		
Safe alone at home during the day	2.12	2.19	2.56	2.30	2.50	1.94	2.67	2.35	1.78	1.96	2.59	2.07	2.23
Safe walking around during the day	2.12	2.08	2.38	2.20	2.40	2.18	2.42	2.33	1.82	2.21	2.34	2.07	2.17
Safe alone at home during the night	2.27	2.67	3.06	2.70	3.15	2.53	2.92	2.88	2.16	2.96	2.63	2.48	2.65
Safe walking around during the night	3.24	3.63	3.98	3.65	3.65	3.47	4.33	3.76	3.04	3.92	3.69	3.43	3.59
Overall safety	2.44	2.64	3.00	2.69	2.93	2.53	3.08	2.85	2.20	2.76	2.81	2.59	2.71

With similar caveats regarding sample size, it can be seen that perceptions of overall safety for States 1 and 3 appear to be highest in areas with physical improvements (including substantial community development in the latter), whereas in State 2 it is associated with the area utilising primarily social interventions and not so much with the physical/spatial intervention area. In all cases the 'control' estates were considered the least safe. Importantly, higher perceptions of safety correspond with the three housing areas showing reductions in crime over the five-year study period.

A substantial difference between safety perceptions during the day and at night is also evident. The respondents generally felt much safer during the day, either at home or walking around the estate. At night, however, sense of safety decreases markedly, particularly when it involves 'walking around the area during the night' (the highest negative score of all cohesion and safety statements). In environmental design terms, the critical time is after dark - when fear intensifies and opportunity amplifies.

3.6 Context Data Analysis

Context data include crime rates and trends for the ring of CDs or suburbs around the study area - at local government and metropolitan scale. Table 19 compares crime trends in the nine study areas with context trends at three geographical levels. A full graphical analysis of the context data trends for individual geographical units surrounding each study area is included in the State specific Volumes 2, 3 and 4.

Table 18 Crime Trends in Context Areas

State/Area	Crime Trend	CD* or Suburb Context Trends	All CDs/ Suburbs	LGA Context	Metro Context
STATE 1					
1.1	↑	7 ↑* 3 ≡	↑	↑	↑
1.2	↑	2 ↑ 3 ≡ 1 ↓	↑	↑	
1.3	↑	9 ↑* 2 ≡ 1 ↓	↑	↑	
STATE 2					
2.1	↑	2 ↑ 2 ≡ 4 ↓	≡	↑	↑
2.2	↓	1 ↑ 3 ↓	↓	↑	
2.3	↑	1 ↑ 2 ↓	≡	↑	
STATE 3					
3.1	↓	4 ↑ 2 ↓	↑	↓	↑*
3.2	↑	3 ↑ 1 ≡ 2 ↓	↑	↓	
3.3	↓	3 ↑ 1 ≡ 1 ↓	↑*	↑	

Note: State 1 trends are based on 4 year data only

* Decreasing in last year of study period (2001/02)

The table shows that in only one case (Area 2.2) is a downward trend in crime also accompanied by a downward trend in the majority of surrounding suburbs, and even here there was an upward trend at LGA level. In both other areas where crime is

falling (Areas 3.1 and 3.3) trends in surrounding suburbs are also predominantly upward. It can be safely assumed that surrounding areas were not subject to the sets of interagency strategies at work in areas where crime has reduced. This strengthens the perception that certain interventions are working effectively, since crime in the surrounding areas is *not* reducing.

In the study areas where crime was found to be increasing, context area trends are mixed.

3.6.1. *Displacement/Halo/Diffusion*

Given the endemic distribution patterns and the hotter public housing clusters it is feasible that intensity spills-over, or diffuses. Theoretically, here, the affect of disadvantage radiates through adjacent places. If a 'privatised' critical mass is the assumed aim in selling-off public assets, a partial dispersion might only be effective if the balance moves markedly, given the very wide public-private dispersion ratio evident currently in Area 3.1 (86:14), where nonetheless the CEI is highest.

If the diffusion supposition is valid, level of *concentration* could be seen as a predictive measure: spatial proximity of disadvantage having an *interactive* affect. Displacement is negative emission, shunting between adjacent areas: where intervention appears positive but the issue has not been resolved, simply 're-placed'. In contrast, a 'halo effect' is possible, where advantage spills over, i.e. a positive emission from a positive intervention.

It is difficult to infer any displacement or halo effects from the housing and policing interventions in the study areas based on the context data. However, it is possible that a halo effect may explain the context suburb reductions around Area 2.2. An alternative explanation could be that crime reductions in the wider area resulting from other whole-of-government initiatives or other external factors may have enhanced the downward trend in Area 2.2.

In the other study area with clear reductions in crime (Area 3.1), the predominance of crime increases in surrounding suburbs strongly suggests that the reductions are associated with the 'high physical/spatial and high social' interventions targeted to that area and from which surrounding areas have generally not benefited. However Area 3.2 is one of those adjacent suburbs with 'high social and low spatial' interventions in which crime has continued to increase.

The case of the 'control' Area 3.3, with 'low social and moderate physical/spatial' interventions, is interesting as a small decrease in crime has occurred without any substantial physical or social interventions in the context of rising crime trends in a majority of surrounding areas. In study areas where crime is increasing, context data is mixed and difficult to interpret without a more detailed study of the demographic and socio-economic characteristics of surrounding areas, but this is beyond the scope of this study. As no distinct patterns emerge from the context data, no generic assumptions about displacement or halo effects can therefore be made.

4 DISCUSSION

4.1 Comparative and Theoretical Evaluation: Crime Reduction Strategies

Salient issues relating to disadvantage and crime, public housing crime co-incidence, endemic and recurrent crime and housing, policing and design intervention are discussed below.

Notable in the research reported here is the very low-density suburban configuration characterising all 9 areas, a form of 'placelessness' distinguished by a distinct lack of urban public realm. Segregated activities and low animation are pervasive. Given this similarity, few CPTED differences should be anticipated, even at a micro-urban scale. Nonetheless, the inherent non-defensible design attributes of these areas *are* considered as criminogenic, i.e. 'contributing to the chances of a crime occurring' (Taylor, 1996), in the first instance. This is distinct from the research question concerning whether crime movement is affected by physical and spatial interventions.

4.1.1. *Social Inclusion & Exclusion: Disadvantage and Crime*

Relatively socially-excluded communities are the context for this research. All 9 areas are disadvantaged compared to their State averages; this however is not the focus of the current research but, rather, changes in crime prevalence, where an inter-areal analysis of disadvantage becomes appropriate. ABS Socio Economic Indexes for Areas (SEIFA) measures were not readily applicable - the most recent being from the 1996 census, since which time Collector Districts (CD) configurations have also changed. Thus, a range of similar measures is accessed from current census data (See Table 19²²).

At inter-areal level, neither localised cultural (ethnicity) nor economic (weekly income) nor social disadvantage (education, tenure, etc) appear to be influencing response to social and spatial strategic intervention. For instance, cultural comparison between the two high CEI areas which have falling crime, and the two in which it is rising most, indicates that in falling crime areas residential concentrations of both indigenous and oceanic islander people are highest²³, whilst, in the latter, they are the lowest,²⁴ suggesting no relationship between 'marginal ethnicity' and crime. In the economic realm, an example of a confounding relationship is both Radburn Areas (2.1 & 2.2) having the same percentage of residents below the 'minimum Federal weekly wage' ($\pm \$400$ @ time of census) yet, in one, crime is rising and in the other it is falling. The six areas where crime prevalence is rising have twice as many people with higher relative incomes as in Area 2.2 where crime is falling. No clear economic-crime pattern emerges here either.

²² Unemployment figures were unavailable.

²³ Area 2.2: oceanic islander = 12.8%; indigenous = 6% of Total population = high (relatively)

²⁴ Area 1.3: oceanic islander = 0.7%; indigenous = 1% = very low (relatively)

Social aspects are similarly inconclusive. With regard to educational level: both Areas 2.2 and 3.1 have falling crime, yet the former has the lowest proportion of Year 12 completions (12%) and the latter the highest (22%).²⁵ With regard to tenure, Area 2.2 (with falling crime) has the lowest level of private ownership by far (1.5%) while in Area 1.3 (strongly rising crime) private ownership is 52%. Area 3.1 also has the highest CEI but the lowest proportion of public housing (13%). If the proportion of single males (more crime-prone?), or single mothers (less parental control?), or youth (less responsible?) are considered as possible factors in crime movement, again no distinguishing patterns emerge. Only in the case of people aged 65+ is there more likelihood of some link, with higher proportions of the elderly living in rising crime areas (possibly more vulnerable to victimisation). These relationships are a sample extracted from Table 20 where associations are generally inconsistent. *Relative disadvantage between areas is thus unlikely to explain crime movement.* This is meaningful. Something else is accounting for crime movement: hypothesised as the *nature* of the policies implemented.

Table 19 Relative Disadvantage/Exclusion Factors

Indicators	Physical/Spatial Interventions			Social Interventions			Control – min. Interventions		
	1.1	2.1	3.1	1.2	2.2	3.2	1.3	2.3	3.3
CULTURAL	Percent								
Born in Aust	77	67	64	82	64	76	71	74	78
Indigenous	3	8	5	5	6	4	1	2	4
Oceanian T	41	46	45	44	52	45	38	41	45
'Oceanic Island'		10.8	8.8		12.8		0.7	1.8	
ECONOMIC	Weekly Income * Percent								
Below \$400	42	34	42	46	34	37	46	35	40
\$400-600	14	11	15	14	9	13	15	13	16
\$600-900	9	8	8	10	3	10	9	14	12
SOCIAL									
Education	Percent								
Year10	19	8	22	5	15	8	22	6	5
Year12	15	15	22	19	12	20	19	21	26
TAFE	2	3	3	3	2	2	3	3	2
University	1	1	1	1	0.5	2	1	2	2
Ownership									
Own/Purch	54	30	38	55	1.5	45	52	58	48
Rent H/Auth	25	52	13	25	77	23	27	20	17
Rent Other	12	6	35	9	6	22	11	12	23
Vacancies	4	3	7	6	5	5	4	5	6

²⁵ NSW Bureau of Crime Statistics & ANU research indicates that if boys finish high school, home robberies could be reduced by 16% (SMH, Jan 8th, 2003)

Indicators	Physical/Spatial Interventions			Social Interventions			Control – min. Interventions		
	1.1	2.1	3.1	1.2	2.2	3.2	1.3	2.3	3.3
Demographic									
Lone Parent M	5	2	7	6	1	3	7	5	6
Lone Parent F	6	9	6	6	12	8	5	6	6
Males: 10 - 20	8	10	8	7	11	9	7	7	6
20 - 30	7	7	8	7	6	8	8	7	8
Elderly 65+	9	4.5	10	16	2.5	6	15	16	16

*Fed min. wage: mid 2001 = \$413.40 (448.40 now)

(Source: C-Data, 2001 Census, Australian Bureau of Statistics,)

It is possible also that falling crime is related to people responding at a more individual, psychological level. This could be understood in cognitive behavioural terms, i.e. that thought rather than external situations cause feelings. Where emotional states arise in consciousness (rather than from unconscious or genetic i.e. uncontrollable generators) they can be addressed via cognition. Partnering agreements, alliances or 'contracts' could be an essential element in such cognitive transactions,²⁶ and if expressed as behavioural change at a personal level should also have a cumulative affect at community level. Alternatively, a positive response to interest shown in one's welfare is a powerful motivator, known as the 'Hawthorne Effect'.²⁷ In other words, if *disaffection* and *asocial sentiment* are affective states accompanying socio-economic disadvantage, there is also a negative impact on sense of responsibility and community. Working at a similar level of interaction, intervention that enhances sense-of-self is likely to be instrumental in a positive way, a 'no-risk' policy, despite disadvantage.

4.1.2. Endemic and recurrent crime, coincidence between hotspots and public housing/disadvantage

In this study, patterns of crime have been seen to be both endemic and recurrent, wide-spread but intensifying at hotspots. The co-incidence of hotspots with public housing concentrations is also of significance. Each area exhibited the same pattern, even where clusters are widely distributed throughout an otherwise dominating private housing area. This phenomenon helps advance contemporary notions that the 'relationship between crime and public housing is inconclusive' (Westacott, 2002), or that 'the concentration of public housing into estates does not have a role in explaining crime rates' (Matka, 1997).

This research supports the view that effective relationships being less physical/spatial and more socio-economic. Devery (1992) also associated socio-economic disadvantage with higher levels of crime too, and British research over the

²⁶ See, eg. Golden and Dryden (1986), Lane (1990) and www.nacbt.org, inter alia, for contracts or cooperative alliances as interventions affecting schemata/cognition and moderating behaviour

²⁷ Where both increased and decreased lighting levels resulted in increased productivity, attributed to management interest affecting worker motivation - see Urwick & Brech, 1965

years confirms higher perceived and actual crime and delinquency in disadvantaged areas (Mirrles-Black *et al*, 1998), as well as intensified crime on deprived housing estates (Baldwin & Bottoms, 1976; Herbert, 1976). Newman (1972) and others unmasked a similar reality in vast housing estates in the USA from the 1970s on. Recently Weatherburn *et al* (1999:256) support the notion that public housing estates in Britain, the United States and Australia are frequently plagued by crime problems.

That socially disadvantaged communities reside in concentrations of public housing is not in doubt (Katz, 1989; Wilson, 1987, 1996; Jencks, 1992; Brantingham & Brantingham, 1994; Bennett & Read, 1999; Weatherburn *et al*, 1999; Vinson 1999 and Peck, 2001; *inter alia*).

This research shows higher crime areas currently responding most effectively to intervention; and more to social strategies than physical/spatial, but not exclusively.

4.1.3. Allocation policies, distribution of disadvantage, and associated crime

Allocation policies have a powerful influence on neighbourhood behaviour. Before all else, the mix of people dominates situations. Both Westacott (2002) and Weatherburn *et al* (1999) emphasise the influence of allocation policies on the distribution of disadvantage. As a case in point, although medium-density housing clusters frequently seem 'problematic' in public housing areas it is neither density nor design that generates these behavioural patterns but, rather, socially disadvantaged single-men housed in close proximity. In other demographic groups living in similar circumstances, the affect would be different. Furthermore, inherent in the notion of such medium-density housing are elements that help make neighbourhoods liveable and safe, too, and innumerable examples of configurations exist where a critical mass of community-minded people naturally police public space.

Once housing allocation policy prioritises disadvantage an unfortunate imbalance in demographic mix can result. Simultaneously, other 'only' impoverished applicants are housed last - an inversion of the purpose of public housing. Westacott (2002) describes residents as increasingly characterised by social security dependent households, few working adults, and in particular the previously homeless. Issues relating to the housing of people suffering mental ill-health are perennial. Weatherburn *et al* (1999) argue that housing estates experience crime problems largely because disadvantaged crime-prone individuals are more likely to be allocated public housing.

Allocation policy can similarly result in the accommodating in close proximity of many children (large families), previously associated with acts of delinquency (Wilson, 1975; Coleman, 1985). Recently, Beer *et al* (2000) mention a density of 5 to 6 children per 10 dwellings as being related to higher crime, and Stubbs and Hardy (2000) cite the concentration of economically disadvantaged young males as a major factor in crime. In the research reported here, it has been observed how the schools in these areas often transform at night into dark and dormant places, on occasion as vast as parks (in State 3 in particular). Associated environmental design aspects are discussed later.

4.1.4. Inter-agency and Community Partnerships

This research substantiates international and local research indicating that effective approaches to crime reduction require inter-agency and community partnerships and a whole-of-government approach. (Osborn & Shaftoe 1995; Bell Planning Associates & Gaston 1995). Simultaneously, some little evidence has emerged supporting a compromising “tendency for inter-agency conflicts to appear, in spite of cooperative efforts, reflecting the oppositions between state agencies at a deep structural level” (Sampson et al, 1988: 482). Meeting fatigue is inherently possible too. Interagency partnerships put in place at the personal level seem especially potent.

4.2 Housing Strategies and Crime

4.2.1. De-concentration

If concentration exacerbates crime, de-concentration should effectively dissipate it. A de-concentration policy is evident in two of the three States. In Area 2.1, a Radburn superlot, the aim is to reduce overall stock by 20% over 10 years (to 48% - the central km² is 100% at present). The percentage concentration of public housing in the nine study areas is shown in Table 20. Area 1.1 has experienced the largest percentage reductions in stock due to sell-offs, about 30% between late 1998 and 2001, but nonetheless has rising crime prevalence.²⁸ The lag factor has already been discussed, and remains a possible explanation. There is an inherent logic that leaving considerable tracts of land vacant or transformed into building sites could militate against communal activities and enhance opportunity for illegitimate congregation, or, indeed, victimisation. If the geographic concentration of low-income, socially excluded, minority and ‘priority’ residents reduce community cohesion, vacant space can exacerbate this lack of community. De-concentration is a long-term strategy, but with possible short-term negative affects.

²⁸ Some of these private sector houses are rented out by corporate landlords, which might reduce proprietary attitudes and sense of responsibility assumed to come with owner occupation

Figure 14 Temporarily Vacant Land



Table 20 Percentage Public Housing Concentrations: 9 Study Areas

Intervention Type	Physical/Spatial Intervention Areas			Social Intervention Areas			Control Areas – Minimum Intervention		
Area No.	1.1	2.1	3.1	1.2	2.2	3.2	1.3	2.3	3.3
%	26	54	14	27	81	24	29	21	19
Reduction*	-30%	-5%	-5%			-2%			

* Reduction of public housing stock in the Area arising from property sales/redevelopment

From the mapping exercise a distinct lack of personal crime in privately-owned areas is observed. This does not support the de-concentration philosophy however, since property crimes occur everywhere, in both private housing areas and public housing concentrations.

Study areas can be distinguished by the number of hotspots they contain (ranging from 5 to 19) but, more relevantly, the very high proportion that coincide with public housing areas is consistent across all; in Area 2.1 ten of twelve, in Area 2.3 seven of nine, and so on. Very few hotspots locate in private areas, a partial argument for de-concentration (displacement notwithstanding) but, simultaneously, there is also prevalent crime in areas between public clusters, in the interstices. A 'diffusion' hypothesis has been discussed earlier.

Figure 15 Hotspot Public Housing Concentration



4.2.2. Community and Tenant Focused Approaches

With the importance of an empowered and appropriating community widely recognised as a primary strategy, agencies are engaging in community partnerships in all three States. At national level too, crime prevention initiatives are based on wide-ranging partnerships with the community, involving intensive management, community group support, community gardens, tenant participation, grassroots planning, citizen patrols, even teen courts and community ombudsmen.²⁹ The research reported here confirms this salience; despite the Sherman *et al* (1998:6) Review that concluded: 'no community-based crime prevention programs proved to be effective at preventing crime'. Neither could they accredit community mobilization of residents in areas of high-crime, or inner-city concentrated poverty areas (citing

²⁹ See www.NCPC.org (National Crime Prevention Council, USA)

Hope, 1995) – many elements of which are present in the study areas of the research reported here. Several practices seemed promising, however, including ‘community based mentoring by Big Brothers and Big Sisters’ (Tierney & Grossman, 1995), similar in genre to the elder-younger transactions suggested in our research as salient.

A notable change for the better has occurred where public housing is transferred to ‘community housing’ management with an empathetic local manager (Area 2.2). Below is a crime map of one such Radburn enclave, which is still experiencing crime albeit at a reduced level. Crime is also decreasing in other locations (in the same area) where such intervention has not occurred, indicating that these strategies too are but part of a bigger picture.

Figure 16 Community Housing Managed Neighbourhood



Diversity or heterogeneity³⁰ - multi-cultural, multi-lingual populations rendering community more difficult to achieve - is possibly implicated in the highest CEI Area (3.1), helping explain the high crime experience probability in the first instance.

Crime prevention through social development will ultimately involve targeting ‘at risk’ factors arising from inadequate living conditions, family disorganisation, youth disaffection, adult unemployment i.e. either the risk of being victimised or ‘criminalised’ by one’s context. This has been observed in Canadian situations (ICPC, 1999). Social ecologists have long cited social disorganisation (*anomie*), poverty cycles, negative role models and inadequate parenting as precursors.

³⁰ homogeneity is no panacea, exacerbating customary attitudes and patterns of behaviour

4.2.3. Physical Upgrades

Inevitably a better physical home environment is beneficial. It could be necessary but not sufficient in itself to affect behaviour outside the home as well. Wherever possible, Agencies adhere to such policies, to greater or lesser degrees, across the board, fiscal constraints always applying. A beneficial impact is also expected to derive from spatial re-configurations at neighbourhood or urban scale, moderating the nature of the public realm.

4.3 Policing Strategies and Crime

A wide range of strategies has been implemented by Police Services (see Table 5), again to varying degrees. These include: interagency Memorandums of Understanding with housing Agencies in particular, Community Action Plans (CAPS), non-traditional police roles ('opening doors' via involvement in workshops, forums, neighbourhood events) and Community-Police Advisory Groups, all aimed at community building and 'humanising' the Service. Interventions at micro-urban level also occur (or are mooted): a residential Police Beat (police living and working in the neighbourhood), and empathetic CPTED-trained crime prevention officers in liaison with cooperative community 'elders' intimately watching over their neighbourhood.

4.3.1. Problem Oriented Policing

A more intelligence based, specific targeting strategy (Problem Oriented Policing; see Goldstein, 1990) is simultaneously employed in all States, and to a greater or lesser extent in each study area. POP is a tactical based approach, where prior research (an identification of common characteristics, and vulnerable hotspot locations, etc) and collaboration with housing agencies and the community helps identify likely suspects/offenders, who are then specifically targeted. Simultaneously, police might saturate suburban streets and railway stations and ride trains especially on week-end nights, target drug houses, question gang leaders and their parents, or create no-go zones. Crime mapping for such intelligence purposes is a technique now widely utilized.

In States 2³¹ and 3³², in addition, police numbers are increasing, and in both State-wide crime is falling. A specific empirical association between rising police numbers and falling State crime rates, however, is not in itself proof of a relationship, given the wide range of other current interventions. Sherman *et al*, (1998) concluded that in high crime spots extra police patrols do appear to reduce crime (Sherman and Weisburd, 1995; Koper, 1995).

POP links with longitudinal crime reduction, however, are not evident from this research, since in areas where it is prominent (Areas 1.2, 1.3, 2.1, 3.2 eg.) crime is nonetheless rising. Besides addressing symptomatic crime, policing can become part of the process of socialisation, and take on a non-traditional and non-adversarial role. More police, even more police on the streets does not equate with more police

³¹ 2001& 2002: dwelling break and enter ↓13%; vehicle theft↓22%, *eg.* (see Doak *et al*, 2002)

³² 2001& 2002: dwelling B&E↓20%; vehicle theft ↓15%, *eg.* (News.com.au, Aug 3rd, 2003)

integrated into communities, playing consultative and proactive rather than reactive roles (Sarre, 1997).

4.3.2. Community Policing

This broad approach ranges from community architecture to community education to community consultative interaction with various agencies, Police Services in particular, whose presence (visibility, availability, cooperation) in the community is emphasised. Community policing is an attempt to bring the scale of intervention down to the personal level, and by strengthening the resident base and informal sector to encourage natural policing.

Research evidence for crime reduction cited by contributors to the 'Policing and the Community' seminar (reviewed by Willmott, 1987), however, was not positive. This included strategies such as: foot patrols and community based crime prevention; informal policing 'undermining informal policing by the public'; consultative committees not building hoped-for partnerships between police and community due to confusion of values, ignorance, reluctance; home beats generally at too large a scale; and consultative committees serving up to 100,000 people rendering contacts unproductive. 'In practice the application of community policing has made little difference nor has it produced the intended results'. Nonetheless, reports by police themselves of their experiences on the ground were more encouraging, and the approach was recognised as long-term.

The results from the longitudinal research reported here, interestingly and in contrast, suggest that in certain areas with intense and wide-ranging community intervention strategies, where police play a non-traditional role, and/or appear to a part of community they police (in particular Areas 2.2 and 3.1), crime reduction is noticeable, even in these high CEI areas.³³

4.4 Environmental Design and Crime

Criminologists recognise that public housing areas are not necessarily criminogenic even if they might be criminocentric, as shown in this research. Bottoms and Wiles (1986) for instance, showed how two estates with almost identical social class composition had very different offence and offender rates. At the same time, the local environment cannot be discarded from the equation since it contains the cues to which individuals respond (Newman, 1976; Merry, 1981; Bottom and Wiles, 1988; Hope and Shaw, 1988; Taylor, 1988; Harsley, 1993; Joseph Rowntree Foundation, 1995; Samuels, 1995; Herbert, 1976 and 1997; Korrthals Altes and van Soomeren, 1998; SCLJ 1999 and 2000; Brown and Perkins, 2001). Many other recent studies also relate crime to design and housing (Clarke, 1992/97; Crowe, 1991/94; Poyner and Webb, 1991; Stollard, 1991; Calthorpe, 1993; Bell et al, 1995, *inter alia*).

³³ Residents in the Radburn area with rising crime reported that the mobile police station previously located in a public square was very effective, and requested its return - or a shopfront.

From the socio-spatial design point of view, it has long been appreciated that public housing with dedicated entryways serving small clusters of apartments, lower height buildings, demarcation between private and public space, good views from inside to outside, and proximity to well-used, peopled locations are associated with stronger resident control, less fear and less crime (Jacobs, 1961; Newman, 1972; Newman and Franck, 1982, *inter alia*). A lack of 'community interest', socio-cultural imbalance (including large numbers of young people) and welfare dependency are also part of this equation. This dual approach became known as 'second generation' defensible space (Taylor, Gottfredson and Brower, 1981); and continues to offer a fundamental understanding, turning the merely physical into socio-spatial, mutually interactive factors.

A focus on the crime site and the criminal is prevalent in most crime prevention by design paradigms. Rational choice theory (Cornish and Clarke, 1986) and routine activity theory (Cohen and Felson, 1979) help explain and locate criminal events, embodying notions of opportunistic decision-making and conscious intent. Wilson and Kelling's (1982) 'broken windows' theory (see also Skogan, 1990) blames local communities and local authorities for not countering or reversing anti-social cues (vandalism, eg), again a focus on criminal motivation. And crime reduction via 'situational opportunity' (Cloward and Ohlin, 1960; Mayhew *et al*, 1976) comprises opportunity-reducing measures that are directed at highly specific forms of crime, and involve the management, design or manipulation of the immediate environment so as to increase the effort and risks of crime and reduce the rewards as perceived by offenders (Clark, 1992/97; 2001). Again, the approach developed by Brantingham and Faust (1976) refers to 'primary prevention [as] concerned with opportunity reduction, secondary prevention with modifying the behaviour of potential criminals, and tertiary prevention with the treatment of offenders'. Focusing on the crime is a critical part of the equation. Empowering the community, of which the criminal is also a member, is a strategy aimed at the same end but via a different means and from a different perspective. Environmental design can 'code' equally *for community* as it can *against criminal opportunity*.

Altering circulation/movement patterns by closing off streets (Atlas and LeBlanc, 1994) - also a Radburn reversal technique - or traffic calming, or fencing, or even gating (Newman, 1996) is obviously likely to impact on criminal activity that is reliant on easy access and egress. The debate concerning cul-de-sacs is still unresolved, although the research reported here indicates no obvious differences between various enclave designs and standard street settings.

And 'new urbanism' is a neo-traditional US revival, where many romantic assumptions about low density suburban design, front porches, pedestrians, and central town centres making for safe places need validation (Beardsley, 1997). New urbanism makes no mention of housing the disadvantaged. It is a form of gated community without the gates. In contradistinction, the old-city paradigm offers an exemplar of community integration in dense urban forms, where land-uses are mixed and places are animated night and day. Such environments are still abundant in Europe today. Planning a safe new 'urban village' is unlikely to succeed unless the

community is engaged in the process and feel committed to this end. Surveillability potential only becomes operative when citizens are willing to take *natural guardianship* action on behalf of others -to act on the potential built-in to the environment.

Crime is also frequently associated with young men: they are both aggressors and aggressed. This is a statistical reality. From an environmental design perspective, wide roads favour cars, and groups of young men can be observed driving around in throaty old cars in all nine study areas. Although dormant school yards might be threatening afterdark, this is not necessarily true for young men, who might choose to 'use' them then. Generally, a major difficulty with providing facilities for youth is the nuisance factor relative to surrounding uses. Possibly the recent arrival of an electronic culture on the scene provides, via the computer game, an opportunity to moderate the above scenario; here violence is virtual and aggression is simulated, and might be harmlessly released in controlled indoor settings.

4.4.1. CPTED Walk Through Analysis

To evaluate the possible influence of urban and spatial aspects in the incidence of crime, crime maps were used as guides, since they are indicative of which crimes are committed, where, and how often.

Although crime is endemic across these areas - in both privately-owned and public housing areas, recurrent crime clearly occurs more frequently in the latter. Logically, areas with 'safer-design' features should have less crime overall, or falling crime. This did not prove to be the case. In the one Radburn area where crime is falling, criminogenic spatial conditions prevail - without intervention, while in the reversal area, where spatial intervention is high, crime nevertheless continues to rise.

But, in a generic sense, several spatial factors are present in sufficient strength to warrant their discussion as probable criminogenic elements across the board, *i.e.* being at least partly responsible for the high CEIs in the first instance. Salient elements in this relationship are inadequate lighting, and a dormant public realm – exacerbated by the exaggerated suburban focus on personal territory. There is also a high degree of accessibility to housing in these very low density housing tracts. In short, the classic CPTED triad: surveillability, accessibility and territoriality are all generically implicated in these areas.

4.4.2. Public & Private Areas, Hot and Cool Spots

Although public housing concentrations do have worse crime profiles, this is not associated with architectural design or physical factors, *i.e.* the housing is largely indistinguishable in the public and private areas. Occasionally some houses are of obviously higher quality, usually on the periphery of the area or in newly built enclaves. Even here crime occurs, even on occasion intensely, thus warranting the designation of hotspot.

The assessment below relates to all areas, private and public, hot and cool, since intra-areal mapped comparisons do not distinguish between them.

In *surveillability* terms, Radburn estates apart, all housing faces the road, with windows and porches affording ample visibility. Even in Radburn estates a proportion of houses face the road. On a few occasions medium-density clusters have an internal road, onto which houses face. What does seem of significance, however, is the inadequate lighting, in a situational-opportunity sense, in all the areas: a criminogenic factor in itself. When comparing across areas, whether they are public or private tenure, or hot or cool spots, or have rising or falling crime prevalence, lighting seems largely irrelevant: it is poor in general, and in States 1 and 3 in particular.

Specifically, street lighting is frequently found on one side of the road only, which leaves the other side in darkness, and is also spaced far apart, on the first and third electricity post, for instance. This creates large zones of near darkness, and deep shadows. Exacerbating this is the fact that the lamps themselves provide inadequate quantities of light at head-level: ranging from 2 to 8 lux at best, and this directly under the lamp. In reality, the light is at the top of the pole, many metres above where it could be of utility. Given the inverse square law of light, illuminance (lux/m²) intensity declines rapidly with distance from a source, until after but a few metres there is effectively no light present at all.³⁴ Environmental criminology literature cites 10 lux as a minimum for street lighting, below which threshold crime is exacerbated. Stollard (1991) states that 40% of night-time street crime occurs when levels are at 5 lux or less, while only 3% occurs above 20 lux; and in a study conducted by the Centre for Criminology and Police Studies lighting along roads and paths was upgraded to 10 lux. Six weeks later, 85% of people interviewed before and after the changes reported a drop in their fear of crime, and actual crime dropped from 21 incidents to just three.³⁵

Main roads are better illuminated, up to 16 or 18 lux (at source) and lights are spaced more frequently. The mapping however confirms that they are no less crime prone; indeed, the opposite is often the case. Other factors come into play; presumably more people ('strangers' in all likelihood) use these arterials but only as paths not as places i.e. moving through them, without taking responsibility for them. A further phenomenon exacerbates the poor lighting regime: very few houses have external lighting, and thus do not contribute to the indirect lighting of the public realm, unlike in more financially advantaged areas.

A similar situation prevails in the open spaces and school grounds. Lighting is very poor if present at all. Large tracts of dark and dormant places and pathways penetrate many of the study areas. Some are formal sports grounds, others are semi-forested edge-areas, and in all cases school grounds are pitch-black at night. The school buildings are illuminated (which might only make them easier targets in one sense) but not the grounds, which in several instances are huge. Obviously it would be inappropriate to blanket-light open space, but the edges and associated pathways could be considerably better lit.

³⁴ At a distance of 1.8 metres from a 500lux source, illuminance is only 280 lux; at 3.2 metres it is 140lux [(Ruck, Undated)]

³⁵ Building Today, Feb 1991:11

During both walk through phases almost no police presence or patrols (formal guardianship) was noted in any area.

4.4.3. Accessibility

Almost all housing affords very high levels of secondary (side and back) and frequently tertiary access from open land, too.³⁶ This is a consequence of the low-density detached configurations that separate houses from one another. Each is separated from its neighbour by some form of fencing; and often from the road too, although in many cases the front lawn is continuous with the nature strip. In most cases fences are low and of the 'see-through' palisade type, thus, theoretically correct in surveillability terms; and undoubtedly do separate the houses from the public realm, albeit symbolically. Virtually the only security hardware evident is the ubiquitous front door screen. Windows are not barred; and electronic alarm systems are rare. In sum, access to these dwellings is not difficult, and this might help account for the high levels of property crime recorded in the areas.

Similarly, vehicles are exposed and only occasionally garaged. There is an 'old-car syndrome' patently obvious in these areas: each household appears to own several, and they are parked in driveways and on the front lawn, readily accessible in other words.

Many roads in the study areas, not only in the Radburn estates, are cul-de-sacs - of varying nature. Some are short with direct sightlines, others wind around or loop, and yet others afford pedestrian access via pathways often hemmed in by high fencing, frequently connecting to open space at the rear of the houses. Patterns of crime between hot and cool enclaves are not obviously different even at micro-urban scale. Recent research using space syntax analysis has linked complex cul-de sacs to burglary, while more grid-like, higher 'intelligibility' and better connected types seem less prone (City of Gosnells, 2001).

In spatial terms, densification of housing diminishes accessibility, and simultaneously reduces unappropriated space.

³⁶ Primary access is from and to the street/road

Figure 17 Connections: Roads and Common Open Space Behind Houses



4.4.4. Territoriality

Designing to reduce and limit criminal opportunity and enhance community interaction is a 'no regrets' strategy. Likewise Radburn-reversals. Although Stubbs and Storer (1996) found contradictory evidence from two adjacent public housing estates that had undergone similar Radburn-reversals, there is recent evidence from stakeholder and resident focus groups (Randolph *et al* 2001) that reversals are perceived by residents, housing personnel, community workers, police and other Agencies to be associated with reductions in crime. The research reported here cannot link reversal to crime reduction (or not yet).

Figure 18 Radburn - Before & After Reversal

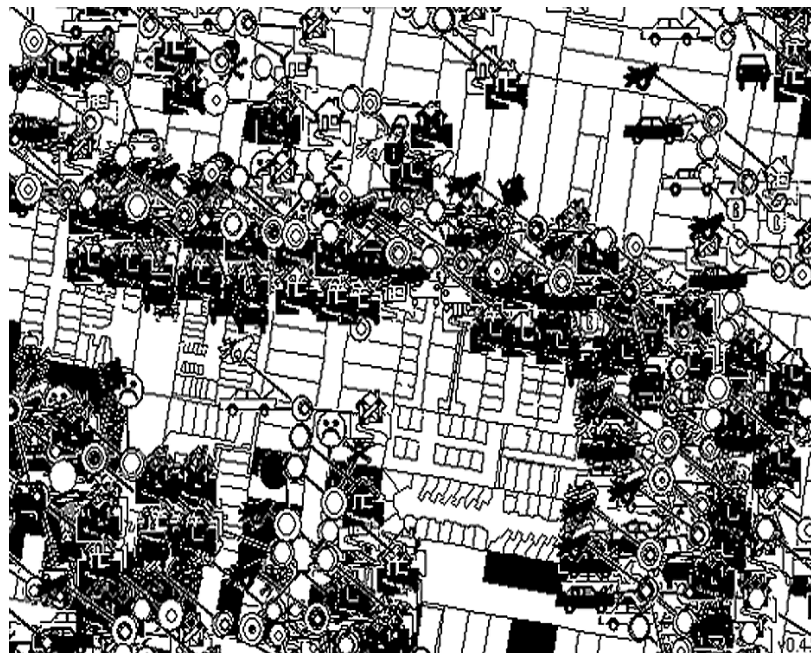


Whether railway stations are criminogenic or even criminocentric is not obvious from the mapping. One area (the highest CEI) even has two stations, but stations themselves generally appear no more or less 'hot' than other places. In terms of 'severance' of community by railway lines and highways (Lee, 1968) again, different patterns on either side of the divide indicative of a rupture in the 'commons' are not evident. From the mapping, the important role that main-roads play in the epidemiology of crime is however evident. People using these roads, and those living along-side frequently experience elevated crime, not unlike those living in the public housing concentrations. And there is a strong presence of old cars everywhere in the areas too; few pedestrians are seen.

Figure 19 Old-Car Syndrome



Figure 20 Main-Road Syndrome

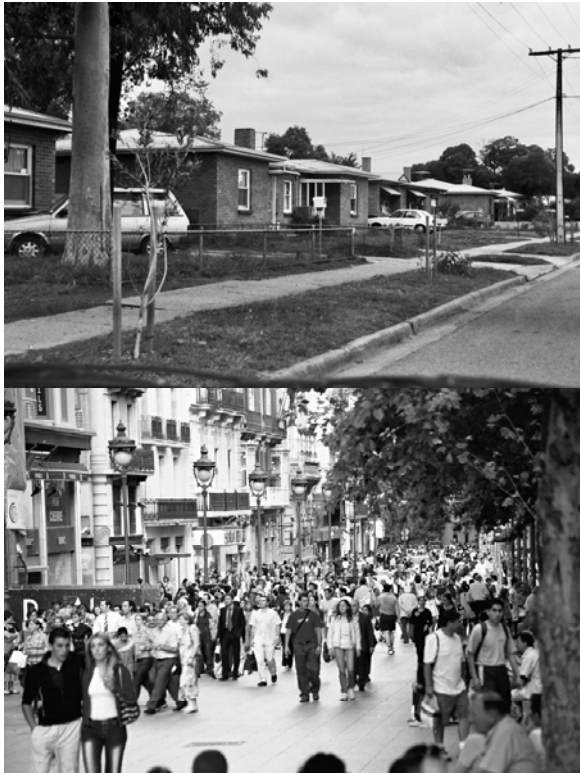


In a more general sense, all nine areas conform to a pervasive private territorial imperative, with a public domain that is all but non-existent. Not that there is a high degree of environmental degradation, graffiti and vandalism, or low maintenance. Indeed, the opposite is true. The areas exhibit few malaise indicators: they are clean and orderly, with neat nature strips and little abandoned property or litter. The one exception is on the dark open edges of the Radburn area which still awaits reversal where some graffiti and abandoned property is evident. The territorial issue seems, thus, to centre more around the lack of attention paid by private citizens to the public realm, and the lack of any sense of *urban place*, no 'squares' where people gather and meet. The streets are just roads dominated by cars. Occasional shopping malls

or strips are animated during the daytime, but at night they are dormant, and ultimately detract from sense of territory. There is very little if any 'mixed-land-use' evident, not even a corner shop in most instances.

As illustrated in Fig 21, ancient city-centre configurations have at their core active mixed-use streets alive with people. Inevitably, there is crime here too, but anyone walking these streets knows that there is no sense of foreboding here, rather, a palpable sense of community. Socio-economic conditions are fundamentally different, it is true (generally, these are not areas of disadvantage). Yet fundamental relationships between people are 'cued' by these configurations - integration, communication, and territorialisation are favoured, rather than separation, alienation and dormancy. Situational opportunity codes for community here.

Figure 21 Ends of the Spectrum: Typical Study Area Suburban Scenario, and Barcelona, Urban Village: streets with and without people



5 CONCLUSIONS

This study has involved a complex analysis of literature and policy, stakeholder interviews, police crime data and a victim survey in order to better understand which community renewal strategies - applied in areas of public housing concentrations - are associated with reductions in crime. The following is a summary of the findings structured around the aims of the research followed by a discussion of the implications for housing and crime reduction policy. Generic conclusions drawn from the literature and policy review are included in the Positioning Paper (Judd *et al*, 2003), and form the theoretical basis of this empirical phase of the research.

5.1 Summary of Findings

5.1.1. *Community Renewal and Crime Reduction Strategies*

The physical/spatial intervention study areas in the three States adopted similar housing strategies including: public housing upgrades, de-concentration through sales or redevelopment, public domain (streets and park) improvements and the provision of community centres/facilities. In one case (Area 3.1) a public transport facility upgrade was included. The major difference was the level of reduction in housing stock, which ranged from as high as 30% in one area (1.1) to only 5% in Areas 2.1 and 3.1. This reflects differences in the funding models for renewal projects (self-funding via cost recovery, in the case of State 1), different policies concerning the extent of public housing disposal, and the historically higher percentage of public housing stock in State 1.

The level of social intervention in the physical/spatial intervention areas varied considerably. In one case (Area 2.1) this involved housing and police agencies only and was limited to the provision of an on-site housing management team, tenant consultation/participation, a tenants' employment and training initiative, and limited police involvement through the local crime prevention officer. Both Areas 1.1 and 3.1 had more extensive social interventions involving a wider range of participants including local government and various human service, police and justice/Attorney General agencies, particularly Area 3.1 - which had a large range of cross government programs including input from education and health agencies. Police initiatives in these areas varied from minimal crime prevention liaison with the local populace in one Area (2.1) to much more sophisticated community policing and inter-agency approaches in Areas 1.1 and 3.1. These include safety audits, crime prevention education, early intervention programs, drug and alcohol prevention programs, domestic violence strategies and community conferencing.

In the study areas with primarily social interventions there is a tendency to involve a larger number of agencies and a stronger emphasis on interagency/whole-of-government management or liaison groups involving players from a wide range of agencies. These include police, local government, justice/Attorney Generals' departments, education and training, employment and youth/family/community services - and in one case health and the Premiers' department. Community consultation/participation via community reference/tenants' groups and workshops

was strong in two of these areas. Police involvement was consistently high including community liaison crime prevention officers and a range of programs including crime prevention awareness and education, safety audits, local police beats, and mobile van facilities. Policing strategies were generally supported by a variety of other workers, services or facilities directed specifically towards youth, drug and alcohol abuse, domestic violence, early intervention, family/community conferencing, employment and training. Physical/spatial interventions in these areas were low to moderate – generally involving only upgrades to some public housing, some landscaping improvements and limited stock reduction through sales of public housing.

The control areas were subject to minimal physical/spatial and social interventions. Physical interventions included public housing upgrades and sales, some minor landscape improvements and, in two cases, the provision of community and youth centre facilities. Social interventions were limited to some community consultation, and lower level crime prevention education and police liaison.

5.1.2. Program Integration Between Housing and Other Agencies

Two of the physical/spatial intervention Areas (1.1 and 3.1) involved a high level of integration between police, housing, local government and other agencies in relation to crime prevention and community renewal. The other (Area 2.1) was predominantly driven by the Housing Authority with some representation of other agencies on an advisory group and liaison with police via a crime prevention and an aboriginal liaison officer.

All of the primarily social intervention Areas (1.2, 2.2 and 3.2) involved multi-agency approaches to community renewal including housing, police and a wide range of other government and non-government agencies. In all cases multi-agency liaison/management groups had been set up to coordinate and integrate service delivery. The range of players and level of coordination/integration was highest in Areas 2.2 and 3.2, but still significant in Area 1.2.

Two of the three control Areas (1.3 and 3.3) also had interagency meetings to coordinate provision of services, but the number of agencies involved was generally less and the range of activities/programs more limited. In Area 2.3 liaison was primarily between housing and police but did also involve an interagency safety committee.

The extent of interagency collaboration and coordination in the study areas, in general, reflects a growing emphasis by state governments over recent years in service coordination and whole-of-government strategies for areas of disadvantage.

5.1.3. Nature and Extent of Community Partnerships

According to information drawn from stakeholder interviews, only one of the housing areas (1.2) does not have an active community consultation/participation program involving tenant groups of some kind, and relies only on individual consultation regarding relocations arising from disposal of public housing stock. In the other areas the extent of community involvement varies considerably, from only one active

tenants' group in control Area 2.3 to tenant participation on steering committees and in community workshops and capacity building programs in Areas 1.2, 2.2 and 3.2. Typically, in the six areas with formal renewal programs, this also involves engagement of a community development worker who plays a major role in building partnerships between key agencies and the community.

Effective partnering involving police and the local communities is less common. In most of the programs, police have some kind of engagement with the community if only via lower level community safety and crime prevention initiatives. All three state governments claim to have adopted Problem Oriented Policing (POP) approaches – in themselves not a community partnership approach to crime prevention, and all Justice/Attorney Generals' departments have crime prevention programs mostly pitched at local government level. However, one of the study areas stands out as adopting a strong community policing approach (Area 2.2) with two area specific crime prevention officers with CPTED training, a mobile van and a 'shopfront' presence in the local shopping centre. They also work closely with 'elders' of local cultural groups in their approach to local youth in the area, and are involved in safety audits and crime/security education/awareness of the local population.

Three other areas have well developed crime prevention initiatives that engage strongly with local communities. In State 1, Area 1.1 has a local crime prevention strategy and a locally-born area-specific, crime prevention liaison officer who engages closely with the local community. There are also activities related to safety audits, graffiti management, housing security education and early intervention support as well as interagency domestic violence programs and community conferencing with offenders. In State 3, in Area 3.1, police are involved in community crime and safety education, the development of a community safety strategy and have an 'open doors' policy engaging frequently and extensively with the many cultural groups who live there. The social initiative Area 3.2 in the same state also has a community policing centre, a local police beat and supporting community programs for early intervention, domestic violence, and youth at risk. Both these areas also have an active neighbourhood watch program.

In most other areas police are involved in some community liaison, crime and safety education and crime prevention strategies that have some engagement with the local communities.

5.1.4. Frequency and distribution of crime³⁷

Several general observations can be made from the mapped crime data concerning associations between crime and public housing concentrations:

1. Crime is both endemic (widespread) and recurrent (concentrated at hotspots) throughout all study areas.
2. Crime is strongly associated with public housing concentrations.

³⁷ Epidemiology, i.e. frequency x distribution

3. Crime is evident in adjacent areas of private ownership as well, and hotspots occur there too, although to a conspicuously lower degree.

5.1.5. Crime Reduction

The key findings regarding crime reduction in the nine study areas are as follows:

1. In two high crime-experience areas crime trends are decreasing (down 4% and 3.5% respectively) and CEI trends are also falling (down 10% and 4%), over the 5-year period. In both, hotspot intensity is reducing too. These are areas that have been subjected to intensive social intervention, and to broad interagency approaches. In one of the areas, however, high physical intervention is apparent whilst in the other, it is very low (confounding the physical determinism hypothesis).
2. The one control area in which crime is also decreasing (CEI is stable) is located in the State with the strongest whole-of-government approach.
3. In all three areas located in the State with the strongest spatial de-concentration policy crime reduction is not apparent. Included is the area with the strongest rising crime prevalence (up 10%), and a crime experience index up 9%.
4. In the Radburn-reversal area there was no evidence of a reduction in crime, even given the moderate level of agency partnerships with community groups. In contradistinction, in the other Radburn area - with high social but virtually no physical/spatial intervention - crime is reducing.

A number of associations between interventions and crime patterns can be identified from the analysis of the crime data:

1. Social rather than physical/spatial interventions are associated with reductions in crime.
2. Whole-of-government strategies and intensive inter-agency collaborations create a context within which social interventions flourish.
3. Empathetic housing management and 'non-traditional' community policing interventions occurring at neighbourhood and individual level seem effective in reducing crime.
4. Neither de-concentration (tenure mix via asset sales) nor Radburn-reversal are associated with reductions in crime. Possibly, benefits were not yet apparent given the time-scale of this research. Future research could reflect on this.

5.1.6. Displacement/Diffusion Interpretations

1. A 'diffusion' distribution pattern can be detected in the mapped crime data of all nine study areas; possibly crime is 'flowing' from hotspots into 'cooler' zones.

2. From an analysis of the context data (crime in surrounding areas) no inference can be made regarding displacement or halo effects since no distinct patterns emerged.
3. The two areas where crime trends are reducing are surrounded by areas experiencing predominantly increasing crime. This further suggests and re-confirms the apparent potency of social intervention strategies in crime reduction.

5.1.7. Neighbourhood Survey Results

Notwithstanding small sample sizes in some areas, and hence difficulties establishing statistical significance, findings from the survey appear to confirm findings from the police data analysis - concerning relationships between intervention, crime reduction and neighbourhood cohesion; in particular:

1. Increased community cohesion was found in those areas with intensive social interventions where crime trends had also reduced.
2. The lowest levels of cohesion were found in the control areas in each State.
3. The two areas with most crime reduction were the only two areas where a majority of residents rated crime and harassment as 'better' over the last few years.

Furthermore:

1. An 'improved physical environment' is the change for-the-better cited most often, followed by 'improved community facilities' and 'improved safety/security'.
2. Crime, nuisance and annoyance are most commonly cited as changes for-the-worse, followed by 'closure or lack of services'.
3. 'Selling off public housing' was the most commonly cited change for-the-worse in the area experiencing the highest reductions in public housing stock.

Fear and victimisation mapping indicate that:

1. Fear afterdark is endemic, encompasses entire areas in all cases, and is frequently associated with public housing concentrations.
2. Victimisation appears to occur equally during the night and day; and is frequently associated with public housing concentrations.

5.1.8. CPTED Walk-Throughs

The following associations between environmental design factors and crime patterns were evident from CPTED walk-throughs of the study areas:

1. Design parameters of likely significance are illumination and dormancy (lack of activity), both associated with places at night/afterdark. Housing is frequently located adjacent to large dark and vacant public places, including school grounds, and streets are very poorly illuminated, in all study areas.

'Criminogenic' physical/spatial configurations such as these increase opportunities for crimes to take place (assuming the motivation is there).

2. Other probable factors are the very low-density residential setting (permitting easy access to property) and the emphasis on personal territory (fenced properties are endemic). There is little sense of public place; and the shopping malls and sports fields are dormant afterdark. Community policing is nowhere evident.
3. Few people use the streets during the day, and cars predominate at all times, in particular at night when almost no-one is walking about; possibly also evidence of 'avoidance behaviour'.

5.2 Practice and Policy Implications

A best practice model for crime reduction in areas of public housing concentration is implied by strategies adopted in the two areas where crime is reducing, namely:

1. A broad whole-of-government, place-management approach involving housing, police, local government and a wide range of other government and non-government agencies.
2. Extensive community consultation and participation in problem identification, development and implementation of strategies.
3. Integrated initiatives targeting: early intervention, drug and alcohol abuse, training and employment, social enterprise development, domestic violence and family/community conferencing for offenders.
4. A locally based, empathetic housing management team with community development training.
5. A strong community policing approach, empathetic crime prevention personnel interacting with multicultural communities, and a social-control mechanism involving elders in informal liaison with local youths. Hot spot analysis and intelligence-based targeting of problem-generating households supplements these people-oriented approaches.
6. Organisation of community and cultural events to build community spirit and break down stigma.
7. As a general principle, the replenishment of social capital: aiming to enhance individual well-being and self-esteem, increase social cohesion and augment sense of responsibility and natural policing.

A number of policy implications emerge from this study:

1. Support for whole-of-government, integrated, multi-agency approaches to community renewal and crime reduction.
2. Preference for social over physical/spatial strategies in renewal programs.

3. Recognition of the endemic and recurrent nature of crime in areas of public housing concentration, warranting a high priority being placed on crime reduction as a strategy in community renewal policy.
4. Review of allocation policies that result in the concentration of socio-spatial disadvantage.
5. The importance of community-oriented policing, and empathetic partnerships between crime prevention officers and local residents.
6. The importance of locally-based housing management teams, and empathetic partnerships with housing communities.
7. The need for systematic monitoring of crime profiles over time, as a form of socio-economic cost-benefit analysis.
8. Evaluation methodologies developed in this research could be widely applied. Although complex contextual realities cannot be controlled, coexisting relationships between intervention strategies, their cost, and epidemiological crime patterns can be inferred.

REFERENCES

- Appleyard, D. 1981, *Livable Streets*, University of California Press, Berk.
- Alexander, C. (ed.) 1987, *A New Theory of Urban Design* Oxford University Press, NY
- Anastacio, J., Gidley, B., Hart, L., Keith, M., Mayo, M. and Kowarzik, U, 2000, *Reflecting realities: Participants' perspectives on integrated communities and sustainable development*, The Policy Press, Bristol
- Australian National Classification of Offences (ANCO)
<http://www.law.ecel.uwa.edu.au/crc/stats/Stats97/app-a%20txt.html>
- Atlas, R. and LeBlanc, 1994, 'The Impact on Crime of Street Closures and Barricades: A Florida case study', *Security Journal* 5: 140-145.
- Australian Bureau of Statistics (ABS) (2001), CDATA 2001.
- Baldwin, J. and Bottoms, A.E. (1976) *The Urban Criminal*, Tavistock, London
- Beer, A.R. and Higgins, C. (2000)(2nd ed.), *Environmental Planning for Site Development: A Manual for Sustainable Local Planning and Design*, E & FN Spon, London
- Bell Planning Associates and Gaston, G (1995) *Crime, Safety and Urban Form*, Commonwealth Department of Housing and Regional Development, Urban Futures Research Program. AGPS, Canberra
- Beardsley, J., 1997, 'A Mickey Mouse Utopia', *Landscape Architecture Magazine*, 87:76-93, American Soc of Land Arch, Wash DC
- Bennett, L. and Read, A, 1999, 'The New Face of Urban Renewal: the Near-North redevelopment initiative and the redevelopment of Cabrini-Green neighbourhood', in Reed, A. (ed), *Without Justice for All, The new liberalism and our retreat from racial equality*, Westview Press, Boulder.
- Bentley, I., Alcock, A., Murrain, P., McGlynn, S and Smith, G. 1985, *Responsive Environments: A Manual for Designers*, Architectural Press, London
- Bottoms, A.E. and Wiles, P. (1986), 'Housing Tenure and Residential Community Crime Careers in Britain', in A.J. Reiss & M. Tonry (eds), *Crime and Justice: A review of research, communities and crime*, Univ. Chicago Press, Chicago
- Bottoms, A.E. and Wiles, P. 1988, 'Crime and Public Housing: A Framework for Crime Prevention Analysis', in Hope and Shaw, (eds.) *Communities and Crime Reduction*, Home Office Research and Planning Unit, HMSO, London
- Brantingham P.J and Brantingham, P.L. 1994, 'The Relative Spatial Concentration of Criminality and its Analysis: Towards a revival of environmental criminology', *Criminologie*, 27,1: 81-97
- Brantingham, P.J. and Faust, F.L. (1976) 'A Conceptual Model of Crime Prevention', in *Crime and Delinquency*, 22:130-46.
- Brown, B.B. and Perkins, D.P. (2001) *Neighbourhood Revitalization and Disorder: An intervention evaluation, Final Report*, NIJ, Washington DC
- Buckner, 1988, 'The Development of an Instrument to Measure Neighbourhood Cohesion', *American Journal of Community Psychology*, 16,6: 771-791.
- Calthorpe, P., 1993, *The Next American Metropolis: Ecology, Community and the American Dream*, Princeton Arch Press, NY

- Carter, R.L. and Hill, K.Q. (1979) *The Criminal's Image of the City*, Pergamon, NY
- City of Gosnells, (2001), *SafeCity Urban Design Strategy*, Gosnells
- Clarke, R.V. (1992/97) (ed.) *Situational Crime Prevention: Successful Case Studies*, Harrow and Heston, NY.
- Clarke, R.V., 2001, 'Situational Crime Prevention Theory: A foundation for future CPTED Practice', *6th Annual CPTED Conference*, Brisbane
- Cloward, R.A. and Ohlin, L.E. (1960) *Delinquency and Opportunity: A Theory of Delinquent Gangs*, The Free Press, Chicago.
- Cohen, L.E. and Felson, M. (1979) 'Social Change and Crime Rate Trends: A routine activity approach', *American Sociological Review*, 44: 588-608.
- Coleman, Alice (1985) *Utopia On Trial: Vision and reality in planned housing*, Hilary Shipman, London.
- Cornish, D.B. and Clarke, R.V. (1986) *The Reasoning Criminal: Rational Choice Perspectives on Offending*, Springer-Verlag, NY
- Crowe, T. (1991/94) *Crime Prevention Through Environmental Design: Applications of Architectural Design and Space Management Concepts*, Butterworth-Heinemann, London
- Golden, W. and Dryden, W. (1986), 'Cognitive Behavioural Therapies: Commonalities, divergences and future developments', in Dryden and Golden (eds.) *Cognitive Behavioural Approaches to Psychotherapy*, Harper & Row, NY.
- Devery, C. (1992) *Mapping Crime in Local Government Areas*, NSW Bureau of Crime Statistics and Research. Sydney.
- Doak, P., Fitzgerald, J. and Ramsay, M. (2002), *NSW Recorded Crime Statistics 2002*, NSW Bureau of Crime Statistics and Research.
- Felson, M. (1987) 'Routine Activities and Crime Prevention in the Developing Metropolis', *Criminology*, 25: 911-931
- Forster, C. (1992) *Areas of Multiple Disadvantage in Adelaide*, Research Report 15, South Australian Planning Review, Adelaide.
- Geason, S. and Wilson, P. (1989) *Designing out Crime: Crime prevention through environmental design*, AIC, Canberra
- Goldstein, H. (1990) *Problem Oriented Policing*, McGraw Hill, USA
- Harsley, S. (1993) 'How Tenants Have Succeeded in Reducing Crime on the Estate', *Housing Review*, 42, 3, May-June.
- Harvey, D. (1988) *Social Justice and The City*, Basil Blackwell, Oxford
- Heidegger, M., 1971, *Poetry, Language, and Thought*, Harper & Row, New York
- Herbert, D.T. (1976) 'Social Deviance in the City: A spatial perspective', in D.T. Herbert and R.J. Johnson (eds), 1976, *Social Areas in Cities*, Wiley, Chichester
- Herbert, D.T. (1997) *Crime and the City: Environmental Approaches to Crime Prevention: What works in community safety*, UK Home Office, London
- Hope, T. and Shaw, M. (eds.) (1988) *Communities and Crime Reduction*, Home Office Research and Planning Unit, HMSO, London.

- Hope, T, 1995, 'Community Crime Prevention', in M. Tonry and D. Farrington, (eds), *Building a Safer Society, Crime and Justice*, Vol 19, Univ of Chicago Press, Chicago.
- Howell, J.C. (ed), 1995, *Guide for Implementing the Comprehensive Strategy for Serious, Violent and Chronic Juvenile Offenders*, Office of Juvenile Justice and Delinquency Prevention, US Dept of Justice, Wash DC
- Husserl, E., 1936, 'The Crisis of European Sciences and Transcendental Phenomenology', International Centre for The Prevention of Crime, 1999, *Crime Prevention Digest II: Comparative Analysis of Successful Community Safety*, PUBLISHER/PLACE
- International Centre for the Prevention of Crime (ICPC) (1999), *Crime Prevention Digest II: Comparative Analysis of Successful Community Safety*, ICPC Jacobs, J. (1961) *The Death and Life of Great American Cities*, Random House, NY
- Jencks, C. 1992, *Rethinking Social Policy: race, poverty and the underclass*, Harvard University press, Camb.MA
- Jochelson, R. 1997, *Crime and Place: An analysis of assault and robberies in inner Sydney*, NSW Bureau of Crime Statistics, Sydney
- Joseph Rowntree Foundation (1995) 'Successes and Failures in Neighbourhood Crime Prevention: Findings', *Housing Research* 149, June, Joseph Rowntree Foundation, York.
- Judd, B., Samuels, R., Baldry A. and Zehner, R. (1999) *Neighbourhood Improvement and Community Cohesion in the Waterloo Public Housing Estate*, (unpublished research results) Faculty of the Built Environment, University of New South Wales.
- Judd, B., Samuels, R., O'Brien, E. and Barton, J. (2002) *Linkages Between Housing, Policing and Other Interventions for Crime and Harassment Reduction on Public Housing Estates*. Positioning Paper, Australian Housing and Urban Research Institute, Melbourne.
- Kaplan, S and Kaplan, R. (1982), *Humanscape: Environments for People*, Ulrichs Books, Inc,
- Katz, M.B., 1989, *The Undeserving Poor: From the war on poverty to the war on welfare*, Pantheon Books, NY
- Korrthals Altes, H.J. and van Soomeren, P. (1998) 'CPTED and Community Building: The Next Phase', Paper presented to the 1998 *International CPTED Association Conference*, Washington DC, December
- Koper, C. 1995, *Just Enough Police Presence: reducing crime and disorderly behaviour by optimizing patrol time in crime hot spots*, *Justice Quarterly* 12: 649-671
- Krier, R. 1979, *Urban Space*, Rizzoli, NY
- Lane, D.A. (1990), *The Impossible Child*, Trentham Books, Staffordshire.
- Lee, T. (1968) 'Urban Neighbourhood as a Socio-Spatial Schema', *Human Relations*, 21: 241-267.
- Lynch, K. 1960, *The Image of the City*, MIT Press, Cambridge, Mass.
- Matka, E. (1997) *Public Housing and Crime in Sydney*, NSW Bureau of Crime Statistics and Research, Sydney

- Mayhew, G.T., Clarke, R.V.G., Sturman, A. and Hough, J.M. (1976) *Crime as Opportunity*, Home Office Research Study 34, HMSO, London
- McCamley, P. (1994), *Safer by Design: A Practical Guide to Creating Safer Communities Through Social Development – A Discussion Paper*, NSW Police Service, Sydney NSW Police Service.
- Merry, S.E. 1981, 'Defensible Space undefended', *Urban Affairs Quarterly*, 16:397-422.
- Mirrlees-Black, C., Budd, T., Partridge, S. and Mayhew, P. (1998) *The 1998 British Crime Survey*, HMSO, London.
- Newman, O. (1972), *Defensible Space: Crime Prevention Through Urban Design*, Macmillan, New York
- Newman, O. (1976) *Community of Interest – Design for Community Control in Architecture*, Planning and Urban Crime, Report of NACRO Conference, London 1974
- Newman, O. and Franck, K, 1980, *Factors Influencing Crime and Instability in Urban Housing Developments*, US Government Printing Office, Washington DC.
- Newman, O. and Franck, K, 1982, 'The Effects of Building Size on Personal Crime and Fear', *Population and Environment* 5:203-220.
- Newman, O. 1996, *Creating Defensible Space*, US Dept of Housing and Urban Development, Washington DC
- Norberg-Schulz, C. 1975, *Meaning in Western Architecture*, Rizzoli, New York
- NSW Department of Housing (NSWDH) (undated) *Community Renewal: Transforming Estates into Communities – Partnership and Participation*, NSWDH
- NSW Office of Community Housing, in association with Argyle Community Housing Inc, 1998, *Home and Housed: Making Housing Management Work*, Dept of Urban Affairs and Planning, Sydney.
- Osborn, S. and Shaftoe, H (1995) *Safer Neighbourhoods? Successes and Failures in Crime Prevention*, Safer Neighbourhood Unit, London.
- Pate, T., Wycoff, M.A., Skogan, W. and Sherman, L.W., 1986, *Reducing the Fear of Crime in Newark and Houston*, Police Foundation, Wash DC
- Peck, J. 2001, *Workfare States*, Guildford Press, NY
- Poyner, B and Webb, B. (1991) *Crime Free Housing*, Butterworth-Arch, Oxford.
- Randolph, B. and Judd, B. (2000) 'Community Renewal and Public Housing estates', *Urban Policy and Research*, 8, 1:91-104
- Randolph, B., Judd, B., Carmichael, C. and Holloway, D. (2001) *Evaluation of the Neighbourhood Improvement Program for the NSW Department of Housing*, Urban Frontiers Program, University of Western Sydney, Campbelltown.
- Reiss, A.J. and Tonry, M. (1986) *Communities and Crime, Vol 8 of Crime and Justice: A Review of Research*, Univ Chicago Press, Chicago
- Ruck, N. (Undated), *Lighting of Buildings: An Architects Handbook*, School of Architecture, UNSW.
- Sanoff, H. (2000), *Community Participation Methods in Design and Planning*, John Wiley & Sons.

- Sampson, A., Stubbs, P., Smith, D., Pearson, D. and Blagg, D., 1988, 'Crime Localities and the Multi-Agency Approach', *British Journal of Criminology*, 28: 483.
- Samuels, R. (1995) *Design and Planning for Urban Safety and Security, Final Report*, NSW Department of Housing.
- Samuels, R. (2001) 'The Afterdark Paradigm; and Temporal-Spatial Mapping', *6th International CPTED Conf*, Brisbane
- Sarre, R. 1997, 'Crime Prevention and Police', in P. O'Malley and A. Sutton (eds), *Crime Prevention in Australia: Issues in Policy and Research*, Federation Press, NSW
- Selye, H., 1956, *The Stress of Life*. McGraw Hill, NY
- Sherman, L.W. and Weisburd, D.A., 1995, 'General Deterrent Effects of Police Patrol in Crime Hot Spots', *Justice Quarterly* 12:625-648.
- Sherman, L.W., Gottfredson, D.C., MacKenzie, J., Reuter, P. and Bushway, S., 1998, *Preventing Crime: What works, what doesn't, what's promising*, National Institute of Justice, US Dept of Justice, Washington DC.
- Sitte, C. (1889) *The Art of Building Cities: City Building According to its Artistic Fundamentals*, (English edition published in 1965 translated by Collins). Reinhold, New York
- Skogan, W. 1990, *Disorder and Decline: Crime and the spiral of decay in American cities*, Free Press, NY
- Skogan, W. and Hartnett, S. 1997, *Community Policing, Chicago Style*, Free Press, NY
- Spiller Gibbins Swan Pty Ltd (2000) *Public Housing Estate Renewal in Australia*, Project No 212, Australian Housing Research Fund, Melbourne.
- Standing Committee on Law and Justice (SCLJ), (1999) *Crime Prevention through Social Support, First Report*, NSW Parliament Legislative Council, Parliamentary Paper No 159, Legislative Council, NSW Parliament
- Standing Committee on Law and Justice (SCLJ), (2000) *Crime Prevention through Social Support, Second Report*, NSW Parliament Legislative Council, Parliamentary Paper No 437, Legislative Council, NSW Parliament
- Stollard, P. (ed.) (1991) *Crime Prevention Through Housing Design*, Spon, London
- Stubbs, J. and Hardy, M. (2000) *Evaluation of Three Neighbourhood Renewal strategies*, Prepared for the South West Region, NSW Department of Housing.
- Stubbs, J. and Storer, L. (1996) *Social Cost-Benefit Analysis of Department of Housing's Neighbourhood Improvement Program, Case Study, Airs* (prepared for the NSW Department of Housing, Western Sydney Region).
- Taylor, R.B. (1988) *Human Territorial Functioning: An empirical, evolutionary perspective on individual and small group territorial functioning, behaviours and consequences*, Cambridge University Press, Cambridge
- Taylor, R.B., Gottfredson, S.D. and Brower, S, 1981, *Territorial Cognitions and Social Climate in Urban Neighbourhoods*, *Basic and Applied Psychology*, 2: 289-303
- Taylor, R.B. and Harrell, (1996), *Physical Environment and Crime, Final Summary Report*, National Institute of Justice, US Dept Justice.

- Tierney, J.P. and Grossman, J.B. with Resch, N.L., 1995, *Making a Difference: An impact study of Big Brothers/Big Sisters*, Public/private Ventures, Phil.
- Tonry, M. and Farrington, D.P., 1995, *Building a Safer Society: Crime and Justice. A Review of Research*, University of Chicago Press, Chicago.
- Urwick, L. and Brech, E.F.L. (1965), *The Making of Scientific Management, Vol 3: The Hawthorne Investigations*, Pitmans, London.
- Vinson, T (1999) *Unequal in Life: The Distribution of Social Disadvantage in Victoria and New South Wales*, Jesuit Social Services Inc., Richmond, VIC.
- Westacott, J., 2002, *Keynote Address*, AHURI and AIC 'Housing, Crime and Stronger Communities' Conference, Melbourne.
- Weatherburn, D., Lind, B. and Simon Ku (1999) 'Hotbeds of Crime?' Crime and Public Housing in Urban Sydney' in *Crime and Delinquency*, 45, 2: 256-271
- Weatherburn, D. and Lind, B. 2001, *Delinquent-Prone Communities*, Cambridge University Press
- Willmott, P., 1987 (ed), *Policing and the Community, Introduction*, Policy Studies Institute, London.
- Wilson, J. 1975, *Thinking About Crime*, Basic, NY
- Wilson, J. and Kelling, G. (1982), 'Broken Windows: The police and neighbourhood safety', *The Atlantic Monthly*, March.
- Wilson, W.J., 1987, *The Truly Disadvantaged, The Inner City, the Underclass, and Public Policy*, University of Chicago press, Chicago
- Wilson, W.J., 1996, *When Work Disappear: The world of the new urban poor*, Random House, NY
- Wood, M. (forthcoming) *Resident Participation in Community and Urban Renewal in Australia: A Study of Six Neighbourhoods*, AHURI Final Report, UNSW-UWS Research Centre, Australian Housing and Urban Research Institute, University of Western Sydney, Campbelltown, NSW.
- Wycoff, M.A. and Skogan, W. 1986, 'Storefront Police offices: the Houston Field Test', in D. Rosenbaum (ed), *Community crime Prevention: Does it work?* Sage, Bev. Hills, Calif.

Appendix 1: Neighbourhood Survey Form

State Code	Area Code	Survey No.
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THE UNIVERSITY OF
NEW SOUTH WALES



Neighbourhood Crime and Safety Survey

The purpose of this survey is to find out your views about crime and safety issues in (suburb name), and map any experiences you might have had as a victim of crime or harassment.

Part A – First some questions about you.

- 1 Gender ☐ Male ☐ Female
- 2 Age group ☐ 14-19 years ☐ 20-29 years ☐ 30-39 years ☐ 40-49 years
☐ 50-59 years ☐ 60-69 years ☐ 70 years & over
- 3 How long have you lived here in (suburb name) years months

Part B – Now some questions about changes you have noticed in (*suburb name*) over the last few years.

- 4 What are the main changes (for better or worse) that you have noticed in (*suburb name*) over the past 3 to 5 years?

Changes for the better

Changes for the worse

5 How do you think crime and harassment in (*suburb name*) has changed over the last 3 to 5 years?

☐

Much better
same

☐

A little better

☐

About the

☐

A little worse

☐

A lot worse

☐

Uncertain

6 Now could you please look at the list of statements on the following two pages and indicate how much you agree or disagree with each of them?

(Place a tick in one of the boxes for each statement)

Statements	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
1. Overall I am very attracted to living in this neighbourhood.					
2. I feel like I belong to this neighbourhood.					
3. I visit my neighbours in their homes.					
4. The friendships and associations I have with other people in my neighbourhood mean a lot to me.					
5. Given the opportunity, I would like to move out of this neighbourhood.					
6. If the people in my neighbourhood were planning something, I'd think of it as something 'we' were doing rather than something 'they' were doing.					
7. If I needed advice about something, I could go to someone in my neighbourhood.					
8. I think I agree with most people in my neighbourhood about what is important in life.					
9. I believe my neighbours would help me in an emergency.					
10. I feel loyal to the people in my neighbourhood.					
11. I borrow things from my neighbours.					
12. I would be willing to work together with others on something to improve my neighbourhood.					

Statements	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
13. I plan to remain a resident of this neighbourhood for a number of years.					
14. I like to think of myself as similar to the people who live in this neighbourhood.					
15. I rarely invite people in my neighbourhood to my house to visit.					
16. A strong feeling of friendliness exists in this neighbourhood.					
17. I regularly stop and chat with people in my neighbourhood.					
18. Living in this neighbourhood gives me a sense of community.					
19. When I'm alone in my home during the day I feel safe.					
20. I feel safe walking around my neighbourhood during the day.					
21. When I'm alone at home during the night I feel safe.					
22. I feel safe walking around my neighbourhood during the night.					

Part C – Finally, we would like you to help us mark on the map (computer screen) where you feel SAFE and UNSAFE in (*suburb name*) and where you have been the victim of crime or harassment during the last five years.

(point out key features on the map if necessary)

7 First, could you show me on the map on the computer screen the places in (*suburb name*) where you feel SAFE:

(a) during the DAY?

(b) at NIGHT?

8 Now could you show me on the map where in (*suburb name*) you feel UNSAFE:

(a) during the DAY?

(b) at NIGHT?

9 Finally, in the last 5 years, have you had any bad experiences in (*suburb name*) – like someone harassing you, or been the victim of a crime?

IF YES, for each incident could you: *(interviewer to prompt for each incident)*

- Show me on the map where it happened?
- Tell me when it happened? (day or night)
- Tell me what happened? *(coded by researcher – see over)*
- And if you reported the incident to the police?

THANK YOU VERY MUCH FOR YOUR HELP WITH THIS SURVEY

Appendix 2: Victim Survey Summary Table

QUESTIONS	State No 1				State No 2				State No 3				Total
	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 1	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 2	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 3	All 3 States
Number of Respondents	41	52	52	145	20	17	12	49	50	24	32	106	300
RESPONDENTS' GENDER	(percentage of all respondents)												
Male	32	12	46	30	15	24	50	27	34	42	28	34	31
Female	66	88	54	70	80	76	50	71	66	58	69	65	68
Not stated	2	0		1	5			2			3		1
RESPONDENTS' AGE GROUP	(percentage of all respondents)												
14-19 yrs	10	10	2	7	5	6		4	8	4		5	6
20-29 yrs	2	4	4	3	5	18		8	14	17	13	14	8
30-39 yrs	12	21	12	15	25	18	8	18	24	17	13	19	17
40-49 yrs	10	21	17	17	15	24	25	20	22	21	22	22	19
50-59 yrs	15	21	27	21	20	24	17	20	22	21	22	21	21
60-69 yrs	24	17	25	22	25	12	33	22	8		13	12	19
70 + yrs	20	6	13	12	5		17	6	2		19	7	9
Not stated	7			2								1	1
CHANGES IN CRIME/HARRASS	(percentage of all respondents)												
Much better	10	8	4	7	10	18	8	12	16	17	3	12	10
A little better	24	12	19	18	20	41	33	31	36	13	16	25	22
About the same	20	23	21	21	20	24	8	18	14	21	38	23	21
A little worse	24	23	27	25	15	6	25	14	14	29	22	20	21
A lot worse	15	13	29	19	25	6	17	16	6	13	9	8	15

QUESTIONS	State No 1				State No 2				State No 3				Total All 3 States
	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 1	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 2	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 3	
uncertain	7	19		9	10	6	8	8	12	8	13	11	10
Not stated		2		1					2			1	1
CHANGES IN CRIME/HARRASS	(percentage of all respondents)												
Much better + A little better	34	20	23	25	30	59	41	43	52	30	19	37	32
About the same	20	23	21	21	20	24	8	18	14	21	38	23	21
A little worse + A lot worse	39	36	56	44	40	12	42	30	20	42	31	28	36
Uncertain	7	19		9	10	6	8	8	12	8	13	12	10
Not stated		2		1					2				1
CHANGES FOR THE BETTER	(percentage of all respondents)												
General, non-specific improvements	32			9	5			2					8
Improved physical environment	29	15	25	23	25	29		20	30	25	19	25	42
Improved community facilites/activitites	5	12	23	14	20	24		16	4	4	19	8	27
Improved social/community services		2		1					2	4		2	3
Improved social/community wellbeing		8	8	6	5	12	17	10	22	4	9	14	18
Improved safety/security	10	2	8	6	5	6	33	12	14	21	3	12	23
Improved transport	2	15	15	12	5			2	18	4	13	13	20
Improved housing management											1		1
Other					5	6		4			3		3
CHANGES FOR THE WORSE	(percentage of all respondents)												
Deterioration/neglect of area									2		3	2	1
Closure/lack of services	7	27	4	13	20	29	25	14	8	4	13	8	18








QUESTIONS	State No 1				State No 2				State No 3				Total All 3 States
	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 1	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 2	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 3	
Crime/nuisance/annoyance	10	17	25	18	30	6		29	14	33	9	17	39
Other social problems		2	2	1	5			2	4	4		3	3
New residents/social changes	2	4	2	3	5	6		4			3	1	4
Sell-off/reduction of public housing	17	6		7							6	2	6
Appearance/cleanliness/design of area	2		2	1		12	8	6	4	8	9	7	7
Poor/inadequate roads & transport	10	15	10	12	5			2	2		9	4	9
Housing management		2	2	1		12		4					3
Other	5	2	4	3	5		8	4			3	1	6
NEIGHBOURHOOD COHESION	(Mean)												
1. Attracted to neighbourhood	2.10	2.04	2.48	2.21	2.70	3.06	2.83	2.86	1.80	2.17	2.31	2.04	2.26
2. Belong to neighbourhood	1.88	1.90	2.29	2.03	2.65	2.76	2.42	2.63	1.68	2.21	2.13	1.93	2.10
3. Visit neighbours	2.56	2.88	2.85	2.78	2.65	2.53	2.50	2.57	2.30	2.46	2.78	2.48	2.64
4. Friendships mean a lot	2.12	2.29	2.48	2.31	2.60	2.24	2.58	2.47	1.80	2.08	2.25	2.00	2.23
5. Move out of neighbourhood	2.41	2.13	2.60	2.38	3.00	3.12	2.83	3.00	2.76	3.00	2.63	2.77	2.62
6. We, not they, were doing	2.59	2.73	2.35	2.56	2.55	2.76	2.83	2.69	2.40	2.46	2.84	2.55	2.58
7. Go to neighbours for advice	2.12	2.19	2.44	2.26	2.50	1.94	3.08	2.45	2.02	2.04	2.56	2.19	2.27
8. Agree with most people	2.46	2.33	2.46	2.41	2.75	2.94	2.92	2.86	2.12	2.25	2.56	2.28	2.44
9. Would help me in emergency	1.90	1.88	2.08	1.96	2.35	1.76	2.25	2.12	1.54	1.87	2.19	1.81	1.93
10. Feel loyalty to people	2.10	2.06	2.23	2.13	2.35	2.35	2.50	2.39	1.80	2.17	2.31	2.04	2.14
11. Borrow things from neighbours	3.32	3.06	3.71	3.37	3.25	2.47	4.33	3.24	2.84	2.83	3.47	3.03	3.23
12. Willing to work together	2.85	2.00	1.88	2.20	2.15	1.59	2.75	2.10	1.68	1.71	2.03	1.79	2.04
13. Plan to remain a resident	1.95	2.00	2.19	2.06	2.15	2.29	2.58	2.31	2.12	1.92	1.94	2.02	2.08

QUESTIONS	State No 1				State No 2				State No 3				Total All 3 States
	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 1	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 2	Area 1 Phys	Area 2 Soc	Area 3 Contr	Total State 3	
14. Similar to others	2.44	2.19	2.27	2.29	3.15	2.76	2.83	2.94	2.26	2.17	2.47	2.30	2.40
15. Rarely invite to my house	2.90	3.04	3.10	3.02	3.30	2.88	3.83	3.29	2.80	3.17	3.06	2.96	3.04
16. Strong feeling of friendliness	2.41	3.23	2.71	2.81	2.80	2.24	2.92	2.63	2.22	2.71	2.78	2.50	2.67
17. Regularly stop and chat	2.20	2.17	2.33	2.23	2.85	2.29	2.33	2.53	2.08	2.13	2.41	2.19	2.29
18. Sense of community	2.29	2.17	2.46	2.31	2.90	2.65	2.75	2.78	2.14	2.54	2.63	2.38	2.41
COHESION SUB VARIABLES	(Mean)												
Attraction to Neighbourhood	2.15	2.06	2.42	2.21	2.62	2.82	2.75	2.73	2.23	2.36	2.29	2.29	2.41
Neighbouring	2.50	2.54	2.75	2.6	2.82	2.31	3.06	2.73	2.56	2.42	2.74	2.57	2.63
Psychological sense of community	2.31	2.32	2.35	2.33	2.66	2.48	2.72	2.62	2.01	2.25	2.44	2.23	2.39
OVERALL COHESION	(Mean)												
Mean of all 18 cohesion variables	2.37	2.35	2.50	2.41	2.70	2.48	2.84	2.67	2.13	2.33	2.52	2.33	2.47
SAFETY VARIABLES	(Mean)												
1. Safe alone at home - day	2.12	2.19	2.56	2.30	2.50	1.94	2.67	2.35	1.78	1.96	2.59	2.07	2.23
2. Safe walking around - day	2.12	2.08	2.38	2.20	2.40	2.18	2.42	2.33	1.82	2.21	2.34	2.07	2.17
3. Safe alone at home - night	2.27	2.67	3.06	2.70	3.15	2.53	2.92	2.88	2.16	2.96	2.63	2.48	2.65
4. Safe walking around - night	3.24	3.63	3.98	3.65	3.65	3.47	4.33	3.76	3.04	3.92	3.69	3.43	3.59
OVERALL SAFETY (Mean)	2.44	2.64	3.00	2.69	2.93	2.53	3.08	2.85	2.20	2.76	2.81	2.59	2.71









Appendix 3: Crime Codes and Icons

(Categories based on the Australian National Classification of Offences (ANCO))

PERSONAL





1. Assault
 - a. Minor 
 - b. Serious 
2. Sexual assault
 - a. Rape / attempted rape 
 - b. Other sexual offences 
3. Robbery (from person)
 - a. With firearm 
 - b. Other weapon 
 - c. Unarmed 

PROPERTY

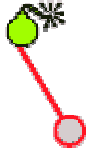
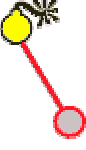


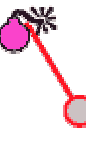
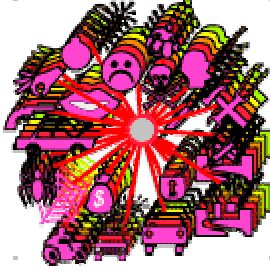
4. Break & Enter
 - a. Dwelling (includes theft) 
 - b. Vehicle/other 
5. Theft
 - a. Vehicle (includes illegal use of vehicle) 
 - b. Illegal interference of motor vehicle 
 - c. Theft from vehicle 
 - d. Other 
6. Property Damage
 - a. Arson / explosives 
 - b. Other (includes graffiti) 

AGAINST PUBLIC ORDER

7. Disorderly/offensive behaviour

- a. Verbal 
- b. Physical 
- c. Sexual 
- d. Dangerous, reckless or negligent driving 

COLOUR CODING FOR YEARS

	<p>GREEN</p> <p>1997/98</p>
	<p>YELLOW</p> <p>1998/99</p>
	<p>ORANGE</p> <p>1999/00</p>
	<p>RED</p> <p>2000/01</p>
	<p>PINK</p> <p>2001/02</p>
	<p>Co-centric icons are designed to be overlaid so data may be viewed by icon for offence and colour for year.</p>

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