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1.0 Introduction

This report supports a State Significant Development Application (SSDA) for Stage 2 of the Ivanhoe Estate redevelopment, a State Significant Development (SSD) submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It has been prepared for Frasers Property Australia on behalf of NSW Land and Housing Corporation (NSW LAHC).

1.1 Crime Prevention Through Environmental Design

This Crime Prevention Through Environmental Design (CPTED) Assessment has been undertaken to assess the potential opportunities for crime and the perceived fear of crime that may be associated with the proposed development at Ivanhoe Estate, Macquarie Park as envisaged in the Environmental Impact Statement to which this report is appended.

CPTED is a situational crime prevention strategy that focuses on the design, planning and structure of the environment. This assessment aims to identify the potential opportunities for crime created by the proposed development by assessing the development in accordance with design and place management principles of CPTED.

Ethos Urban has prepared this assessment in accordance with the methods and resources of the NSW Police Force Safer by Design Course. This assessment has been prepared and reviewed by experienced CPTED professionals, following their completion of the NSW Police Force Safer by Design Course. The assessment uses qualitative and quantitative measures to analyse the physical and social environment in which the proposed development is located, and recommends actions to mitigate crime opportunity in accordance with the Australian and New Zealand Risk Management Standard AS/NZS 31000:2009.

In accordance with the NSW Department of Planning and Environment's guidelines (2001), the aim of the CPTED strategy is 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 a 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'; and
- removing conditions that create confusion about required norms of behaviour.

Architectural drawings prepared by Cox Architecture, Fox Johnston and Chrofi, and landscape drawings prepared by McGregor Coxall have been reviewed as part of this assessment. The following tasks were undertaken in the preparation of this assessment:

- review of the *Safer By Design Manual* by the NSW Police Force;
- collection and analysis of local and NSW state crime statistics from the Bureau of Crime Statistics and Research (BOCSAR); and
- a crime risk assessment, in accordance with the current NSW policy and practice.

A site inspection was undertaken on the 27 May 2021 between the hours 11.00am and 1.00pm to assess the current site conditions, situational crime prevention measures and perceived safety of the existing environment.

1.2 Disclaimer

CPTED strategies must work in conjunction with other crime prevention strategies and police operations. By using the recommendations contained in this assessment, it must be acknowledged that:

- there is no definitive measure of 'safety'. Therefore, this assessment cannot be used as proof of a definitive measure of safety.
- this assessment does not ensure complete safety for the community, and public and private property.
- assessment and recommendations are informed by information provided, with observations made at the time the assessment was prepared.
- this assessment does not guarantee that all risks have been identified, or that the area assessed will be free from criminal activity if recommendations are followed.
- this assessment has been undertaken on behalf of the applicant and does not represent the opinions and expertise of the NSW Police Force.

The principles of CPTED aim to minimise the opportunity for crime, but it is recognised that environmental design cannot definitively eliminate opportunities for crime, or prevent a determined perpetrator from committing such crimes.

1.3 Project Background – redevelopment of Ivanhoe

In September 2015 the Ivanhoe Estate was rezoned by the Department of Planning and Environment as part of the Macquarie University Station (Herring Road) Priority Precinct to transform the area into a vibrant centre that maximises the available transport infrastructure and the precinct's proximity to jobs, retail and education opportunities within the Macquarie Park corridor.

The Ivanhoe Estate is currently owned by NSW LAHC and previously comprised 259 social housing dwellings that has since been demolished. In 2015, NSW LAHC launched the 'Communities Plus' program – a development program to deliver 23,000 new and replacement social housing dwellings, through the redevelopment of existing land, of which Ivanhoe Estate is a key site. 'Communities Plus' seeks to deliver new communities with good access to transport, employment, improved facilities, and open space. Development delivered under Communities Plus is mixed-tenure – that is, a mix of both social and market housing. This mix serves two purposes:

- to deliver truly integrated communities and avoiding the concentration of large amounts of social housing, and
- to offset the cost of delivering new social housing.

In August 2017 Frasers Property Australia, on behalf of LAHC, was announced as the successful proponent to develop the site.

1.3.1 Ivanhoe Estate Concept Masterplan (SSD 8707)

Consent was granted by the Minister for Planning and Public Spaces on 30 April 2020 for the Ivanhoe Estate Concept Masterplan (SSD-8707), which established the overall planning and assessment framework for the staged redevelopment of the Ivanhoe Estate. The approved Masterplan comprises:

- A mixed use development involving a maximum of GFA of 268,000m², including:
 - residential flat buildings comprising private, social and affordable housing (approximately 3,300 dwellings including 950 social and 128 affordable dwellings);
 - seniors housing comprising a residential care facility and self-contained dwellings;
 - a new primary school;
 - childcare centres;
 - retail; and
 - community uses;
- Maximum building heights and GFA for each development block;
- Public domain landscape concept, including parks, streets and pedestrian connections;
- Establishment of the Ivanhoe Estate Design Guidelines and Design Excellence Strategy to guide the detailed design of the future buildings;

- Vehicular and intersection upgrades, and pedestrian access improvements; and
- The removal of all required trees on the site, and system for the purchase and retirement of biodiversity offsets.

The approved Masterplan envisages that the site is to be redeveloped in stages over a 10-15 year period. The approved staging plan is shown in **Figure 1** below, with the Stage 2 area highlighted in red.

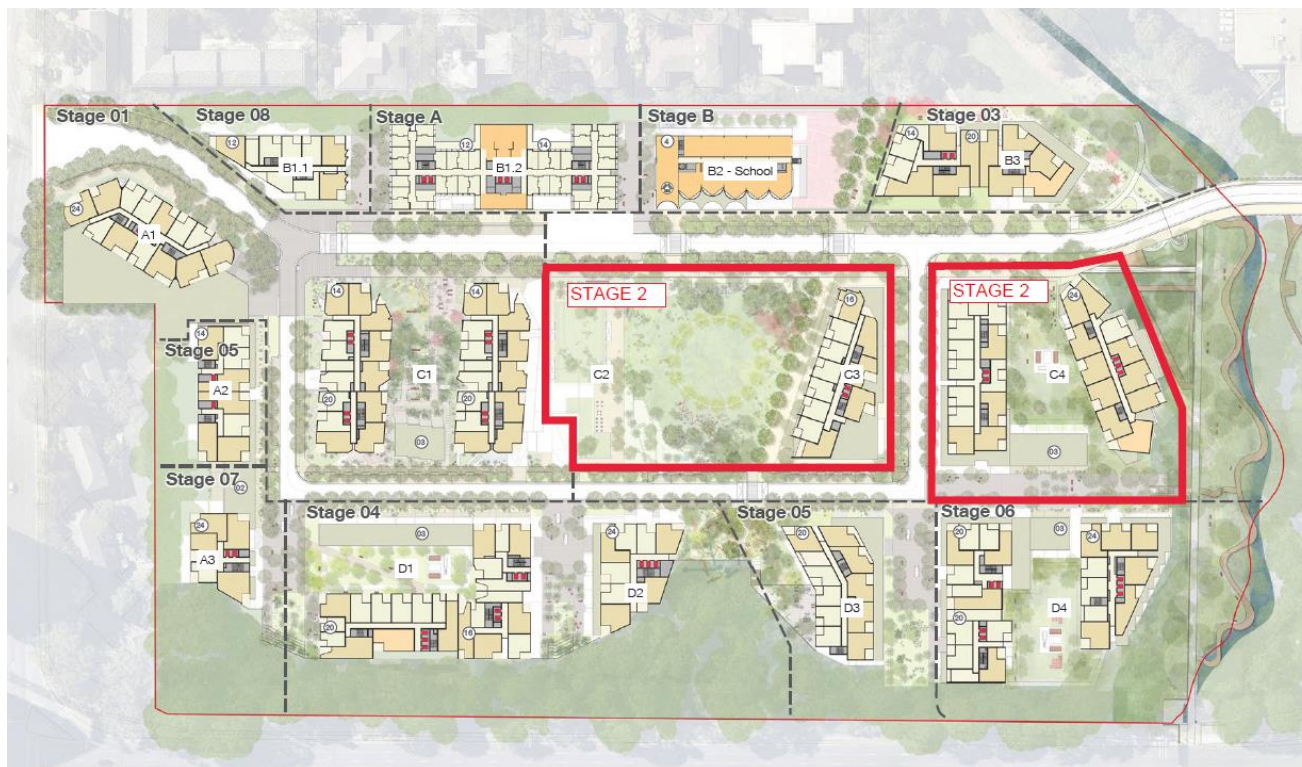


Figure 1 Ivanhoe Concept Masterplan staging plan, with the Stage 2 area highlighted

Source: Bates Smart, edits by Ethos Urban

1.3.2 Ivanhoe Estate detailed design Stage 1 (SSD 8903)

On 30 April 2020, the Minister granted consent to the first stage of physical works on the site, known as Stage 1, pursuant to the Masterplan. In addition to the construction of Buildings A1 and C1, Stage 1 also incorporated site preparation and serving works across the entirety of the Ivanhoe Estate. SSD 8903 sought approval for site preparation works, provision of utilities, construction of internal roads and of Buildings A1 and C1.

2.0 The Site

2.1 Site location and context

The Ivanhoe Estate (the Estate) is located at the eastern corner of the Epping Road and Herring Road intersection (the site). Located in the suburb of Macquarie Park and the Ryde Local Government Area (LGA) the Estate is approximately 500m south-west of Macquarie Shopping Centre and Macquarie University Station (**Figure 2**). Ivanhoe Estate is approximately 8.2 hectares in area and encompasses 17 lots. The Masterplan site also incorporates adjoining land, being a portion of Shrimptons Creek and 2-4 Lyonpark Road.

The specific sites subject to this SSDA and CPTED assessment are known as C2, C3 and C4 which are all located centrally within the Ivanhoe Estate, as previously identified in **Figure 1**.

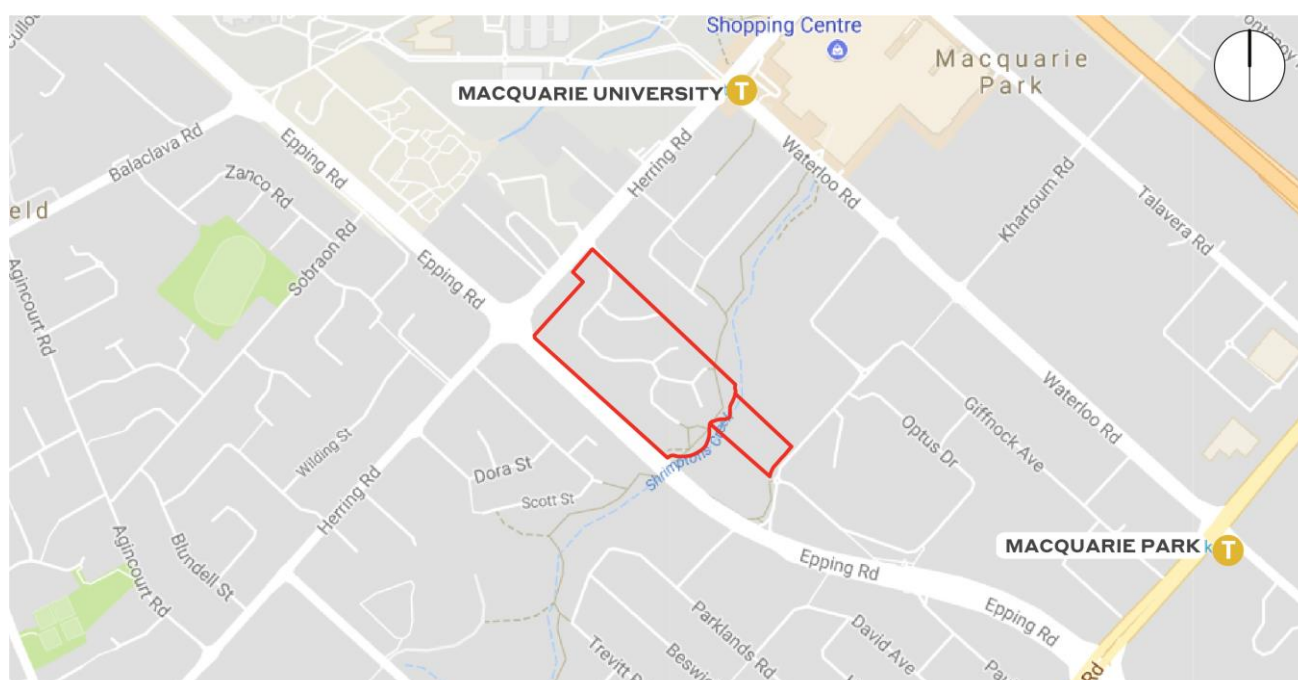


Figure 2 Location map of the Ivanhoe Masterplan site (outlined in red)

Source: Google, Ethos Urban

2.2 Existing site conditions

Existing site conditions on the C2, C3 and C4 sites consists of vacant excavated land that has been subject to previous early site demolition works. The C2, C3 and C4 sites consists of a cleared landscape with no current development on site. Currently, the site is surrounded by hoarding structures and access is restricted to private construction personnel and vehicles only. Refer to **Figures 3 to 6**.

The broader Ivanhoe Estate also includes significant vegetation along its south-east and south-west boundaries.

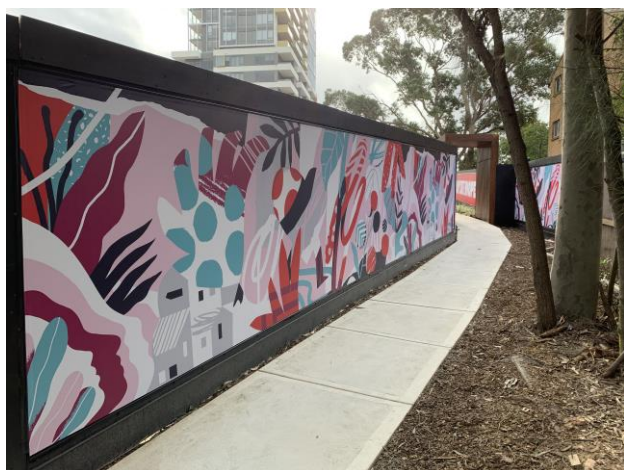


Figure 3 Existing site conditions

Source: Frasers Property Australia



Figure 4 Existing site conditions

Source: Frasers Property Australia



Figure 5 Existing site conditions

Source: Frasers Property Australia



Figure 6 Existing site conditions

Source: Frasers Property Australia

2.3 Surrounding Development

Ivanhoe Estate is located within the Macquarie University Station Precinct, with surrounding development predominantly including residential and commercial uses. Located between the Estate's north-west frontage and Herring Road is a smaller site which currently comprise a series of existing residential flat buildings. Immediately north-east of the site are various medium density residential apartment buildings of approximately four-storeys in height.

South-east of the site are multiple commercial office buildings ranging from 1-10 storeys, consistent with the business park typology of Macquarie Park. South-west of the site are low-density residential development of a detached dwelling typology. Further north of the site are high-density residential apartment buildings, Macquarie University and Macquarie Shopping Centre, east of the Site are commercial buildings of Macquarie Park. The riparian lands that surround Shrimptons Creek that are located along the Estate's south-east boundary, continue in a north and south direction. The surrounding context is illustrated in **Figures 12 to Figure 15**.

2.4 Risk Assessment of Existing Site

A risk assessment of the Site in its existing context and form has been undertaken. Overall, the Crime Risk Rating is considered 'low'. The reasons for this are:

- The site's location is within an existing urban area;

- Existing activity on the site as a result of site preparation works involving ongoing construction activity that is afforded to authorised personnel only; and
- The site is currently secured by fortified hoarding structures with few access points granted to authorised personnel only.

3.0 The Proposed Development

3.1 Secretary's Environmental Assessment Requirements (SEARs)

On 6 April 2021, in accordance with section 4.39 of the EP&A Act, the Secretary of the DPIE issued the SEARs for the project (SSD-15822622). Key issue 3 requires the following:

- *address how Crime Prevention through Environmental Design (CPTED) principles are to be integrated into the development*

Accordingly, this CPTED assessment responds to key issue 3 in support of the EIS for the SSDA. A copy of the issued Secretary's Environmental Assessment Requirements (SEARs) is found at **Appendix C**, part of the SSDA supporting documentation package.

3.2 Proposal Description

The EIS to which this CPTED report is appended is submitted to the DPIE in support of an SSDA for Stage 2 of the Ivanhoe Estate Redevelopment specific to sites C2, C3 and C4 of the Ivanhoe Estate Masterplan. A comprehensive description of the proposed development is included within the EIS to which this assessment is appended.

In accordance with Section 4.42 of the EP&A Act and the Ivanhoe Estate Master Plan, this Stage 2 SSDA seeks approval for the following development:

- The detailed design, construction, and operation of:
 - Site C2 composing the community centre, pool, gym and Village Green central open space area;
 - Site C3 comprising a 17-storey mixed use building with approximately 170 market housing residential apartments and ground floor retail uses; and
 - Site C4 comprising a 24-storey building with 268 market apartments, with 4 x 3-storey market townhouses and a 17-storey building comprising 216 social housing apartments.
- Excavation of basements for Buildings C3 and C4, and detailed earthworks to achieve the required levels for the community centre and Village Green.
- New driveways and public domain areas to tie-into the approved internal road network and road reserves.

Architectural plans and associated design report prepared by Cox Architecture, Chrofi and Fox Johnston, and landscape plans prepared by McGregor Coxall are included within the SSDA submission, to which this assessment is appended.

4.0 Nature of Recorded Crime

Crime statistics obtained from the NSW Bureau of Crime Statistics and Research (BOCSAR) represent criminal incidents recorded by NSW Police. A review of the local statistics for 2019 / 2020 found that the most commonly occurring crimes relevant to CPTED within suburb of Macquarie Park were:

- Assault – domestic assault
- Assault – non-domestic assault
- Break and enter of dwelling
- Break and enter of non-dwelling
- Malicious Damage to Property
- Motor vehicle theft
- Steal from Dwelling
- Steal from motor vehicle
- Steal from person

The frequency of the above crimes in the suburb of Macquarie Park, between January 2017 and December 2020 are detailed in **Table 1** below.

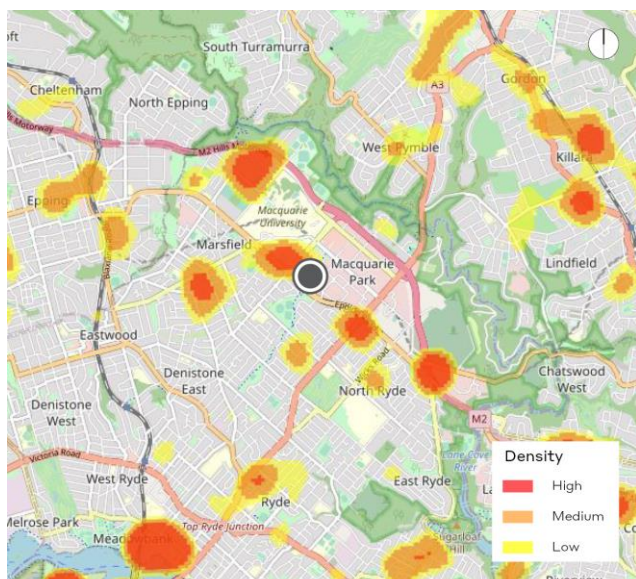
Table 1 Statistics of recorded crime in Macquarie Park (suburb) between 2017 and 2020

Crime	Incidents 2017	Rate per 100,000 persons	Incidents 2018	Rate per 100,000 persons	Incidents 2019	Rate per 100,000 persons	Incidents 2020	Rate per 100,000 persons	2017-2020 Trend	Rate per 100,000 Category
Assault – non-domestic violence related	36	143.0	41	457.6	34	344.2	31	313.8	Stable	Low
Assault –domestic violence related	9	103.3	9	100.5	28	283.4	33	334.0	Stable	Low
Break and enter – dwelling	35	401.6	26	290.2	11	111.3	13	131.6	Stable	Very low
Break and enter – non-dwelling	16	183.6	20	223.2	17	172.1	10	101.2	Stable	Low
Steal from motor vehicle	32	367.1	26	290.2	42	425.1	21	212.6	Decline (16.7%)	Low
Steal from retail store	296	3396.1	171	1908.7	229	2318.0	179	1811.9	Stable	High
Steal from dwelling	12	137.7	21	234.4	21	212.6	36	364.4	Stable	Low
Steal from person	13	149.2	16	178.6	11	111.3	4	40.5	Stable	Very low
Malicious damage to property	68	780.2	33	368.3	62	627.6	61	617.5	Stable	Moderate

As illustrated in **Figures 7 to Figure 15**, The BOCSAR database indicates that the site is located within close proximity of a crime 'hotspot' for the following crimes relevant to CPTED.

- Assault – non-domestic violence related
- Assault – domestic violence related
- Break and enter of dwelling
- Break and enter of non-dwelling
- Malicious damage to property
- Motor vehicle theft

- Steal from dwelling
- Steal from person
- Steal from motor vehicle

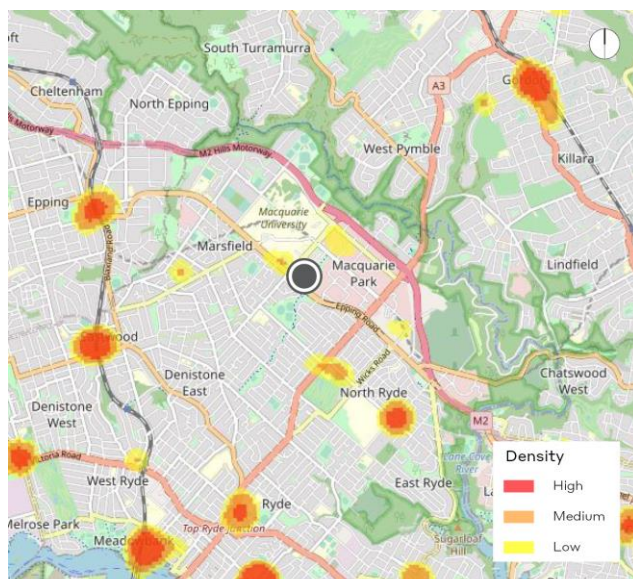


● The Site

Break and enter dwelling

Figure 7 Hotspot - break and enter dwelling

Source: BOSCAR / Ethos Urban

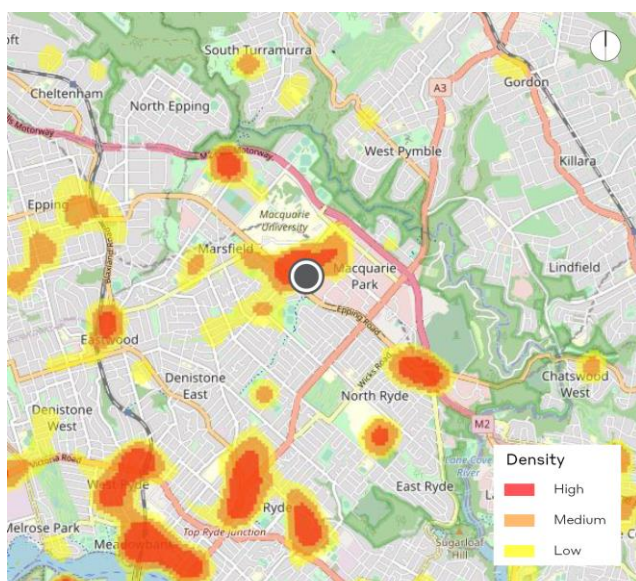


● The Site

Break and enter non-dwelling

Figure 8 Hotspot - break and enter non-dwelling

Source: BOSCAR / Ethos Urban

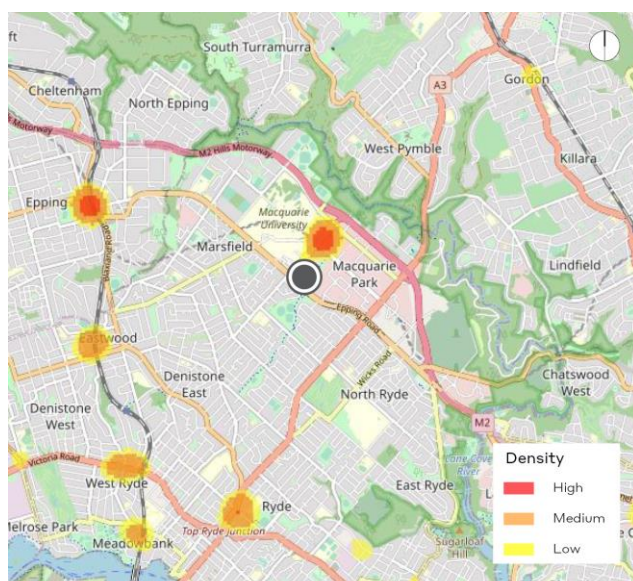


● The Site

Domestic assault

Figure 9 Hotspot - domestic assault

Source: BOSCAR / Ethos Urban

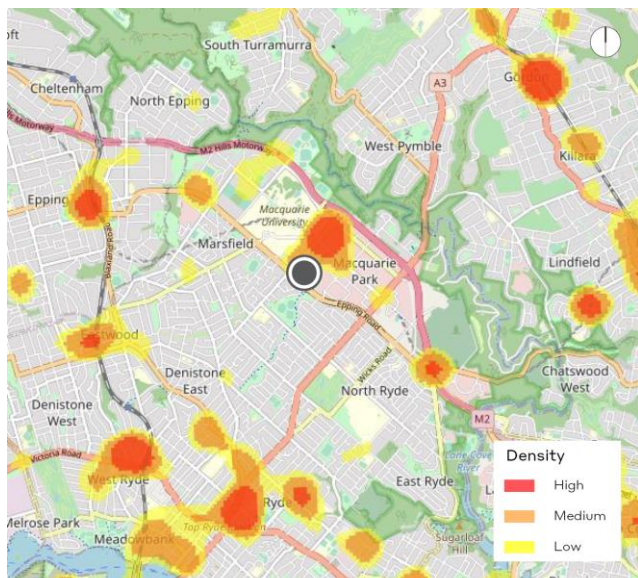


● The Site

Non domestic assault

Figure 10 Hotspot - non-domestic assault

Source: BOSCAR / Ethos Urban

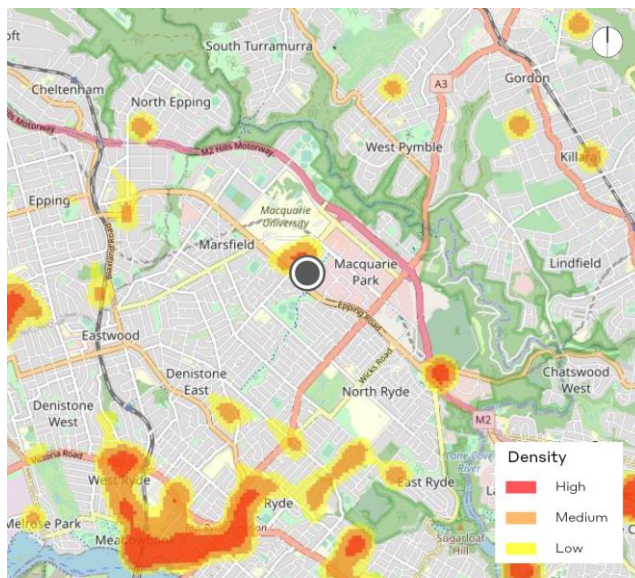


● The Site

Malicious damage to property

Figure 11 Hotspot - malicious damage to property

Source: BOSCAR / Ethos Urban

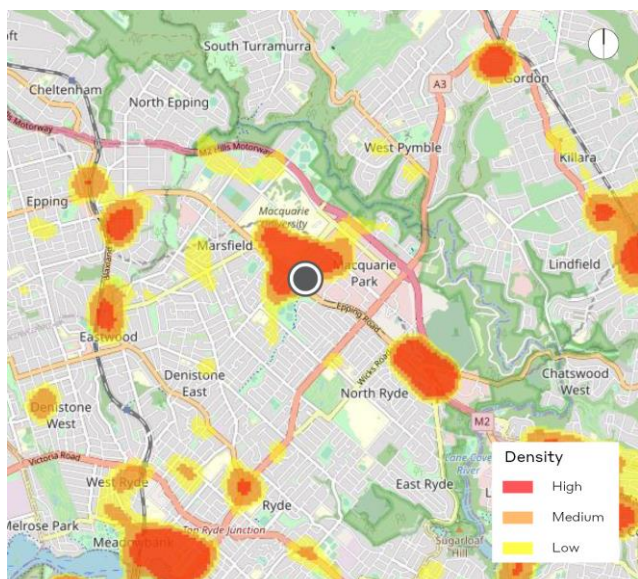


● The Site

Motor vehicle theft

Figure 12 Hotspot - motor vehicle theft

Source: BOSCAR / Ethos Urban

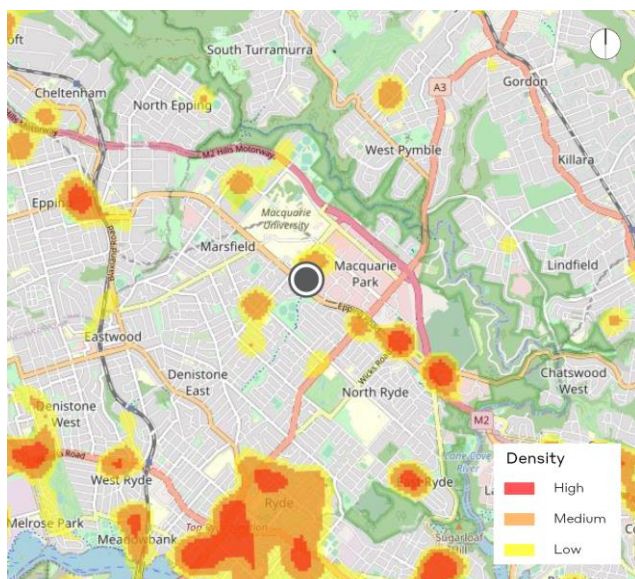


● The Site

Steal from dwelling

Figure 13 Hotspot - steal from dwelling

Source: BOSCAR / Ethos Urban



● The Site

Steal from motor vehicle

Figure 14 Hotspot - steal from motor vehicle

Source: BOSCAR / Ethos Urban

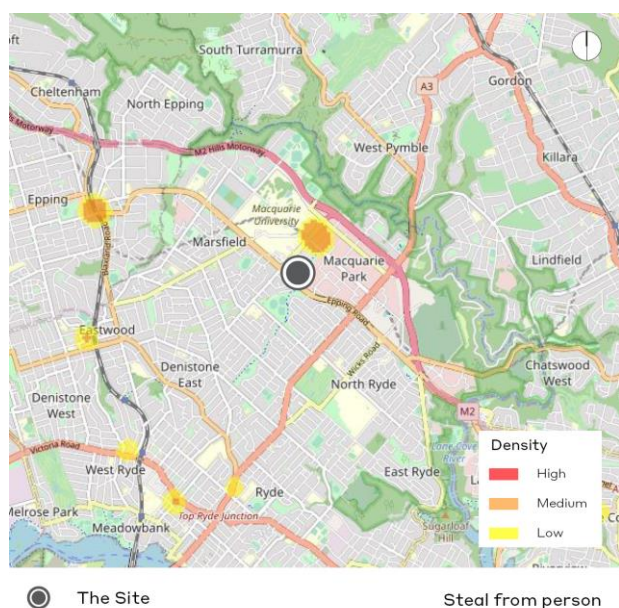


Figure 15 Hotspot - steal from person

Source: BOSCAR / Ethos Urban

Hotspots indicate areas of higher crime density (number of incidents per 50m by 50m) relative to crime concentrations across NSW. They are not adjusted for the number of residents and visitors in the area and thus may not reflect the risk of victimisation. We note that the BOSCAR statistics indicate that the majority of the Sydney and Paramatta CBDs are included within these hotspot areas. Given the site's location in proximity to Macquarie Shopping Centre, Macquarie University and Macquarie University Station, the risk of victimisation is not considered high, relative to other similar centres in metropolitan Sydney.

In addition to the above data, communication with NSW Police has indicated a growing concern of fraud and identity theft as a result of mail theft. In response to this, recommendations have been provided in **Section 6.0** of the assessment.

4.1 Crime Prevention Strategy

The City of Ryde Crime Prevention Plan July 2011 – July 2014 notes Macquarie Park as a hotspot for stealing/theft offences, and details crime reduction strategy that includes the following actions:

- Develop a coordinated approach to community ownership of Macquarie Park, including combining and aligning community education, street parties and situational prevention actions by Council and key partners.
- Officers are tasked to conduct High Visibility Policing through the Macquarie University and Macquarie Centre grounds and car parks.
- Shoplifting operations are conducted on a regular basis in conjunction with Loss Prevention Officers and Macquarie Centre security.
- Crime Prevention Officer and Volunteers in Policing attend major retailers and hand out crime prevention information to shoppers regarding stealing of handbags and wallets.
- Crime Prevention Officer and Volunteers in Policing attend car parks to conduct audits on vehicles with valuables found to be inside and a letter are posted to the registered owner regarding crime prevention information and instructions to not leave valuables in their vehicle.
- Once or twice per year Crime Prevention Officer has a stall at Macquarie Centre handing out general crime prevention information.
- Crime Prevention Officers attends Macquarie University, Dunmore Lang College and Robert Menzies College to provide a Crime Prevention talk to new students.

While these actions are focused on the Macquarie Centre and Macquarie University, the proposed development has the potential to facilitate multiple actions mentioned above. Further recommendations concurrent with this plan are detailed in **Section 6.0** of this assessment.

5.0 Matters for Consideration

A potential perpetrator can take advantage of the environment, with access and the opportunity for concealment significantly affecting the safety and perceived safety of an environment. Given that steal from dwelling, break and enter and steal from motor vehicle offences are likely to be the main criminal offences affecting the users of the proposed development, the following is an assessment of the potential of the proposed development to create opportunities for such crimes.

The proposed development features a complex mix of uses encompassing aspects of residential development, comprising of market and social housing, new public domain and ground floor retail/community uses. For this reason, understanding the relationship of these uses is integral in forming recommendations for crime reduction. This context underpins an assessment of the proposed development in accordance with the CPTED principles.

Social interventions are integral in increasing the safety and perceived safety of the development and surrounding environments. In conjunction with CPTED, social intervention ensures a greater scope of crime prevention is considered. Accordingly, social strategies have been considered in the Social Impact Assessment (SIA) report in support of the Masterplan SSD Application in close consultation with Frasers Property, NSW LAHC, Mission Australia and other agencies. Therefore, this CPTED report should be read in conjunction with the SIA and CPTED report of the Masterplan SSD.

5.1 Surveillance

Opportunities for crime can be reduced by providing opportunities for effective natural surveillance. This principle indicates that offenders are often deterred from committing a crime in areas with high levels of natural surveillance. The following design features can improve natural surveillance:

- Clear, direct paths that encourage pedestrian activity and allow for clear lines of sight;
- Clear sight lines between public and private places and maximising natural surveillance;
- Establishing buildings close to the street frontage to allow passing traffic to observe the development;
- Clear building entry points, highly visible from the street and pedestrianised areas;
- Orientation of building entrances and windows towards the street, public domain, open space and parking areas;
- Appropriate lighting and effective guardianship of communal and/or public areas; and
- Minimal opportunity for offenders to conceal themselves or entrap victims.

The increased occupancy and mixed-use nature of the site will greatly improve opportunities for passive surveillance throughout the site.

C2 Site

The C2 site consists of the new central Village Green and Community Centre and will feature a pool, gym, cafe and community facilities. The site is located centrally in the context of the Ivanhoe Estate and its principal usage is to foster communal activities such as utilisation of the pool, gym, café and community facilities or the Village Green.

While the topography of the site means that there are significant level changes that are mitigated through the inclusion of retaining walls and buildings, the design of the pool (with rooftop communal open space) café and community spaces ensure that each space fosters a direct outlook to either the streetscape at Main Street or Neighbourhood Street (Road 2), the courtyard or the central communal open space. This is fostered through the sightlines obtained from the glazed elements to each building, the myriad of pathways that dissect the site and the passive landscaped seating areas. The proposed built environment on the C2 site has been designed so that each use provides a direct overlook of the abovementioned shared spaces.

Additionally, the linear orientation of lobbies and corridors within the proposed building benefits clear sight lines while the general absence of recesses and alcoves limits opportunities for concealment within these spaces due to the internal curved walls and structures.

C3 Site

Similar to the C2 site, the C3 ground floor design also fosters good linear sightlines from the proposed retail tenancies towards Neighbourhood Street (Roads 2) and Main Street, and has a direct frontage that faces the Village Green at the C2 site, which also ensures the occupation of the site during business hours. Additionally, the curved walls to the corners of retail tenancies as well as the car parking and loading dock entry ensures that there are no opportunities for concealment and creates a widened viewpoint that allows for better sightlines between spaces of different uses.

As with the C3 Building, the residential dwellings on the upper levels are orientated to provide frontages in all directions, including the C2 Site Village Green, and together within a predominantly glazed façade, benefits opportunities for natural surveillance and effective guardianship to the communal open space and the surrounds. The C2 Site Village Green is located in an area of topography change, therefore the C3 Building dwellings on upper levels with a frontage to this space ensures opportunities for natural surveillance are maximised. Further, the orientation of upper level dwellings may also assist natural surveillance to future development and spaces beyond the C2 and C3 site boundaries.

The linear orientation of residential lobbies within the C3 building benefits from clear sight lines, and the absence of façade recesses or long corridors limits any potential opportunities for concealment. The width of the ground floor C3 site walkway assists with visibility of the space.

C4 Site

The proposed development comprises two tower buildings that are 17 to 24 storeys in height that are orientated towards the streetscapes, residential mews, Shrimptons Creek and centralised courtyard and open space area, exemplifying a potential high level of natural surveillance, both within the development itself and to the surrounds. The design of the C4 Site incorporates central pathways that lead to communal open spaces such as the Courtyard and the Grove which are afforded high levels of natural surveillance from the surrounding residential dwellings both at the ground floor and located at upper levels. The Courtyard and the Grove are able to be accessed from both the Residential Mews and Main Street and are considered an extension of the public domain from these street levels.

The layout, placement and orientation of the ground floor and lower ground floor residential units will maximise informal surveillance opportunities towards communal spaces. The built form surrounding the above mentioned spaces generally limits opportunities for concealment and include mass planting to fill small alcoves of the Shrimptons Creek façade and splayed entry zones to avoid opportunities for concealment or hiding locations. It is also noted that there will be periods outside of standard activity hours where the internal C4 Site pathways and ground floor spaces will experience limited pedestrian movements. The use of formal surveillance through the provision of CCTV cameras in these locations would further add to the level of surveillance and should be incorporated, as discussed in the recommendations provided in **Section 6.1**.

5.2 Lighting and Technical Supervision

Effective lighting and discrete technical supervision can reduce fear, increase community activity, improve visibility and increase the likelihood of offenders being detected. Lighting and technical supervision are integral in increasing the safety and perceived safety of a place. All lighting provided within and around the development, including the through site links and laneway should ideally exceed the minimum Australian Lighting Standard AS/NZ 1158 for public streets, public domains, open spaces, car parks and pedestrian areas, specifically addressing crime and fear reduction.

The development will bring an unprecedented number of users within the site at various times. For this reason, the consistency of lighting will be critical in reducing the fear of crime and optimising facial recognition of potential offenders. Given the mixed-use nature of the proposed development, consideration of the appropriate type of lighting per building use is essential. Consistent lighting should ideally be included in all publicly accessible areas, as well as areas which do not benefit from natural surveillance.

Discrete technical supervision by way of closed-circuit television (CCTV) is also warranted within the proposed development and should respond to the various uses and activity. The placement of CCTV within various buildings and spaces throughout the site should provide coverage to key access points, and areas that do not benefit from natural surveillance. For this reason, Discrete CCTV is considered appropriate in building entrances (including

vehicle entrances) and pedestrian pathways that do not otherwise benefit from natural surveillance. However, as with a typical residential neighbourhood, CCTV that monitors streetscapes is not considered appropriate.

C2 Site

Within the C2 Site buildings, the placement of CCTV should address areas where multiple user groups share space or points of access. These include areas such as the pool, gym and garden lobby, café, courtyard, community facilities and the rooftop seating areas. CCTV is also recommended in areas that are publicly accessible, including the perimeter of the buildings, capturing sidewalk and other forecourt areas. While CCTV is ideally placed at the entry points of the pool, gym and community facilities, placement of technical supervision throughout the pool facilities is at the discretion of the management of the pool and will require installation with the relevant guidelines.

C3 Site

As with the C2 Site buildings, the placement of CCTV within the C3 building should address areas where multiple user groups share space or points of access. While the C2 building is designed with greater separation of building uses, the inclusion of the monopolised ground floor retail uses is anticipated to increase activity and effective guardianship of the immediate area. It is recommended that CCTV addresses all public areas within the C3 site in addition to monitoring key entry/exit points of the proposed building including entrances into retail spaces, residential lobbies and the loading dock and car park.

C4 Site

As with the C2 and C3 Site buildings, the provision of appropriate and consistent lighting of corridors, lobbies, circulation spaces and public spaces throughout the C4 Site will be critical in ensuring opportunities for natural surveillance are maximised and spaces are appropriately used. This is especially important for the C4 Site as (unlike the C2 and C3 Sites) it does not accommodate a mix of uses and is not afforded the additional benefit of retail and recreational activity on site to activate it during business hours. Further, discrete CCTV is considered appropriate in this space as a means of monitoring activity in the space. Recommendations in respect of technical supervision are provided in **Section 6.1.2** of this assessment.

5.3 Territorial Reinforcement

Territorial reinforcement involves the perceived ownership of public spaces. The NSW Police Safer by Design Guidelines note that people generally recognise areas that are well cared for and areas that display strong ownership cues are less likely to be improperly used than those that do not. Users will be more inclined to visit areas that are maintained and to which they feel they have a vested interest in. Designing with a clear transition between public and private spaces, and clear design cues indicating the intended use of space is critical. A well-maintained public domain is critical in encouraging occupancy of space, both in the interior and exterior of the development.

Given the context of the proposed development, territorial reinforcement and associated effective guardianship will be critical in ensuring safety and crime reduction. Clear delineation between public land, community/communal and recreational land and private land is considered of high importance. Territorial reinforcement ensures the ambiguous use and purpose of space is minimised.

However, the proposed development should in no way appear to be fortified, nor should there be an obvious division between the various leasing and ownership arrangements of retail, community or residential uses. Critical to the creation of effective guardianship is social inclusion, which is disadvantaged by the obvious physical and visual division of residents based on their ownership/leasing of dwellings.

Generally, the proposed development at the C2, C3 and C4 sites provide high levels of territorial reinforcement, with the following ownership cues and formal guardians provided:

- private open space areas and habitable living space outlooks address the central courtyard and Grove on the C4 site, as well as the upper level C3 building dwellings which have a direct view of the Village Green and rooftop seating areas at the C2 site. Additionally, the dwellings in both the C3 and C4 buildings provide direct outlooks to broader areas within the Ivanhoe Estate, overlooking public streets as well as Shrimptons Creek, exemplifying high levels of territorial enforcement on site.

- the retail tenancies and community uses (including, pool, gym, café and community spaces) proposed at the ground and first floor levels on both the C2 and C3 sites will incorporate glazed façades with entranceways that will be highly visible from frontages of the surrounding streetscape as well as from public open space and other public gathering spaces.
- the C2, C3 and C4 sites provide clear distinctions in materiality and built form between the private residences, retail tenancies (at the C3 site), community uses (at the C2 site) and public spaces by clearly delineating between what is public and private space. This is exemplified with strong visual cues that further convey this such as outdoor seating available within various open space areas on the C2 site, or enclosed access arrangements to retail tenancies and residential lobbies in the C3 and C4 site or to the gated access to the centralised courtyard at the C4 site.

The location of the aforementioned spaces which will be occupied by residents, visitors, staff and other management employees and will increase the presence of formal guardians across each site. Consequently, the perceived risk to offenders and the effort needed to commit a crime due to formal guardians will be enhanced. Care must be taken to ensure that entrances into private spaces from communal spaces on the C4 site are well monitored in the future.

The introduction of a greater number of individuals on site will increase the territorial reinforcement of the site. The provision of active spaces such as the uses proposed on the C2 Site as well as the active retail areas on the C3 site will increase the presence of informal guardians. The strategic location of formal guardians such as within C3 site retail spaces or the loading dock will increase the risk to offenders and the degree of effort required to commit a crime, as it is commonly thought that supervision provided by employees is more effective as a crime deterrent than surveillance provided by passers-by.

Suitable wayfinding signage at key entry and decision making points, around the perimeter of the development, along with building / business identification signage associated with the retail and residential uses are recommended to help reduce the opportunities for people to find excuses to gain unauthorised access and / or to loiter in areas of the development, or immediately adjacent to entries. Whilst all access points have been designed to be legible and inviting, signage will further enhance this perception.

5.4 Environmental Maintenance

There is a strong association between environmental maintenance and the fear or perceived fear of crime. General image can greatly affect the individual's desire to enter and engage with space. Environmental maintenance and territorial reinforcement are co-dependent in achieving a safer space and are integral in achieving optimal natural surveillance. The maintenance of the built form, landscaping and lighting will assist in communicating care and the presence of effective guardianship. Routine maintenance is a strong indicator of area management and perceived safety.

It can also affect the economic prosperity of areas and lessen the likelihood of visitors returning. Vandalism, graffiti and other crimes can induce fear and avoidance of public spaces, particularly amongst the elderly. As such, maintenance of the proposed development and its surrounds is a key crime prevention mechanism. The proposed development will provide a high quality urban environment which will convey a clarity of ownership and display a space that is well cared for.

As the proposed development will include numerous stakeholders in its operation, the clear articulation of a management body is necessary. Management should enforce effective and thorough environmental maintenance procedures. Consistency in the standard of upkeep throughout the entire site and its immediate surrounds is critical.

C3 and C4 Sites

The external environments to the each of the C3 and C4 site buildings should be subject to a Strata Scheme or Building Management Committee that will ensure the maintenance of all external environments. Specifically, areas such as the C4 Courtyard and the Grove will require specific attention as it will include a significant quantity of planting and landscaping treatments that will facilitate the activation of these spaces and are anticipated to be used at a high capacity.

As the areas surrounding the C3 site retail spaces are likely to experience high levels of activity and pedestrian movement, effective environmental maintenance in this area will be critical to the perceived safety of the

environment. Maintenance of this area will need to consider the effect of this space and its operational needs. Recommendations in respect of environmental maintenance are provided in **Section 6.1.4** of this assessment.

C2 Site

The external environments within C2 site will be subject to a Strata Scheme or Building Management Committee that will ensure the maintenance of all external environments. Specifically, areas such as the Village Green as well as the rooftop terrace will require specific attention to ensure that the presentation of these environments are maintained. This is specifically relevant within the C2 site where poorly maintained landscaping could adversely affect the perception of space surrounding the pool, gym and community facilities. As the areas surrounding the retail/community space is likely to experience high levels of activity and pedestrian movement, effective environmental maintenance in this area will be critical to the perceived safety of the environment. Maintenance of this area will need to consider the effect of this space and its operational needs. Generally, environmental maintenance procedures should ensure that this vegetation does not compromise other principles of CPTED such as access control and surveillance. Recommendations in respect of environmental maintenance are provided in **Section 6.1.4** of this assessment.

5.5 Activity and Space Management

Similar to environmental maintenance, there is a strong association between activity and space management, and the fear or perceived fear of crime. Space management relates to the supervision, control and the ongoing care of a development. Spaces that are infrequently used are known to experience crime and be the subject of abuse. Unlike environmental maintenance, this principle endeavours to manage the more dynamic activity and use of space.

The effective management of activity and space within the Ivanhoe Estate is critical given the various uses that will occupy the estate. More specifically, as the C2 and C3 sites include uses such as a pool, gym, community facilities and retail tenancies, these alternative uses are likely to have their own policies and procedures in relation to the management of activity and space in these areas. Additionally, as the proposed development includes dwellings intended for use as social housing, these dwellings will be holistically managed throughout the Ivanhoe Estate.

As effective guardianship plays such a critical role in the safety and perceived safety of the proposed development, management of activity and space should specifically address social inclusion throughout the proposed development. While such programs may be facilitated by a group of stakeholders (such as Mission Australia or the like), they may involve the participation of other stakeholders, including the pool or gym proposed at the C2 site and the retail tenancies proposed at the C3 site. Recommendations in respect of the management of activity and space are provided in **Section 6.1.5** of this assessment.

5.6 Access Control

Access control strategies restrict, channel and encourage the movement of people and vehicles into and through designated areas. Unauthorised entry is reduced by physical and technical barriers, as they increase the effort required to commit a crime. The proposed development includes multiple types of access, these include:

- Primary – access to all public areas including all streets and the retail tenancy.
- Secondary – access to semi-public areas including building lobbies, private courtyards, basement levels, communal open spaces, mail rooms and back-of-house facilities.
- Vehicle – access for vehicles for parking and loading within the proposed development, encompassing all the above uses. Both the C3 and C4 sites demonstrate the physical separation of car parking and loading dock facilities associated with the various uses within a development.

C2 Site

Access control is understandably absent in the design of public spaces facilitated on the C2 site as it has been designed to facilitate patron usage of the pool facility, gym, community facilities, café and recreational spaces through the rooftop seating areas and central Village Green space. The design of the C2 site is largely intended to be accessible by the public and overall C2 site provides an essential central through-site communal space and link within the wider Ivanhoe Estate. The design of the ground floor plane provides access control by way of designated footpaths, through-site links and other pedestrian thoroughfares that have been designed to accommodate efficient pedestrian flow across the site and adapts to the topography of the land. The design of such linkages is considered

to assist in reducing opportunities for any ambiguous paths of travel and also assists in providing a space that is clearly designated as a place for people to dwell.

C3 and C4 Sites

Access control is generally well considered within the C3 and C4 sites with respect to the separation of uses and access into the building via the residential lobbies. The design of the C3 building clearly separates the entries to retail spaces and the residential lobbies. Also noted in the design of both the C3 and C4 building are the internalisation of the mail rooms. This design feature benefits access control to mail, thereby reducing the potential for fraud and identity theft by criminals stealing mail.

Access control to the basement car parking has also been considered. The C4 site basement car parks have been designed so that the social housing car parking is provided at a separate entry to the market housing car parking, with the social housing car parking provided on Level 1 and part Level 2 and the market housing car parking provided on Levels 2 and 3, designed with clear separation of areas. Additionally, visitor parking access control measures have also been considered within the basement as visitor car parking spaces have been agglomerated in centralised locations on each level, close to lift core facilities which assists in facilitating short sight lines to key access points and prevents wandering of persons within the basement level.

Waste storage for the C4 building is also located in the basement area. Access control is greatly benefitted by the waste chute system as detailed in the architectural plans. The use of waste chutes limits access to the waste storage area, which decreases the need for persons to loiter within waste rooms.

As with territorial reinforcement, it is important to maintain the proposed C3 and C4 site developments as free of physical access control that can appear to fortify an environment, increasing the perception of crime. Access control should not unnecessarily delineate the ownership of dwellings, especially on the C4 site. While appearing to fortify the proposed development is considered inappropriate, in areas of the proposed development that are freely accessible to the public, the consideration of other CPTED principles such as lighting and technical supervision may be required. Recommendations in respect of access control are provided in **Section 6.1.6** of this assessment.

5.7 Design, Definition and Designation Conflicts

The design of the proposed development reflects its purpose, and while perpetrators may seek to exploit areas with unclear spatial definition, the design of the proposed development generally benefits from achieving multiple principles of CPTED.

The design clearly shows a logical separation of the proposed development's uses and their access points, minimal area of unclear spatial definition and an appropriate choice of landscaping materials and vegetation. The orientation of residents and tenancies maximises surveillance opportunities the surrounds, and the linear configuration of car park bays further assists natural surveillance opportunities.

As the proposed development of the C2, C3 and C4 building sites offer a mix of uses, conflict may occur between the various users of the proposed development. Therefore, the operational management of these building is integral in identifying and resolving opportunities for conflict and should consider a holistic approach to estate-wide management. Recommendations in this respect are provided at **Section 6.1.7**.

6.0 Crime Risk Rating and Recommendation

The Crime Risk Rating considers the development as proposed in SSDA architectural plans prepared by Cox Architecture, Chrofi and Fox Johnston within the site's environment.

Acknowledging the site context and the issues discussed in Sections 2, 4 and 5, the Crime Risk Assessment Rating of the proposed development is rated within the 'low' category. An assessment of the proposal using CPTED principles has found that, provided the actions recommended below are implemented, the crime risk rating would be maintained within the 'low' category.

This Crime Risk Rating incorporates the inevitable risk of crime associated with large-scale mixed-use development that is a product of the increase of use and occupancy of the site. Notwithstanding this, our assessment finds that the design of the SSDA buildings within the Ivanhoe Estate on Sites C2, C3 and C4 are all generally consistent with the principles of CPTED and worthy of support provided the recommendations below are implemented.

In informing the Conditions of Consent, recommendations to further improve the safety and security of the proposed development are detailed in **Section 6.1**.

6.1 Recommendations

6.1.1 Surveillance

- In areas of reduced natural surveillance, consider the installation of CCTV as well as convex mirrors where the visibility of a direct path is unclear.
- In maintaining opportunities for natural surveillance at the C3 site, prohibit retail window displays that limit views to the surrounds. Full window displays that conceal views in/out of the commercial tenancies should be strongly discouraged. This should also be considered for the supermarket retail tenancy where possible to maximise passive surveillance wherever available.
- Limit the unnecessary placement of temporary signage and banners along pedestrian paths within the C2 and C3 sites.
- Ensure the environmental conditions and landscaping do not create opportunities for concealment, entrapment or reduced visibility.

6.1.2 Lighting and Technical Supervision

- Ensure adequate and discrete CCTV coverage monitors entry/exits to semi-private and private spaces, specifically the residential lobbies at the C3 and C4 sites and access points to the pool, gym and community facilities at the C2 site.
- Outdoor lighting is recommended to have a minimum Colour Rendering Index (CRI) of 60 and comply with the relevant Australian Standards.
- While endeavouring to minimise light-spill into the surrounds, exterior lighting should have an average Lux of 30 and a uniformity between 0.3 Uo and 0.4 Uo. It is recommended that exterior lighting be consistent. 'Inactive' lighting is not recommended in public spaces.
- Any emergency lighting shall also be installed and maintained in accordance with the relevant Australian Standards.
- It is recommended that CCTV footage should be stored for a minimum of 30 days. Footage should have embedded time, date and camera location details.
- Immediate access to the CCTV system and the ability to review recordings is granted to NSW Police Officers.
- A Lux of 50 with a minimum uniformity level of 0.4 Uo is recommended in the basement car parks, permitting facial recognition and visibility into a parked vehicle. Additionally, the materiality of the basement and loading dock ceilings at the C3 and C4 Sites should complement lighting, ensuring the brightness of the lighting is not reduced.

- It is recommended that a security consultant with a Class 2A licence under the Security Industry Act 1997 is engaged to provide specific advice on placement, installation, monitoring and maintenance of the CCTV network.

6.1.3 Territorial Reinforcement

- Ensure an appropriate level of wayfinding and signage is installed, reinforcing public and private space.
- Conditions of use, specifically in the basement car parks should be clearly displayed at building and car park entries.
- The arrangement of responsibility and obligations of tenants and the building owner/operator should be clearly articulated within the leasing agreement.

6.1.4 Environmental Maintenance

- Ensure environmental maintenance procedures align with the principles of CPTED, including the minimisation of concealment opportunities and maintaining surveillance opportunities and access control.
- Environmental maintenance should ensure general building maintenance and cleanliness is maintained throughout the estate to ensure there is no visual indication that a unit or building is social, affordable or market housing.
- Regular maintenance and cleaning and rapid removal of graffiti and the repair of vandalism is crucial to the ongoing perception of safety. Any environmental maintenance procedures should prioritise a prompt response.

6.1.5 Activity and Space Management

- Ensure wayfinding strategies are incorporated in basement car parks and public areas.
- Ensure social engagement programs are priorities within management procedures prepared by NSW LAHC, Mission Australia or other relevant agencies and partners.
- During the business hours of operation, the designated C2 site car parking area is likely to be publicly accessible. It is recommended that visitors across both C3 and C4 residential components of the sites be afforded access to designated car parking through an intercom system.
- While licenses permitting the sale and consumption of alcohol may vary depending on a tenant's, the licensee shall ensure these activities do not adversely affect other uses within the proposed development.
- Portable signage and unfixed equipment such as outdoor seating should be appropriately stored when not in use, minimising the opportunities for these items to be misused or opportunity for concealment.