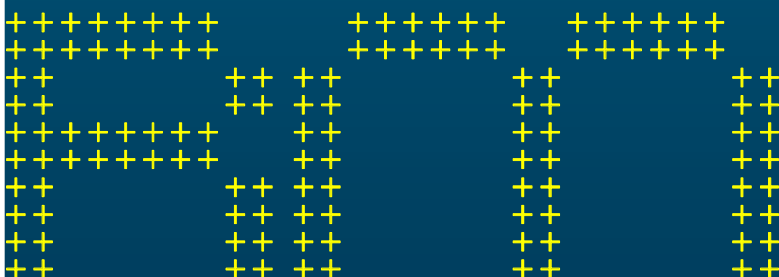
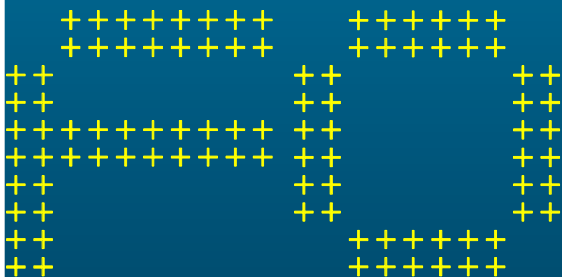
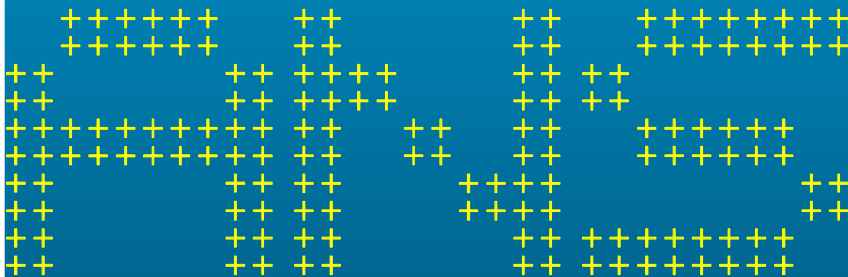
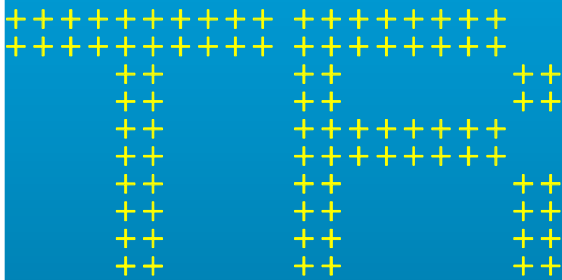


Crime Prevention Through Environmental Design Assessment: Stage 1, Bonnyrigg Living Communities Project





Crime Prevention Through Environmental Design Assessment: Stage 1, Bonnyrigg Living Communities Project

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Executive Summary

Introduction

Urbis has been commissioned by Bonnyrigg Partnerships to undertake a Crime Prevention through Environmental Design ('CPTED') assessment of the proposed master plan and evolving housing form designs for the renewal of the Bonnyrigg Housing Estate.

This CPTED analysis provides an assessment of the proposed designs for the renewal of the Estate against current literature and crime statistics for Fairfield Local Government Area (LGA) and draws on the findings of the extensive public consultation exercises that have been undertaken by Judith Stubbs and Associates (JSA). It includes detailed recommendations to ensure the security and safety of the Estate for the future Bonnyrigg community.

CPTED aims to influence the design of buildings and places by:

- Increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture.
- Increasing the effort required to commit crime by increasing the time, energy or resources which need to be expended.
- Reducing the potential rewards of crime by minimising, removing or concealing 'crime benefits'.
- Removing conditions that create confusion about required norms of behaviour (NSW Department of Urban Affairs and Planning, 2001).

Methodology

The following tasks were undertaken in the preparation of this CPTED assessment:

- Site inspection in September 2007.
- Review of the proposed renewal master plan and evolving designs including providing on-going inputs into the development of those designs from a safety point of view.
- Collection and analysis of local and NSW state crime statistics from the Bureau of Crime Statistics and Research (BOCSAR).
- Review of key literature on CPTED and housing estates in Australia and overseas.
- Analysis of the applicability of this literature to the proposed development.
- Review of the following documents:
 - Fairfield City Council 'Community Safety and Crime Prevention Plan'
 - 'Bonnyrigg Living Communities Project: Social Infrastructure Needs Analysis' (Urbis, October 2007)
 - 'Bonnyrigg Living Communities Project Focus Groups: Incoming Community' (Urbis, October 2007)
 - 'Bonnyrigg Living Communities Project: Updated Demographic Profile' (2006 Census) (Urbis, August 2007)
 - 'Draft Open Space Plan' (Urbis October 2007)
 - 'Characteristics of the 'Locality' of Development' (Judith Stubbs and Associates, 2007)

- 'Draft Safety and Security Chapter from Social Impact Assessment' (Judith Stubbs and Associates, 2007)
- 'Phase 1 Community Engagement Feedback Report' (Judith Stubbs and Associates, July 2007)
- 'Phase 2 Community Engagement Feedback Draft Report' (Judith Stubbs and Associates, September 2007)
- 'Physical Impacts of Redevelopment' (Fragment) 2007 (Judith Stubbs and Associates)
- Constable Liz Roth, Crime Prevention Officer, NSW Police was provided with a set of the final plans and asked to provide a response. She was contacted initially by Urbis on 5 and 8 October 2007 in this regard, and following release of the final plans on 24 and 25 October. An appointment for an interview on 29 October did not occur due to the illness of the officer. Further contact was made by Urbis with Cr Roth on 30 and 31 October to enquire as to timing of a response.

The safety audit has included:

- Contextual crime data which identifies the level and type of crime most likely to occur in or around the development.
- Assessment of the function of the proposed development and recommendation of management measures to increase community safety.
- Assessment of the design of the proposed development to identify the type of security measures which will increase community safety.

Conduct of a safety audit in the current NSW policy and practice environment involves consideration of the following regulation and assessment principles:

- CPTED principles endorsed by NSW Police.
- Section 79C of the NSW Environmental Planning and Assessment Act, 1979 (EP&A Act), which includes guidelines for the consideration of safety issues in the development approvals process.
- NSW Department of Urban Affairs and Planning: 'Crime Prevention and the Assessment of Development Applications' (2001).

Safety and security context

Bonnyrigg Estate has been identified by the Department of Housing as being in need of redevelopment. Among the issues contributing to this need is the general failure of Radburn designed housing estates to contribute to a sense of community safety. The redeveloped suburb will comprise 70% privately owned or rented housing (depending upon the number of investment properties in this sector) and 30% community managed housing. Early background research by Judith Stubbs and Associates (JSA) indicates around 90% of purchasers are likely to be owner-occupiers with most of these being younger families.

Bonnyrigg Estate is located in Fairfield LGA. The LGA has very high incidents of reported crime, with significant numbers of crimes well in excess of the NSW average. Particularly high rates of crime in 2006 were reported in the following areas: theft related, violent crime and drug related crime.

The three most reported offences occurring within the Fairfield LGA during 2006 were:

- Malicious damage to property (2040 offences)
- Steal from motor vehicle (1432 offences)
- Break and enter dwelling (1362 offences).

Many of these property offences occur in the public domain and so would be sensitive to the CPTED measures described in Chapter 10 of this report.

The suburb of Bonnyrigg is one of the most disadvantaged in Sydney based upon analysis of income levels, educational attainment and employment levels. In terms of crime, Bonnyrigg Estate is currently experiencing significantly high levels of break and enter, although other reports accompanying this application indicate these levels of crime may be a spike rather than a trend. The Social Impact Assessment reports that many people are afraid to leave their house and will often only leave when they are sure that someone will remain inside the dwelling to guard it from intrusion. Using the latest data available, the suburb of Bonnyrigg had a much lower rate of crime than the LGA and only significantly exceeded the NSW average for a small number of offences. These offences were:

- Robbery
- Steal from retail store
- Fraud.

However, the following offences were above the NSW average:

- Break and enter
- Steal from person
- Sexual offences.

The current Bonnyrigg Estate design configuration has many issues related to CPTED which will be resolved with the new master plan for the estate. These include: lack of surveillance, a lack of connectivity and permeability of the street layout. Many of the crimes committed within the current Estate, such as those most frequently occurring within the LGA (malicious damage to property, steal from motor vehicle and break and enter) have been exacerbated by the current layout and quality of the environment.

The proposed Concept Plan is a significant improvement on the current design as it has made a deliberate effort to rectify these problems and to provide for a safer and more welcoming environment. Detailed consideration has been given to the design of public and private spaces and the street layout to draw people out into the public domain thereby increasing safety, activity and a sense of community ownership.

Key findings of the CPTED assessment

The following provides a summary of the key findings of this assessment. Refer to Chapter 10 for detailed comments under each heading:

- There are currently considerable concerns in relation to levels of crime, safety and security and fear of crime on the Estate in its existing Radburn design configuration. The proposed master plan provides a significant improvement on the current design both in terms of open space configuration, public spaces, streetscape and layout and housing form and design.
- Good management practices underpinned by CPTED principles are proposed for implementation by Bonnyrigg Partnerships. It is the combination of design and management of an area that will determine the actual and perceived level of safety of the Estate in the long term.
- Key CPTED principles that underpin the design and development of the Estate are as follows:
 - Territorial Reinforcement
 - Passive Surveillance
 - Access Control
 - Ownership and Space Management.

- *Dwelling types:* The design, integration and orientation of all dwelling types will be a significant improvement from the current situation and are assessed as adequate overall. Homes will have defined addresses which are visible from the street. Homes will front all streets, parks and public spaces will strongly improve passive surveillance opportunities onto these areas.
- *Open space layout:* The open space layout will be transformed to a better used and safer environment providing connection across the area for pedestrians and cyclists. The master plan provides for nine new public open space areas designed for multiple and simultaneous uses. All areas of the new master plan area will have access to the upgraded public parks and houses adjacent to them will be given street addresses. Parks will be well lit with surveillance from passing street traffic as well as surrounding houses. This surveillance is facilitated by increased housing density and orientation towards the parkland.
- *Maintenance of the public domain:* The Spotless Group will be responsible for all facilities maintenance, all social housing, agreed public areas and facilities. A maintenance program will be endorsed with clear responsibilities identified to ensure the clean and well kept nature of the public domain.
- *Vacated areas and areas under construction:* It is important that during the demolition and construction periods of the subsequent stages of development that the detailed commentary set out in Chapter 10 below is applied so as to ensure the safety and security of those living and working on the site.

Urban renewal programs must seek to address more than just the built form issues so that they can successfully work within the context of social and economic disadvantage and isolation. Without this comprehensive approach to the urban renewal program the Estate may see the rise of crime and safety concerns in the future.

The incorporation into the design of recommendations in the draft CPTED report has enabled changes to the design which mitigate against the potential for anti-social behaviour and reduce the opportunities available to perpetrators of crimes in the public domain.

1 Introduction

The Bonnyrigg Estate (the Estate) is an 81 hectare area located within the suburb of Bonnyrigg in the Fairfield Local Government Area of Western Sydney. The Estate is bounded by Humphries Road, Cabramatta Road, Elizabeth Drive, Bonnyrigg Avenue and Edensor Road and occupies a strategic position, immediately east of the Bonnyrigg Town Centre.

The NSW Department of Housing (DoH) has identified the Estate as in need of redevelopment and renewal. 'Redevelopment' refers to the physical environment and 'renewal' to the community of residents that will live on the site. The Bonnyrigg Living Communities Project (BLCP) is a Public Private Partnership (PPP) between the DoH and Bonnyrigg Partnerships (BP). The proposed works include the physical redevelopment of DoH landholdings within the Estate to incorporate a mix of social and private housing. BP will have responsibility for development, maintenance and public housing management for the site over a 30 year timeframe.

This Crime Prevention Through Environmental Design (CPTED) report assesses the proposed designs for the renewal of the Estate against current literature and crime statistics for Fairfield Local Government Area (LGA) and includes recommendations where appropriate to increase the safety of future residents and visitors to the area.

1.1 Radburn Principles of Design in the Bonnyrigg Estate

The Estate currently contains approximately 833 public housing dwellings and 86 privately owned dwellings. The Bonnyrigg Estate was constructed in the late 1970s and early 1980s underpinned by Radburn principles of urban design. Radburn design is characterised by a separation of pedestrian and vehicular traffic by walkways which connect homes with open space and services. There is a dominance of cul-de-sacs with the 'back' of homes facing the street and tall timber fences and carports are adjacent to the street. Radburn design was based on the premise that people would actively use the front of their houses facing communal open space, while in reality back entrances and vehicular, not pedestrian access, were favoured. Other failings of Radburn design include a preference by residents for personal land and the perception of a loss of privacy through Radburn designed properties compared with other housing designs available at the time.

The Estate has a low level of connectivity and permeability due to the significance of the cul-de-sacs and the walkways have low levels of surveillance and visible graffiti and vandalism. These areas appear to have low levels of community ownership or care. Pedestrians using the walkways are frequently surrounded by high fences or large areas of underutilised open space. Surveillance onto the walkways and streets is poor due to the Radburn design and the presence of high fences interrupting sight lines.

1.2 Proposed Renewal Scheme

The proposed renewal concept aims to address issues related to the current design of the site such as ageing housing stock, increasing maintenance costs, poor safety for residents and visitors and general amenity concerns. The proposal is a departure from Radburn principles described above. It seeks to provide future residents with a sustainable environment which is safe, welcoming and promotes well being. The design promotes accessibility within the site which will cater for the needs of future residents as they change over time.

Bonnyrigg Partnerships has been appointed by the NSW Government to demolish 813 of the public housing dwellings and build 1545 (70%) new private dwellings, and 699 (30%) new public dwellings, retain 20 of the DoH owned villas and the 88 existing private homes. An additional 134 public dwellings will be provided off-site by Bonnyrigg Partnerships to ensure there is no net loss in social housing (Refer to Master plan report for full details).

The Estate lies within an existing urban area built in the late 1970's. Its development will bring the homes, parks, streets, services and stormwater treatments up to current environmental sustainability design standards. The master plan provides for the staged demolition of existing social and public

housing and will allow for two and a half more homes than are currently on the site. The new tenure mix in the Bonnyrigg Living Communities Area (BLCA) or master plan site will be 30% social housing and 70% private housing with no net loss in social housing. Income and housing tenure rates should then move to a closer alignment with the surrounding LGA.

2 Background Context

2.1 Regional context

The Bonnyrigg Estate lies approximately 5km northwest of the regional Centre of Liverpool, 5km west of Cabramatta and 6km to the south west of Fairfield. Cabramatta and Fairfield are both identified as potential major centres under the Metropolitan Strategy. The Estate's proposed redevelopment will play an important part in the potential role of these new urban and business centres.

2.2 Local context

Bonnyrigg Estate is located within a predominantly residential area, with residential subdivisions surrounding the Estate. The balance of the suburb of Bonnyrigg is located to the south on the opposite side of Cabramatta Road and Elizabeth Drive. Bonnyrigg Heights is located to the south-west of the site.

The site adjoins Bonnyrigg Plaza, which is a single level district shopping centre, comprising a discount department store, supermarket and specialty shops. Industrial and commercial uses are situated to the west. Opposite the site to the north-west on Bonnyrigg Avenue are other industrial and commercial uses adjacent to the bus T way.

The Estate is well serviced through a wide variety of land uses close to the site including;

- retail centres
- places of worship
- recreational opportunities
- education opportunities
- T-way access.

2.2.1 The Bonnyrigg Estate

The Bonnyrigg Estate area occupies approximately half of the Bonnyrigg suburb and accommodates some 2, 899 people (based on ABS Census 2006). The Estate has strategic potential for sustainable urban and community renewal for both existing and future residents as it is located immediately adjacent to the Bonnyrigg town centre and within close proximity to a range of cultural and recreational facilities. In general, housing type comprises a mix of cottages, villas and townhouses.

Residents of the Bonnyrigg Estate are mostly accommodated within public housing. There are currently 833 public housing dwellings and 86 privately owned dwellings. Approximately 40% of housing stock is medium or higher density with the majority of housing stock being semi-detached or single storey terraces.

The suburb of Bonnyrigg is one of the most disadvantaged in Sydney based upon analysis of income levels, educational attainment and employment levels. Public housing residents on the Estate display similar demographic profiles to those of other public housing estates in metropolitan areas within Australian cities. A detailed demographic profile can be found in Chapter 6 of this report. The 'Bonnyrigg Living Communities Project Social Infrastructure Analysis' (Urbis, 2007) has identified the range of community and open space facilities in the area currently and those which will result from the proposed renewal and increase in population. A seniors living complex is located within close proximity to the town centre.

The existing open space areas and facilities are currently characterised by large tracts of open space which are under utilised, are perceived as unsafe and are of a size that cannot be appropriately managed. The open spaces have low levels of embellishment and are limited in their variety of activities. The open space areas are not currently irrigated. Narrow lane ways and high timber fences

front onto open spaces providing limited passive surveillance opportunities. During a site visit on a Sunday in September 2007, two houses were found adjacent to walkways and open space areas which are no longer lived in, appeared not to have been maintained adequately and have been boarded up. These dwellings were clearly seen from the open space and walkway which had been vandalised and had insufficient lighting and embellishment contributing to a perception that the area is unsafe. No one was visible in any of the parks or walkways during the site visit.

The Estate is defined by the current open space configuration and dominance of a significant number of cul-de-sacs. These cul-de-sacs have high timber fences with significant amounts of graffiti. These fences create a visual barrier between what is happening on either side of the fence. The Estate is largely divided into three sections, north, east and west. Although the areas seem to be well connected, the safety and limited choice provided within these open spaces has resulted in a fragmented and disjointed Estate with limited activity in the public domain.

3 Methodology, data sources and principles

The following section provides a summary of the methodology and data sources used to undertake this assessment:

3.1 Methodology and Data Sources

The following tasks were undertaken in the preparation of this CPTED assessment:

- Site inspection in September 2007.
- Review of the proposed renewal master plan and evolving designs.
- Collection and analysis of local and NSW state crime statistics from the Bureau of Crime Statistics and Research (BOCSAR).
- Review of key literature on CPTED and housing estates in Australia and overseas.
- Analysis of the applicability of this literature to the proposed development.
- Review of the following documents:
 - Fairfield City Council 'Community Safety and Crime Prevention Plan'
 - 'Bonnyrigg Living Communities Project: Social Infrastructure Analysis' (Urbis, October 2007)
 - 'Bonnyrigg Living Communities Project Focus Groups: Incoming Community' (Urbis, October 2007)
 - 'Bonnyrigg Living Communities Project: Updated Demographic Profile' (2006 Census) (Urbis, August 2007)
 - 'Characteristics of the 'Locality' of Development' (Judith Stubbs and Associates, 2007)
 - 'Phase 1 Community Engagement Feedback Report' (Judith Stubbs and Associates, July 2007)
 - 'Phase 2 Community Engagement Feedback Draft Report' (Judith Stubbs and Associates, September 2007)
 - 'Physical Impacts of Redevelopment' (Fragment) 2007 (Judith Stubbs and Associates)

NSW Police were provided with plans and response requested (Constable Elizabeth Roth. See Executive Summary for dates).

The safety audit includes:

- Contextual crime data which identifies the level and type of crime most likely to occur in or around the development.
- Assessment of the function of the proposed development and recommendation of management measures to increase community safety.
- Assessment of the design of the proposed development to identify the type of security measures which will increase community safety.

3.2 Regulation and Assessment Principles

Conduct of a safety audit in the current NSW policy and practice environment involves consideration of the following regulation and assessment principles:

- CPTED principles endorsed by NSW Police.
- Section 79C of the NSW Environmental Planning and Assessment Act, 1979 (EP&A Act), which includes guidelines for the consideration of safety issues in the development approvals process.
- NSW Department of Urban Affairs and Planning: 'Crime Prevention and the Assessment of Development Applications'(2001)

4 Summary of Proposed Estate Renewal

4.1.1 Why redevelop the Estate?

Housing stock and infrastructure located on the site is ageing and has become costly to maintain. The quality of the dwellings has deteriorated and does not cater for the needs of the population as it continues to age as accessibility is poor. Population projections indicate that there will be an increase in the number of older people who require a living environment designed with accessibility in mind. The redevelopment of the Estate provides for an older, less mobile population to live on the site as well as providing for a significant increase in the number of dwellings, mostly privately owned which will attract younger, family demographic. It is also anticipated that the cultural mix of the estate will likely continue.

There is a perception that the laneways and parks are unsafe due to the lack of activity, surveillance and adequate maintenance. This perception is heightened by widespread graffiti, vandalism and littering in these areas. With redesign and upgrading, it is intended that these areas will no longer exist, resulting in an increase of community ownership and therefore safety.

4.1.2 The development proposal

The Estate as a whole

Current plans for redevelopment of the Estate involve completion of 18 stages over a period of 13 years. Development will significantly increase the housing density of the site and change the demography of residents. The Estate currently has 911 dwellings which will be increased to 2332 by 2020. Currently 90% of stock is owned and operated by the Department of Housing. By 2021 it is proposed that 70% of housing stock will be privately owned and 30% will be social housing. The Bonnyrigg Partnerships consortium will assume control of the site including tenancy management and maintenance for the social housing for a period of 30 years. It is important to note that the 86 privately owned dwellings within the land area of the Estate do not form part of the Concept Plan.

In response to current issues identified on the Estate, permeability of the site and passive surveillance opportunities will be increased through opening cul-de-sacs, existing open space redevelopment and a reorientation of houses to face the street. There will be a reduction in overall quantity of open space however the newly upgraded open spaces will include a range of embellishments of a high quality standard to encourage wider use. There will be a mix of facilities catering for people of differing ages, abilities and interests.

Social housing will be scattered throughout the site with no identifiable difference between social and private housing.

Stage One

The Stage One Project Application applies to land generally located in the north eastern corner of the Bonnyrigg Estate. Stage One will involve building 106 dwellings on land currently comprised of 61 public housing dwellings.

The dwelling mix proposed for Stage One of the Estate renewal is shown in Table 1 below.

Table 1 – Stage 1 proposed dwelling mix

Type	Dwellings	Lots	Townhouse/ apartment/ house	No. of Bedrooms	Comments
4 Plex	48	12	Townhouse	2	
				3	
3 Plex	24	8	Apartment	3	Apartments-majority social
			Townhouse	3	
			Townhouse	4	
Duplex	20	10	Apartment	3	
			Townhouse	4	
Houses	14	14	House	4	Detached house
Total	106	44			

Source: Adapted from dwelling mix provided by Becton 14 September 2007.

Bonnyrigg Partnerships have proposed to take a holistic approach to managing the BLCA engaging with relevant staff and agencies. A new multi-purpose centre, which incorporates a community centre, Bonnyrigg Partnerships office and local retail and / or commercial facilities, is proposed for Stage One in the centre of the renewed Estate including the following features:

- Accessible and safe/secure design
- Culturally appropriate public art
- Lockable access to the adjacent park
- Performance space
- BBQ area
- Allotment gardens
- Spill out space
- Garden clinic workshop and storage.

The activities and services provided through the Centre will also assist in building community cohesion and a positive 'neighbourhood feel' identified in the Social Impact Assessment as critically important for the Estate.

5 Literature Review: Housing Estates in Australia and Overseas

In order to further understand current trends and experiences associated with public housing estates in Australia and provide context for the proposed redevelopment and renewal of the Bonnyrigg Estate, it is necessary to review current literature. The literature considered here examines issues associated with public housing estates, mixed tenure estates and the suitability of applying thresholds when considering introducing mixed tenure estates or diluting the concentration of public housing within a defined geographic area. The choices made regarding the tenure 'mix' can have significant impact on the social outcomes, cohesion and life experiences of residents. This is particularly relevant to the possible prevalence and impact of disaffection and crime in the area.

5.1 Background

Housing 'renewal' programs in Australia have largely focused on asset improvement and housing management outcomes rather than social or community outcomes, despite recognition that many of the problems are social in nature (Randolph and Wood, 2004).

The social issues associated with public housing estates have been described as *"local concentration of social disadvantage, welfarism and powerlessness, stigma, poor access to services and facilities, fear, crime, vandalism, depression, alcohol and drug dependency, transience, poverty and unemployment."* (Ruming, 2006).

5.2 Mixed tenure housing

5.2.1 Australian research on mixed tenure housing

There has been a lack of coherent or systematic evaluation of mixed tenure housing in the Australian context (Randolph and Judd 2006, Ruming 2006, Arthurson 2005), due in part to a lack of Federal government interest or involvement in State specific housing programs.

Emergent themes in the Australian literature regarding mixed tenure housing are summarised below;

- There are often difficulties fostering the requisite social contact between public tenants and homeowners to actualise the anticipated benefits of integration (Arthurson 2002)
- It has been suggested that placing residents with different income levels in the same neighbourhood creates tensions rather than cohesion through raising awareness of class differences (Arthurson 2002)
- It is inconclusive as to whether the presence of middle-income homeowners facilitates the provision of additional services to the regeneration area, such as better resourced schools (Arthurson 2002)
- Mixed tenure assumes that high concentrations of public housing and cohesive or inclusive communities are mutually exclusive factors. As Arthurson argues, while there is undoubtedly variation, there is evidence to suggest that in numerous public housing estates a strong and positive sense of community existed prior to regeneration, particularly amongst long-term residents (2002)
- By pursuing objective or quantitative measures of 'whether social mix works', Australian research has not explored the viewpoint of those most affected by social mix policies - the residents of disadvantaged neighbourhoods (Arthurson 2005)
- A South Australian study showed incidences where public tenants who were relocated into 'dispersed' (mixed) communities felt socially isolated due to more obvious class differences emerging between themselves and other residents than had been apparent on the housing estate (Arthurson 2002).

5.2.2 Mixed tenure thresholds

Atkinson suggests that the existing research on mixed tenure and area effects tells us little about what levels of tenurial mix are needed to optimise the effectiveness of these programs. Additionally, the complexity of local social relationships and neighbourhood contexts is '*very unlikely to support the production of such reductive or simplistic associations*' (Atkinson 2007).

There appears to be limited research in the Australian literature regarding mixed tenure thresholds. Arthurson examined two examples of the introduction of thresholds in Queensland and South Australia:

- In the mid 1990s the Queensland Department of Housing stated that the concentration of public housing should not exceed 20% in any one locality (depending on local circumstances).
- In one community the South Australian Housing Trust (SAHT) indicated that it considered 25% to be an acceptable benchmark for concentration of public housing (Arthurson 2002).

The introduction of thresholds saw a drastic reduction in the concentration of public housing in estates, based on the assumption that 'concentration effects' are major problems on estates. It was also assumed that the introduction of home owners (and the displacement of public housing tenants) will assist in forming new improved and better functioning communities.

Arthurson concludes in relation to thresholds that:

"The question arises as to whether it is actually possible for housing authorities to create the envisaged 'inclusive', 'cohesive' and 'sustainable' communities through changing social mix at the neighbourhood level. Indeed, will a community with 20% public housing function any better than one with 90% public housing? In light of the empirical evidence...the housing authorities' underlying rationalisations that thinning out concentrations of impoverished tenants offers a means to reconnect low income tenants to mainstream society are questionable."

(Arthurson 2002: 251-2)

Hence it has been suggested that "*urban renewal programs address some of the physical symptoms of disadvantage but not the underlying causes – the social and economic marginalisation of the populations on these estates*", and that these urban renewal schemes "*improve the place but at the expense of the community*" (Randolph 2000, quoted in Ruming 2006: 13).

5.2.3 Overseas literature on mixed tenure approaches

The Australian experience with mixed tenure housing more strongly reflects the experience in the UK than that in the US (Atkinson 2007, Ruming 2006, Arthurson 2005). The trend in the UK has been to dilute social housing concentrations with owner-occupier housing. The trend in the US has been to assist with mobility out of ghettoised areas, for example through the HOPE VI program introduced by the Clinton administration in 1993.

There has been more systematic research in the UK on mixed tenure housing, with some studies examining the longitudinal benefits over a period of time. Unlike the Australian research, findings from UK research are fairly positive. The UK experience suggests that although social mix in housing does not in and of itself produce social benefits for residents, the large majority of the mixed neighbourhoods reported in recent literature have become broadly successful places to live (Tunstall and Fenton 2006).

English research on three 'matured' mixed tenure communities (created in the 1970s) has found that these areas had escaped the kind of social problems associated with neighbourhoods containing large concentrations of social housing. The researchers concluded that these areas had produced 'ordinary' communities, which could be interpreted as a success in planning terms (Allen et al 2005).

Research findings from the UK are summarised below:

- Local patterns of interaction are strongly affected by the spatial layout of owning and renting. The degree of geographical segregation of tenures is significant in explaining interaction between tenure groups (Jupp 1999).

- Benefits from the mixed tenure structure are that children mixed regardless of their tenure. Mixed tenure was seen to aid kinship networks that supported the settlement of children who might want to live in the same areas as their parents (Allen et al 2005).
- Claims made as to the social benefits of mixed tenure, particularly in relation to the idea that it might enhance social capital or that local owners might act as 'role models', have been exaggerated (Allen et al 2005).
- Mixed tenure did not appear to positively or negatively affect area reputations (Allen et al 2005).

Findings from the recent 'In The Mix' report developed by the UK Housing Corporation, the Joseph Rowntree Foundation and English Partnerships (Tunstall and Fenton 2006) interpret the evidence relating to a number of the purported social benefits of mixed tenure housing:

- *Facilities and services*; local shops, commercial services, welfare and community services are unlikely to become available as a consequence of social mix; rather this is more likely to be the result of specific planning provisions. There is no definitive evidence that social mix improves schools or educational achievement.
- *Employment levels*; mixed communities do not on their own significantly increase employment rates for social tenants and the lower income groups. There is quite strong evidence to show that interaction between residents from different tenures and income groups is limited.
- *Crime and anti-social behaviour*; while there are no crime statistics routinely collated at the neighbourhood level to illustrate shifts in crime or anti-social behaviour, studies of areas where there has been tenure mixing suggest that these changes can contribute to reductions in crime and anti-social behaviour. However tenure changes do not provide a guarantee against crime.
- *Neighbourhood popularity and reputation*; evidence suggests that mixed tenure neighbourhoods do not suffer serious stigmatisation and that they have at least average popularity and resident satisfaction.
- *Perceptions among potential and current residents*; are hard to research and available evidence is contradictory.
- *Optimal level of social mix*; one of the key gaps in English literature is precise information on the level of mix in any dimension that is needed to achieve benefits.

It appears that many of the benefits of mixed communities depend on getting the mix right across several dimensions at once; namely sustaining a market for local facilities and services, enabling a mix of children in an area and its schools, providing role models for behaviour, increasing interaction between people of different groups, avoiding creating fear or prejudice, providing opportunities to change tenure or home type without leaving the neighbourhood, creating a popular, satisfactory living environment (Tunstall and Fenton, 2006).

5.3 Factors to consider in this project

Drawing from the research cited here the following are important for this project to maximise its success: Key to the future success of the project will be the **processes** for its implementation.

- *Ensure the demographic mix (private/public, cultural, socio-demographically, etc) reflects the surrounding community and does not concentrate disadvantage within either the private or public dwellings*
- *Ensure the Estate is adequately serviced (services, facilities, transport and open space) at the conclusion of the development and during the stages of delivery*

- *Ensure the community renewal program continues to provide robust engagement of all the community, with specific attention to developing ownership strategies with the incoming community and specific processes for integrating existing and new residents*
- *Ensure that the public and private dwellings are indistinguishable into the future both regarding placement and approaches to on-going maintenance of the private and public realms*
- *Ensure that crime prevention strategies are part of the community renewal planning into the future.*

6 Socio-demographic Profile of the Bonnyrigg Estate

Two key aspects of the Bonnyrigg Estate demography are considered here. The demographic profile of existing residents is outlined, followed by an analysis of the demography of likely residents subject to the redevelopment proposal and the surrounding areas. It is understood that in excess of one hundred existing public housing residents will voluntarily move from the Bonnyrigg Estate and permanently relocate elsewhere.

6.1 Current residents

The 'Bonnyrigg Living Communities Project: Updated Demographic Profile (2006 Census)' undertaken by Urbis provides a detailed analysis of the demography of the Estate and surrounding areas using 2001 and 2006 Census data. Judith Stubbs and Associates ('JSA') undertook population projections which were included in the Urbis demographic profile where required.

6.1.1 Culture

Using 2006 Census data, the population of the Bonnyrigg Estate is estimated at 2, 899 with 47.3% of those born overseas. The top four main languages spoken other than English on the Estate are:

- Vietnamese (29.1%)
- Khmer (7.3%)
- Arabic (6.5%)
- Chinese languages (5.2%).

Indigenous people make up 5.3% of the Estate population.

6.1.2 Age cohorts

The 2006 Census provides the following information in relation to the age profile of Estate residents. Age cohort data is provided as a percentage of the total Estate population. Those figures in *italics* represent populations in excess of the Sydney Statistical District. The most significant population in excess of the Sydney Statistical District is in the 10-19 years age group. The most significant population below the Sydney Statistical District is the 20-39 year age group.

- | | |
|---------------|-------|
| ▪ 0-9 years | 14.6% |
| ▪ 10-19 years | 22.8% |
| ▪ 20-39 years | 22.2% |
| ▪ 40-54 years | 20.8% |
| ▪ 55+ years | 19.6% |
| ▪ 75+ years | 3.9% |

6.1.3 Income, housing expenditure and tenure

The Urbis demographic profile notes that the average weekly household income on the Estate is \$590 with rent representing 22.5% of household income. The average weekly household income for the Sydney Statistical District is \$1, 417. Residents of the Estate are paying the highest proportion of income on rent of all the surrounding areas. Almost two-fifths of the occupied dwellings on the Estate are semi-detached, row, terrace or townhouse, significantly greater than the LGA and surrounding suburbs. Most homes on the Estate are rented (85.5%).

6.2 Likely incoming community

There will be a significant change from the current composition of housing tenure in the development area upon completion. The public/private housing mix in the BLCA is expected to be made up of:

- Public dwellings : 699
- Private dwellings : 1633
- **Total dwellings : 2332**

Tables 2 and 3 below summarise the population forecasts that have been derived for the Estate by JSA taking account the increased population as a result of the redevelopment. Census forecasts available from Department of Planning do not take into account the additional incoming population as a result of the redevelopment therefore it has been considered more accurate to derive an estimated future population based on a number of assumptions related to the latest dwelling mix and occupancy rates. These assumptions are set out in further detail within the SIA report (JSA).

As shown in Table 3 below the renewed BLCA is expected to have a relatively even spread of population across the age cohorts. As noted in *Characteristics of the 'Locality' of Development (JSA)* however, the BLCA is expected to have a significant increase in people aged 55 and over mainly due to the development of the private retirement village and likely allocation of some public apartments to older tenants. This will have implications regarding the importance of clear and unambiguous signage and dedicated pedestrian pathways to ensure the safety and wellbeing of elderly residents.

Key points in relation to Estate forecasts:

- The population on the Estate itself will increase from approximately **2895** in 2006 to **6032** in 2021, an increase of **3137**, 108%.
- The most significant population increase is projected to occur between 2016 and 2021, as development reaches its final stages, and those who have occupied new homes have families.
- The Estate is likely to have a major increase in people aged 55 and over between 2006 and 2021 (an extra 1,319 or a 240% increase).
- There are also projected significant increases in the number of children aged 0-9 years (265 extra children or a 68% increase). There will be a relative normalisation of the population in relation to the proportion aged 10-19 this is expected to reduce to around 12% by 2021.

Table 2 – Preferred Population Profile to 2021 for Bonnyrigg Estate (public and private housing combined average estimate)

Age	2006		2011		2016		2021		Sydney SD 2021
0-4	6.8%	197	6.6%	199	6.5%	290	6.1%	368	5.9%
5-9	8.2%	236	6.5%	195	6.4%	287	6.0%	360	5.7%
10-14	11.2%	325	6.5%	196	6.4%	288	5.9%	359	5.6%
15-19	11.4%	329	7.1%	214	6.5%	293	6.0%	362	6.0%
20-24	6.7%	195	7.2%	216	6.9%	310	6.2%	372	6.8%
25-29	5.2%	151	7.4%	224	7.0%	316	6.6%	400	7.6%
30-34	4.8%	139	7.0%	211	7.2%	323	6.7%	406	7.7%
35-39	6.0%	173	7.0%	212	6.9%	312	6.8%	408	7.6%
40-44	7.4%	215	7.0%	212	7.0%	316	6.5%	394	7.1%
45-49	6.9%	200	7.3%	219	6.8%	305	6.4%	385	6.9%
50-54	6.6%	192	6.9%	208	6.5%	291	5.9%	356	6.4%
55-59	5.9%	171	5.9%	178	5.9%	266	5.5%	334	5.9%
60-64	4.3%	124	5.2%	156	5.0%	223	4.9%	298	5.2%
65-69	3.0%	87	3.7%	111	5.0%	223	6.4%	385	4.4%
70-74	2.2%	64	3.0%	92	3.5%	158	5.1%	309	4.0%
75-79	1.9%	54	2.4%	71	2.7%	120	3.7%	223	2.9%
80-84	1.1%	31	1.8%	53	1.9%	85	2.6%	157	2.0%
85+	0.4%	12	1.4%	44	1.9%	84	2.6%	156	2.2%
Total		2895		3011		4489		6032	

Source: SIA, Judith Stubbs and Associates, 2007

Table 3 – Projected Age Profile for Bonnyrigg Estate public, private and Sydney SD in 2021

Age	Public Average 2021		Private Average 2021		Sydney SD 2021
0-4	5.8%	132	6.3%	236	5.9%
5-9	5.6%	126	6.2%	234	5.7%
10-14	5.6%	127	6.2%	232	5.6%
15-19	5.9%	133	6.1%	229	6.0%
20-24	6.3%	142	6.2%	231	6.8%
25-29	6.7%	151	6.6%	249	7.6%
30-34	6.5%	147	6.9%	260	7.7%
35-39	6.4%	145	7.0%	262	7.6%
40-44	6.4%	144	6.7%	250	7.1%
45-49	6.5%	148	6.3%	237	6.9%
50-54	6.3%	142	5.7%	214	6.4%
55-59	6.1%	138	5.2%	196	5.9%
60-64	5.7%	129	4.5%	170	5.2%
65-69	6.0%	135	6.5%	244	4.4%
70-74	5.1%	116	5.0%	189	4.0%
75-79	3.7%	84	3.6%	135	2.9%
80-84	2.7%	61	2.5%	93	2.0%
85+	2.7%	61	2.5%	93	2.2%
Total		2259		3753	

Source: SIA, Judith Stubbs and Associates, 2007

7 Community Consultation

Since December 2004, consultation has been extensive with over 100 public sessions, including a series of workshops, attended by over 4,000 people in relation to the proposed redevelopment on the Bonnyrigg Estate. Consultation has also taken place with people who may wish to buy into the development upon completion and with those in neighbouring suburbs. This consultation has covered a broad range of subjects ranging from housing design, proposed price points to experiences of living in the area and future expectations. Much of the results from these consultations have concerned crime and safety issues. Where relevant these have been incorporated into this CPTED assessment. Specific consultation regarding the proposal has taken place with NSW Police.

7.1 Consultation with Local Residents

The University of NSW conducted a resident survey ('Bonnyrigg Baseline Survey', Judith Stubbs, Bill Randolph and Bruce Judd) between April and June 2005 reaching about two thirds of Estate households. This strongly informed the specifications of the Bonnyrigg Living Communities Project, provided a strong basis for the master plan process and continued community consultation.

JSA has conducted an extensive program of community consultation and engagement to inform the concept design of the proposed Bonnyrigg Estate redevelopment and to provide valuable information for them to prepare the Social Impact Assessment. Consultation has been tailored to the specific socio-demographic characteristics of the residents of Bonnyrigg suburb and surrounds in order to ensure maximum participation throughout the process. The consultation process and results have been presented to Bonnyrigg Partnerships and are detailed within 'Phase 1 Community Engagement Feedback Report' and the 'Phase 2 Community Engagement Feedback Draft Report'.

In summary, the consultation methodology included;

- extensive use of Bi-lingual Community Educators (BCEs) in the main seven community languages (English, Vietnamese, Arabic, Khmer, Lao, Spanish, Assyrian)
- 'phone-arounds'
- community information days,
- workshops
- flexible outreach activities.

Extensive consultation results included in the Bonnyrigg Community Engagement Feedback reports and the previous Bonnyrigg Baseline Survey provide the following insights:

7.1.1 Phase 1 Community Engagement Feedback Report (July 2007)

In general positive comments were more likely to have come from those suburbs immediately surrounding the Estate rather than from residents living on the Estate.

Comments of a positive nature related to this CPTED assessment include:

- Support for homes facing the streets with some concern about implications of lowering fences.
- There was support for homes overlooking parks.
- The addition of more parks and removal of alleyways were viewed positively.

CPTED related concerns in the report included:

- Some concern for homes situated near parks.
- Concern that windows and doors must securely lock with good quality materials used to ensure they are not breached.

- Participants think that the increased density may lead to an increase in neighbourhood disputes. These disputes may be the result of a lack of soundproofing and privacy and inability to cooperatively share common features such as rubbish bins and clothes drying areas as many residents are used to living in free standing homes.
- It is important that parks are not accessible to cars to ensure safety of people using the parks and to discourage the dumping of cars in parks.
- The dumping of rubbish and cars was cited as an issue, highlighting the need for adequate grounds cleaning and maintenance regimes.
- The report notes that consultation participants had identified an apparent increase in crime activity on the housing Estate.

7.1.2 Phase 2 Community Engagement Feedback Draft Report (September 2007)

Generally people were positive about the proposed development of the parks and road system.

Of relevance to this CPTED report, concerns may be summarised as follows:

- Uncertainty as to how to ensure the safety of common entrances for proposed 6-plexes, particularly for first floor homes.
- Concern regarding the possibility of 'break and enters' due to shared roof space and access to homes from balconies next door and rear entrances.
- Questions were raised about how parks can be safer than they are now.
- There is an inability to control 'problem neighbours' and needles in play areas.
- Concern that trees and bushes will provide a place for people to hide behind.
- Concern regarding the safety and maintenance of any future public toilets.
- Doubts were expressed regarding the safety of car ports and on-street parking for the cars of residents and visitors.
- It was felt that the area needed security screens on windows and doors of residences.
- The proposed eight metre wide small street at the back of some homes was not viewed positively by many and it was considered a possible location of drug deals with poor surveillance.
- Bonnyrigg young people thought that the creek at the centre of the Estate in the draft conceptual drawings they were shown will 'become a place for drug taking, drinking and rubbish dumping'.
- On the positive side, it was felt that;
- The corrugated metal roofs were good as roof tiling can be removed to gain access to homes.
- The streetscape will be easier for police access.

7.2 Consultation with 'likely incoming community'

Urbis conducted focus group research during July 2007 with the site's likely incoming community detailed in 'Bonnyrigg Living Communities Project Focus Groups: Incoming Community'. Five focus groups were conducted with people likely to purchase into the redevelopment. Participants were selected from characteristics of the likely incoming community as per previous background research ('Preliminary Social Impact Assessment & Mitigation Strategy', JSA). The focus groups held, listed below, concentrated largely on people from culturally and linguistically diverse backgrounds and of different age cohorts and family types:

- Group 1 Vietnamese and Chinese

- Group 2 Arabic
- Group 3 Elderly
- Group 4 Italian and Spanish
- Group 5 Young couples with children (mixed ethnicity).

Participants were shown sketches of preliminary housing designs and asked for their initial reactions (likes and dislikes) and whether they would consider living on the renewed Estate in such housing. The report presents a summary of the key findings under the following headings:

- Housing
- Parking
- Safety and Security
- Open Space and Parks
- Community Facilities.

The key points raised relating to safety and security concerns are as follows:

- The image of the Estate in relation to security and safety
- Proximity to public housing and fears of perceived anti social behaviour arising
- Fears of perceived anti-social behaviour of residents within the 'plex' model of housing
- Fears in relation to open space such as vandalism, car theft
- House burglary
- Lack of activities
- Need for lock up garages
- General security issues, particularly identified as an issue for the elderly
- Need for fencing of properties.

Focus group participants considered that there is currently a lack of recreational activities for older children such as teenagers. Focus group participants believed that this drew young people to petty crime and vandalism to help 'pass the time'.

8 Crime Prevention through Environmental Design (CPTED)

CPTED aims to influence the design of buildings and places by:

- Increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture.
- Increasing the effort required to commit crime by increasing the time, energy or resources which need to be expended.
- Reducing the potential rewards of crime by minimising, removing or concealing 'crime benefits'.
- Removing conditions that create confusion about required norms of behaviour (NSW Department of Urban Affairs and Planning, 2001).

Situational crime prevention involves changing various aspects of the environment so that the efforts and risks required to commit crime are increased, and offender's perceived rewards are reduced. Situational crime prevention is based on the assumption that people commit crimes for rational motives, and that people will only commit a crime when they perceive the benefits outweigh the risks.

Situational crime prevention is more effective for some types of crimes, such as those motivated by greed or opportunistic crimes. Crimes such as vandalism, assault, break and enter, theft, trespassing, and motor vehicle theft tend to be more responsive to situational crime prevention strategies. These are the types of crimes that most commonly occur in public spaces.

CPTED applies knowledge about situational crime prevention to the planning and design stages of buildings and public spaces. Key CPTED principles include:

- **Natural surveillance** – maximising opportunities for passers-by or residents to observe what happens in an area (the 'safety in numbers' concept). This may be achieved through, for instance, the placement of physical features, activities and people.
- **Access control** – control of who enters an area so that unauthorised people are excluded, for instance, via physical barriers such as fences and grills.
- **Territorial reinforcement/ownership** – people are more likely to protect territory they feel they own and have a certain respect for the territory of others. This can be expressed through installation of fences, paving, signs, good maintenance and landscaping.
- **Space management** – ensures that space is appropriately utilised and cared for. Space management strategies include; activity coordination, site cleanliness, rapid repair of vandalism and graffiti, the replacement of burned out lighting and the removal or refurbishment of decayed physical elements.

It is also important to distinguish between '**passive**' security measures (better lighting, enhancing natural surveillance) and '**active**' security (security guards, closed circuit television or CCTV). Effective use of the former can reduce the need and associated cost of the latter.

9 Crime Profile of Fairfield Local Government Area

The crime statistics outlined in this section of the report relate to those crimes that have been recorded by NSW Police, not necessarily all crimes committed in the Fairfield LGA. Levels of crime are sensitive to the willingness or ability of people to report crime, levels and nature of police activity and actual levels of criminal activity. Detailed crime tables are held at Appendix A.

9.1 Perceptions of Crime and Safety for Current Estate Residents

The 'Bonnyrigg Community Engagement Feedback Report (Phase One consultation)' (JSA) noted that a variety of people identified an increase in crimes such as break and enter and theft on the Estate. Many participants felt that an increase in housing density could lead to an increase in the number of safety and security issues such as drug dealing and break and enter. Concerns were raised during the research were:

- poor quality building materials may allow housing to be more easily broken into
- higher densities may lead to increased potential for neighbourhood disputes which may escalate to unsafe levels due to noise intrusion and loss of visual privacy
- easy access to dwellings via adjacent balconies
- natural surveillance may be reduced due to vegetation or building placement.

Safety and security design features of houses were ideally those which ensured:

- backyard surveillance
- street surveillance
- security doors and excellent door and window locks
- vehicle security via lockable garages,
- access from garage to home entry.

The 'Bonnyrigg Community Engagement Feedback Draft Report' noted that a large number of comments from consultations conducted between July to September 2007 (Phase Two) concerned safety and security issues within the Estate. The report notes that approximately one third of those comments were to request increased police presence in the area to deter crime. The planned development was seen as an opportunity to provide increased surveillance and lighting in the area. Increased housing density was again raised a potential cause of concern in the sense that it may ignite neighbourhood conflicts due to increased sharing of communal facilities, noise intrusion and an increase in drug dealing.

As noted in the Safety and Security chapter of the Social Impact Assessment, there is risk of a deteriorating security environment as the demolition and relocations commence and residents may 'disinvest' in their community. Residents may see friends leave and familiar homes demolished as so 'withdraw' emotionally and physically as they await their own relocation. Residents may also wish to avoid the noise, trucks and dust associated with the redevelopment of the Estate. This disinvestment in the community may decrease feelings of safety for themselves and others. Residents may avoid going out of their houses thus contributing to a lack of street activity, casual surveillance and community ownership. Reporting crimes may also decrease.

9.2 Incidence of crime for Bonnyrigg suburb

From information obtained by Fairfield Local Area Command for January 2004-August 2007, the Safety and Security chapter of the *Social Impact Assessment* identified that Bonnyrigg suburb had a much lower rate of crime than the LGA and only significantly exceeded the NSW average for a small number of offences. These offences were:

- Robbery
- Steal from retail store
- Fraud

The following offences were however also above the NSW average:

- Break and enter
- Steal from person
- Sexual offences.

The Safety and Security chapter notes crime trends indicate that between 2005 and 2007 there was a 25% decrease in assault and a doubling of break and enter in the suburb. This high level of break and enter is consistent with concerns raised during consultations with current residents. Some residents had stated that break and enters for their homes had occurred whilst there were people in them at the time. Given this significant level of break and enter occurring in Bonnyrigg, it is especially important in the following chapter to consider the position of windows and doors of the proposed dwellings and the configurations of shared entrances where relevant.

9.3 Reported Offences in Fairfield LGA

Fairfield LGA has very high incidents of reported crime, with significant numbers of crimes well in excess of the NSW average. Particularly high rates of crime in 2006 were reported in the following areas: theft related, violent crime and drug related crime.

The three most reported offences occurring within the Fairfield LGA during 2006 were:

- Malicious damage to property (2040 offences)
- Steal from motor vehicle (1432 offences)
- Break and enter dwelling (1362 offences).

These property offences occur in the public domain and so would be sensitive to the CPTED measures described in Chapter 10 of this report, Detailed Design Assessment.

Measures recommended as a response to crime in the public domain would typically include;

- secure car parking facilities
- passive surveillance
- active surveillance
- anti-graffiti measures
- anti-vandalism measures.

9.3.1 Decrease in the crime rate per 100,000 population for the LGA July 2003-June 2007

There was a decrease in the crime rate for the following offences in Fairfield LGA between July 2003 and June 2007. The following figures in brackets indicate the crime rate per 100, 000 of the population for the LGA during 2006.

Motor vehicle theft (522.4), break and enter-non dwelling (237.5), steal from person (124.1), receiving or handling stolen goods (104.9), robbery with a weapon, not a firearm (66.0), dealing (trafficking in narcotics) (32.0).

9.3.2 Increase in the crime rate per 100, 000 population for the LGA July 2003-June 2007

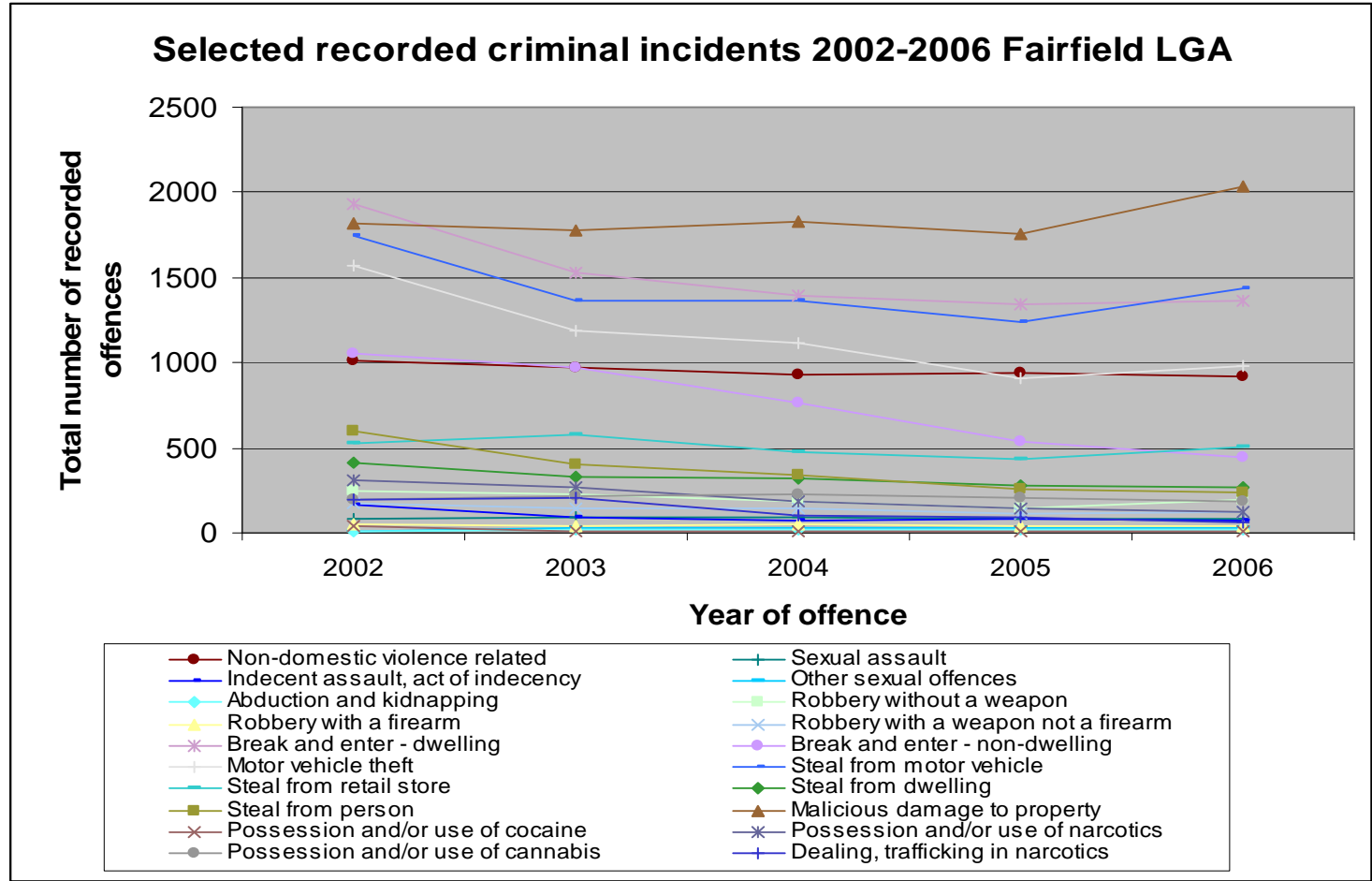
There was an increase in the crime rate for the following offences in Fairfield LGA between July 2003 and June 2007. The following figures in brackets indicate the crime rate per 100, 000 of the population for the LGA during 2006.

Harassment, threatening behaviour and private nuisance (353.1) and offensive language (67.1).

NOTE: All other offences were 'stable' or 'not calculated' for this period.

The number of offences listed above in addition to data represented at Figure 1 on the following page indicates an overall decrease in the crime trend for Fairfield LGA in recent years.

Figure 1 – Selected recorded criminal incidents 2002-2006 Fairfield LGA



Source: NSW Bureau of Crime Statistics Research.

CRIME PROFILE OF FAIRFIELD LOCAL GOVERNMENT AREA

The NSW Bureau of Crime Statistics and Research also publishes crime statistics for NSW. Table 4 below compares the NSW 2006 recorded criminal incidents with those recorded in the Fairfield LGA per type of offence during that year. This selection of offences has been chosen as those most directly related to CPTED issues and would be expected to respond most effectively to the proposed Concept Plan and design recommendations.

Table 4 – 2006 Selected recorded criminal incidents and rates per 100, 000 population Fairfield LGA and NSW

Area	Abduction and kidnapping	Rate per 100, 000 pop.	Sexual offences	Rate per 100, 000 pop.	Malicious damage	Rate per 100, 000 pop.	Robbery	Rate per 100, 000 pop.	Motor Vehicle theft	Rate per 100, 000 pop.	Steal from motor vehicle	Rate per 100, 000 pop.	Steal from retail store	Rate per 100, 000 pop.	Steal from dwelling	Rate per 100, 000 pop.
Fairfield LGA	18	9.6	98	98.0	1086	1086.3	192	191.6	522	522.4	763	762.6	267	267.3	143	142.7
Total NSW	395	5.8	9257	136.6	107995	1594.2	7935	117.2	28304	417.8	57477	848.5	17944	264.9	23956	353.6

Table 4 continued

Area	Assault*	Rate per 100, 000 pop.	Attempted murder	Rate per 100, 000 pop.	Murder	Rate per 100, 000 pop.	Possession and/or use of	Rate per 100, 000 pop.	Possession and/or use of	Rate per 100, 000 pop.	Dealing and trafficking	Rate per 100, 000 pop.	Dealing, trafficking in other drugs	Rate per 100, 000 pop.	Dealing, trafficking in amphetami	Rate per 100, 000 pop.
Fairfield LGA	918	488.8	6	3.2	5	2.7	63	33.5	121	64.4	60	32.0	4	2.1	21	11.2
Total NSW	44760	660.7	62	0.9	90	1.3	1120	16.5	591	8.7	283	4.2	79	1.2	711	10.5

Note:

- Assault is non domestic violence related.
- Robbery includes; robbery without a weapon, robbery with a firearm, robbery with a weapon not a firearm.
- Figures in bold indicate incident rate for Fairfield LGA above the rate for NSW.

Source: NSW Bureau of Crime Statistics and Research

10 Design Assessment

While the original Bonnyrigg Estate design configuration had many issues related to CPTED which needed to be resolved, such as lack of surveillance, a lack of connectivity and permeability of the street layout, we feel these have been addressed. Many of the crimes committed within the current master plan area, such as those most frequently occurring within the LGA (malicious damage to property, steal from motor vehicle and break and enter) were exacerbated by the original layout and poor quality of the environment.

The proposed Concept Plan is a significant improvement on the original design as it has made a deliberate effort to rectify these problems and to provide for a safer and more welcoming environment. Detailed consideration has been given to the design of public space and the street layout to draw people out into the public domain thereby increasing safety, activity, and a sense of community ownership.

In this assessment, we considered areas that required specific attention to ensure maximum safety within the overall development. These were considered in detail to ensure that the combination of design, treatment and security measures maximise public safety.

It should be noted that design is one aspect, which should be considered in establishment of a safe and inviting physical environment. It is stressed that the combination of design and management of an area will determine the level of actual and perceived safety. Good design supports and accommodates good management practices. This assessment therefore considered the design of the BLCA Stage 1 in terms of broad CPTED principles and described management practices which when combined aim to enhance overall safety.

The CPTED principles are:

- Territorial Reinforcement
- Passive Surveillance
- Access control
- Ownership and Space Management.

The assessment has been addressed in light of the following topics for public and private residential dwellings:

- All dwelling types
- Duplex
- 3 Plex
- 4 Plex
- Detached Houses
- Car parking areas
- Windows
- Fencing.

Additional areas considered in this assessment not related to dwelling structure are:

- Open space park layout and landscaping
- Lighting
- Streetscape and layout

- Definition of public and private spaces
- Maintenance of the public domain
- Vacated areas and areas under construction.

10.1 All Dwelling Types

Overall assessment

The design, integration and orientation of all dwelling types will be a significant improvement from the original situation. Homes will have defined addresses which are visible from the street. Homes will front all streets, parks and public spaces which will strongly improve passive surveillance opportunities onto these areas. Homes that front these public areas will do so from habitable rooms where day to day activity occurs such as living rooms and kitchens. This will ensure surveillance over a significant part of the day when inhabitants are most actively walking around their houses and looking out of windows. It is intended that a number of homes will look over each public area which will provide anonymity to anyone reporting a crime as seen from their home.

We note that plans seek to have no distinction between public and private housing which aims to assist in community integration and communication.

Our assessment took into account the design changes made in the final plans to reconfigure dwellings to overcome problems presenting opportunities for crime, by:

- Ensuring that front entrances address the street
- Ensuring that front address alcoves have been largely eliminated
- Ensuring, in most instances, that natural surveillance from first floor windows is maximised
- Redesigning car parking to minimise opportunities for theft of or from vehicles
- Redesigning internal dwelling spaces to lessen opportunities to 'read' dwelling layouts from the street.

Our assessment has included the landscape plans for dwellings, and note that these indicate 1m high plantings along fences in the public domain and 2m high plantings around semi-private spaces.

We note that issues around the potential for ladders to the first floor have been addressed by the types of roofing to be used. We further note that attention to design, (to improve definition of the changes between public, private and semi-private space to avoid confusion and opportunities for loitering around dwellings and to create an appropriate degree of privacy for residents) has occurred.

We note that issues around the type of landscaping to be used have been addressed, to mitigate against opportunities for loitering behind foliage.

We note that the Police are still to provide their response. They will have the final plans referred to them as part of the assessment processes.

We have indicated that other issues around the location of tandem parked cars and utility (bin) areas, could be ameliorated by installation of sensor lighting.

We consider that the following general principles apply to all dwelling types. These principles have been addressed in the dwelling designs.

General principles for all dwellings types:

- Planting any medium height or dense foliage should be avoided, including planter boxes of heights which would obscure a person hiding behind them.

General principles for all dwellings types:

- Bars on windows and doors should be discouraged, however if they are used they must not make the neighbourhood look unsafe. These should look as unobtrusive and integrated into the design of the building as possible.
- Paths from car parking areas to main dwelling entrances need to be well lit and not obscured by vegetation.
- Living areas should overlook car parking areas for surveillance.
- All dwellings should have adequate lighting for a person to safely pass through external areas.
- Break and enter rates on the Estate are high. Measures to specifically to address this concern include:
 - Use of roof materials to mitigate against unauthorised entry to upper levels of a dwelling
 - Ensuring first floor windows are of a height to prevent easy access of this nature and consideration should be given during the assessment process to use of suitable materials.
 - Front doors should be positioned to ensure maximum surveillance from the street and to minimise possibilities for concealment.
 - Clear sightlines should be maintained to and from the street.
 - Car parking should not obscure views of front door from the street. However, it is acknowledged that tandem parking occurs in the proposed design. Installation of sensor lighting is a mitigation measure to address this concern.
 - Installation of sensor lighting should be considered where there is a side entry, alcove or storage bins adjacent to an entry area, to mitigate against the potential for loitering.
 - External lighting must be vandal resistant.
 - Strong materials and locks should be used which cannot be forced or breached.
 - Enduring and strong materials should be used to minimise maintenance requirements.
 - Building materials, structures and vegetation should not be available to be used as ladders for unauthorised access opportunities. Landscaping must not conceal entry/exits.
 - Entry/exits and garbage bin areas must be well lit and bin areas located so as not to provide ladders to upstairs windows.

10.2 Car parking areas for dwellings

As noted in the Social Impact Assessment, theft of or from a vehicle in Bonnyrigg is at or below the NSW average. Car parking areas should, however, be well supervised without blocking critical view lines to and from a dwelling. Clustered car parking should have sensor lighting included.

10.3 Car parking in the public domain

The issue of achieving safer and more secure parking, and hence opportunities for break-ins to cars, have been addressed in a number of ways in the design process. Car parking has been limited in the Town Centre to encourage walking, cycling and use of public transport. Local collector roads will have

11 metre wide carriageways with provision for on-street parking on both sides. Small streets have been designed with parking on one side only, with sight lines to achieve passive surveillance from the first storey of adjacent dwellings.

10.4 Windows

The following are general statements of principle regarding the placement and characteristics of dwelling windows.

- Window frames should be made from strong materials which are difficult to breach.
- Windows should provide surveillance to adjoining public areas and where possible should not be out of view from street.
- Windows should not provide someone outside a dwelling the opportunity to see across a majority of internal rooms and thus understand the layout of the home.
- Upper level windows should not be placed alongside structures which could be used as external ladders such as boundary fences or first floor rooves. Consideration should be given, at the assessment stage, as to the type of materials used.

10.5 Fencing

The following are general statements of principle regarding fencing.

- Front fences for dwellings should be visually permeable and provide residents with confidence regarding the separation of the public sphere with their gardens and dwellings. Fencing made of metal poles painted in dark colours is recommended to optimise visibility.
- Mail boxes identifying street number should be clearly seen from street.
- Fencing used to screen service areas such as garbage bays and clothes lines should not provide opportunities for entrapment and lack of surveillance from other areas.

10.6 Lighting

The Lighting Strategy notes that in relation to safety, most visual tasks are more complicated than finding one's way. It notes that users need to be able to do this safely, to avoid potential hazards and ensure the safety of other users of the space. It indicates that lighting needs to be available for drivers to be aware of the road and pedestrians, but that it also has a part to play in security, so that people feel they can be seen and their sense of personal security increased. Similarly, the risk to a potential criminal of observation is increased. Hence lighting in the vertical plane is required so that people and facial features can be determined.

The Lighting Strategy notes that while there are no specific lighting standards or requirements for general park lighting, park areas deemed to be high-risk areas should be lit to a low level to discourage anti-social behaviour. Similarly, selected features such as BBQ areas will be lit to a low level to discourage anti-social behaviour at night.

Further specific comments about lighting in parks, open space and streets are provided below.

10.7 Open Space Park Layout and Landscaping

The following measures are recommended as general comments followed by comments specific to Lower Valley Creek- Sports Park Concept Plan and Middle Valley Creek – Community Centre Park Concept Plan as provided through the *Draft Open Space Plan*.

The Radburn design with its separation of vehicular and pedestrian modes is to be changed in favour of a safer and more active environment. Open space currently provides an opportunity for criminal and anti-social behaviour to occur with little chance of surveillance or capture. Parks and public spaces are commonly unlit and poorly maintained. This leads to the perception that these areas are unsafe and so are not well used.

The open space layout will be transformed to a better used and safer environment providing connection across the BLCA for pedestrians and cyclists. The master plan provides for seven new public parks designed for multiple, simultaneous uses. All areas of the BLCA will have access to the new public parks and houses adjacent to them will be given street addresses. Parks will be well lit with surveillance from passing street traffic as well as surrounding houses. This surveillance is facilitated by increased housing density and orientation towards the parkland.

The objectives and principles of the Draft Open Space Plan have given considerable attention to CPTED principles with clear sight lines and opportunities for surveillance, multiple uses and clear cues for expected behaviour. Examples of shade structures and the amenities block shown provide examples of facilities which are consistent with the CPTED principles.

The master plan intends to reinstate a creek line along the length of the new valley park. There were concerns amongst young people consulted by JSA, *Phase 2 Community Engagement Feedback Draft Report* that this inclusion would be the site of drug dealing, drinking and rubbish dumping. It is noted here that incidents of reported drug dealing (such as trafficking in narcotics) had decreased in the LGA between July 2003 and June 2007. Consultations had also found that needles and other dangerous items had been found in children's play areas which influence parents' decision as to whether to use these facilities.

In general:

- Landscaping should not conceal entry/exits to open space.
- Clearly demarcated entries/exits and borders of the parks and open space will promote a sense of community ownership and access control.
- Paths should not lead people into areas that may be dead ends, areas of entrapment or which may cause directional confusion.
- Lighting in the public domain should generally be kept to main roads and access ways. Areas requiring high luminance (around activities) should be well lit. Where there are potential areas for vandalism, crime or antisocial activity in the public domain there should be no, or very dim lighting.
- Lighting should allow for facial recognition within 15 metres.
- Lighting should not be obscured by vegetation.
- Lighting should comply with AS1158/1680. It should also be vandal resistant.
- Lighting should be positioned to adequately illuminate all seating areas.
- Planting of any medium height or dense foliage should be avoided as should planter boxes of heights which would obscure a person hiding behind them.
- Trees, especially along the creek line, are to have clear trunk lines to a height of two metres.
- Where possible clear sightlines should be maintained.
- Rapid removal graffiti policy and procedures should be implemented to ensure graffiti removed within 24 hours of it being reported.
- Parks and open space areas should be well maintained and have rubbish bins which are regularly emptied.
- Pedestrian crossings should be provided at various points for all parks and open spaces.

- Parks and open space should be designed to inhibit the entry of private vehicles.
- Design elements should be used which discourage congregation of groups and anti-social or criminal activities such as malicious damage to property and public drinking. Elements could include stainless steel inserts or similar in public furniture, sprinkler systems set for night time use and designated alcohol free zones in areas of potential public congregation. These could also be public art installations which encourage ownership and pride.
- A variety of activities available to people of all ages should be provided in public areas. This will encourage increased public activity and a decrease in boredom of young people which may lead to malicious damage, public drinking or other criminal or anti-social activities.
- Children's playgrounds should be fenced with seating available nearby for parents/carers ensuring clear sight lines to play area.
- All toilets in parks and open spaces should be locked at night.
- Furniture should be made from low maintenance, vandal resistant design and materials.
- Shade and shelter structures should not hinder sight lines and should be sited in open areas able to be viewed clearly by others at a distance.

The following comments are specific to the parks identified in Stage 1.

Lower Valley Creek- Sports Park Concept Plan

- Sporting fields are often areas of informal and night time congregation. Seating adjacent to the soccer and mini soccer fields should have design features included which deter skate boarding such as metal inserts and extra arm rests.
- Lighting of soccer fields and car parking area should be investigated.
- Seating adjacent to the civic space close to the retirement precinct should have design features included which deter skate boarding such as metal inserts and extra arm rests. This will assist older people to feel comfortable using this space and generate a sense of ownership by them.
- Civic space should be well lit 24 hours a day.
- Any potential art feature should not have aspects to it which could become places for concealment.
- Any structural or decorative walls associated with the detention pond should not be of a height where someone could hide behind.
- Pedestrian paths should be well-designed to funnel people onto bridges. Person about to commence walking onto a bridge must be able to clearly see the other end of the bridge.

Middle Valley Creek – Community Centre Park Concept Plan

- Pedestrian paths should be well-designed to funnel people onto bridges. Person about to commence walking onto a bridge must be able to clearly see the other end of the bridge.
- A secure shed should be available to be used to lock up nursery tools at night and holidays. The nursery should have 1.8 metre fence surrounding it.
- Car parks in park area must be able to be secured at night time such as with bollards which are removable with a key.

The Bonnyrigg Community Centre assessment is subject to a separate design brief, however general comments include:

- All windows should have shatter proof glass
- The external face of the multi-purpose centre and adjacent areas should be lit 24 hours a day.

We have noted that the landscape plans for Valley Park include sections which provide effective indications of proposed plantings along pathways, treatments, finishes and indicative entry signage. Initial indications are that the design has addressed issues about establishing sight lines, appropriate planting and use of durable finishes. We note that the design of pedestrian bridge crossings may provide a safety challenge for further consideration (ie so that the underside of the culvert does not become a concealment space).

10.8 Streetscape and Layout

Current low levels of connectivity within the street network and the separation of pedestrian and vehicular activities have created an environment which provides many opportunities for concealment and easy escape for offenders, particularly when alluding police pursuit. Houses are turned away from pedestrian paths as they are deemed unsafe. The main entry point for homes is through the back via the vehicular entrance. These back entry points often have high timber fences which have graffiti or appear to have deteriorated with age. Houses in the many cul-de-sacs have these high timber fences which provide little or no surveillance or connection to the street and promote feelings of unsafeness and threat. Way finding and orientation were difficult during a site visit which would cause difficulties for those unfamiliar to the area or to emergency services trying to access the area such as police.

The master plan will address these issues through an integrated pedestrian, cycle, public transport and vehicle network which will traverse the streets and parks of the BLCA, thus reducing the reliance on private vehicles and promoting use of the paths and parks. This network will effectively connect the two halves of the master plan area which are currently separated. Opportunities for escape and concealment will be replaced by better connectivity and sightlines. As the road network is opened up with through roads, we identify that there may be a need for increased traffic calming measures to decrease the potential for speeding and increase the safety of pedestrians.

In response to these concerns, it is understood that the traffic report indicates that, compared to the existing road layout, the proposed road network provides more connections to the surrounding regional road network. Accessibility is therefore increased and efficiency of the road network improved as local traffic is more evenly distributed across the internal road network. In particular terms, local access will improve to the development via Bunker Parade, Link Road and Tarlington Parade. Local access and drop-off and pick-up facilities to Bonnyrigg Primary School will remain on Tarlington Parade and detailed internal road network design will encourage slow speeds to facilitate increased pedestrian and cycle activity and discourage through traffic and minimise traffic on sensitive road frontages. No changes are proposed to existing drop-off and pick-up facilities at schools or community centres.

While there have been general concerns expressed about small streets, these can, to a large extent, be overcome by establishment of good sight lines and natural surveillance.

In general:

- Paths should not lead people into areas that may be dead ends, areas of entrapment or which may cause directional confusion.
- Lighting should generally be kept to main roads and access ways. Areas requiring high luminence (around activities) should be well lit.
- Where it is located, lighting should allow for facial recognition within 15 metres.
- Lighting should not be obscured by vegetation.
- Lighting and furniture (including bus shelters) should be made from vandal resistant design and materials eg metal and shatter proof glass.
- Lighting should be provided along frontages to direct pedestrian traffic along main roads at night to allow for adequate vision.
- Planting any medium height or medium dense foliage should be avoided, as should planter boxes of heights which would obscure a person hiding behind them.

- Where possible, clear sightlines should be maintained, particularly in any cul-de-sacs.
- Cul-de-sacs should to be replaced by through streets wherever possible.
- Parks should have adequate rubbish bins.
- Clear and unambiguous signage should be used in all areas of the public domain.
- Dedicated pedestrian pathways should be in all parks and areas of open space in addition to running alongside streets.

10.9 Definition of Public and Private Spaces

Attention has been given to the importance of providing physical cues to alert people to transitions from public semi-public and private spaces to assist with access control and territorial reinforcement such as attention to landscaping and fencing.

Definition and ease of 'way finding' is an important element of influencing and controlling the movement of people toward the most appropriate and safe route. It also assists in defining the preferred use of a space. This is a key design element present in the parks included in Stage 1 as care has been taken to funnel pedestrians along a formal, determined well lit path thereby increasing the possibility of surveillance and the 'safety in numbers' concept.

We suggest:

- To avoid any confusion and excuse making, there should be no ambiguity as to who owns and is responsible for an area whether it be public, semi-private or private. Reference should be made to the landscaping and fencing plans..
- Clear transitions from public to private areas are essential. When the behaviour expected in each of these areas is clearly understood and signed then residents will feel increased confidence in moving from one area to the next.

10.10 Maintenance of the Public Domain

The Spotless Group will be responsible for all facilities maintenance, all social housing, agreed public areas and facilities within the BLCA. A maintenance program should be endorsed with clear responsibilities identified to ensure the clean and well kept nature of the public domain. This will lead to a sense of community ownership and increase levels of public usage. This will in turn increase perceived and real feelings of safety in the public domain.

We suggest:

- There should be no ambiguity as to who is responsible for the care of all areas within the BLCA. Rapid removal graffiti policy and procedures should be implemented to ensure graffiti is removed within 24 hours of it being reported across all public domain areas in the BLCA.
- Public toilets, especially those in parks should be lockable at night, well maintained and lit.
- Lighting must comply with AS1158/1680. It should be vandal resistant.
- Broken or burnt out lighting should be fixed within 24 hours of notification.
- Parks and open space areas should well maintained.
- A Public Domain Maintenance Plan should be prepared and made available. It should include frequency and responsibility for maintaining and cleaning parks, nature strips and open space areas.
- Incident management strategies should be in place and publicly promoted and available including identifying when it is necessary to call the police and who should be responsible. This could be

done via letter box drop in the area. These strategies could include a quick response number that residents may call.

10.11 Vacated areas and areas under construction

Construction on the BLCA is expected to continue over a period of 12 years with construction planned to be complete by 2021. Whilst this design assessment considers the proposed development plans in relation to Stage 1 of the proposed redevelopment, it is important that during the demolition and construction periods the following recommendations are adhered to so as to ensure the safety and security of those living and working on site. The following principles may be suitable for inclusion in the Environmental and Construction Management Plan:

- Equipment should be stored so that it cannot be used for criminal activities such as vandalism, during assault, break and enter or as opportunities for concealment. This may be done by storing equipment behind 1.8 metre high fence or inside a secure and robust shed.
- As much as possible, storage of equipment and construction should not lead to loss of casual surveillance opportunities within the public domain.
- Vacant buildings or those under construction should be sealed with 1.8 metre fencing so that they are not used for illegal purposes such as vandalism, assault or drug dealing.
- Night security patrols to vacated areas and surrounds should be provided.
- Appropriate lighting to vacated areas should be provided.
- The use of night security guards to patrol vacated areas should be considered.

11 Conclusion

This report has considered the proposed development in relation to CPTED principles and practice, available policy and literature, crime data and stakeholder interviews. To improve safety outcomes for the users of the proposed development, comments or suggestions have been provided where appropriate.

The consideration and adoption of these comments will improve the perception of safety and minimise the incidence of crime at the development and within its immediate vicinity. The proposed development will generate more activity and ownership in the master plan area.

Following the development of security and management practices, which further reduce the incidence of crime within the development; these will need to be considered.

The literature identified in Chapter Four of the report shows that benchmarks/thresholds with mixed tenure housing diluting public housing estates does not necessarily work when the relocations are forced because of a lack of community. This should not be the case due to the voluntary nature of the relocations as current residents of the Bonnyrigg Estate have indicated that they would like to live elsewhere.

Urban renewal programs must seek to address more than the built form issues so that they can successfully work with social and economic disadvantage and isolation. Without this comprehensive approach to the urban renewal program the Estate may see the rise of crime and safety concerns in the future.

The incorporation of the comments and general principles included in this report into the design would ensure that the proposed development does not become attractive to perpetrators of crimes.

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Appendix A Detailed crime tables.