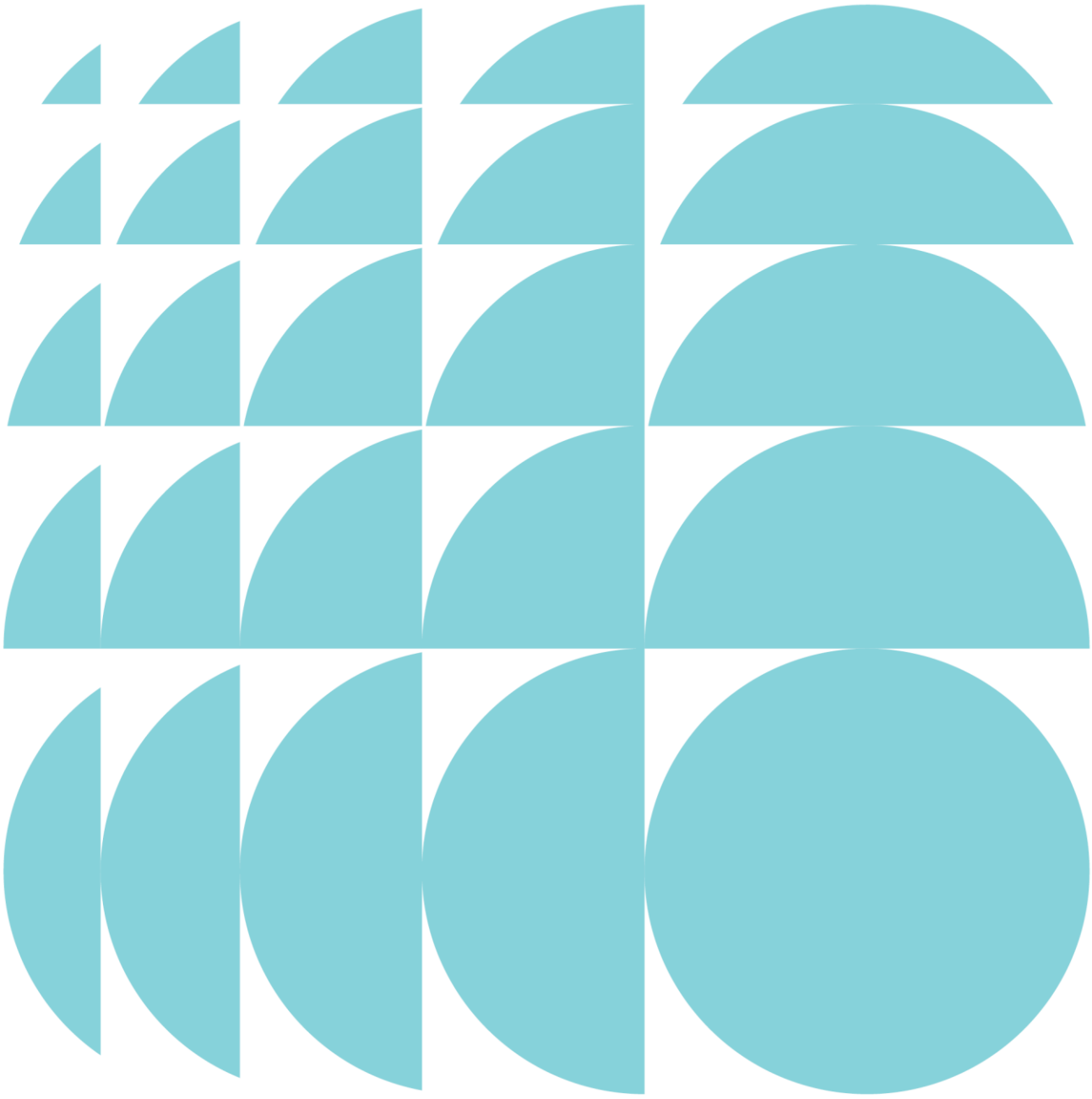
ETHOS URBAN

Crime Prevention Through Environmental Design Assessment Report

Ivanhoe Estate - Stage 1
State Significant Development Application for Building A1 and Building C1

Submitted to NSW Department of Planning and Environment
On behalf of Aspire Consortium

01 March 2019 | 17156



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1.0 Introduction

This report supports a Development Application for Stage 1 of the Ivanhoe Estate redevelopment, a State Significant Development (SSD) submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). It has been prepared for Aspire Consortium on behalf of NSW Land and Housing Corporation.

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 mixed-use 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 Bates Smart and Cadelapas Architects, and landscape drawings prepared by HASSEL 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 12 October 2017 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.

2.0 The Site

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 1** and **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 Site subject to this assessment is located in the northern corner of the Ivanhoe Estate, identified in **Figure 3**.

Figure 1 Location map of the Ivanhoe Masterplan site (outlined in red)

Source: Google, Ethos Urban

2.1 Background

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 Land and Housing Corporation (LAHC) and previously comprised 259 social housing dwellings. Demolition works on the site are the subject of a separate planning application process by LAHC. The redevelopment of the Ivanhoe Estate is part of the NSW Government Communities Plus program, which seeks to deliver new communities where social housing blends with private and affordable housing, with good access to transport, employment, improved community facilities and open space.

The Communities Plus program seeks to leverage the expertise and capacity of the private and non-government sectors. As part of this process, three organisations were short-listed in mid-2016 to submit development proposals for the redevelopment of the Ivanhoe Estate.

In August 2017 Aspire Consortium, comprising Frasers Property Australia and Mission Australia Housing was announced as the successful proponent to develop the site. The Stage 1 Development Application (DA) represents the first step in the delivery of the planned redevelopment of the Ivanhoe Estate and will provide the first integrated social and market housing development on the site. The DA been made with consideration of the overarching Ivanhoe Estate Masterplan that shapes and guides development on the site.

The Ivanhoe Estate Masterplan is illustrated in **Figure 2**, with A1 and C1 sites and the road network (the Site) that will be considered as part of this assessment.

Figure 2 Ivanhoe Estate Masterplan

Source: Bates Smart

2.2 Existing Development

Existing development on the A1 and C1 sites consists of vacant residential dwellings at various stages of decommission and demolition. The A1 site predominantly consists of residential apartment buildings of four storeys in height, while the C1 site consists of townhouses of two storeys in height (**Figure 4** and **Figure 5**). Both sites include areas of the existing road network.

The broader Ivanhoe Estate previously comprises 259 dwellings for the purposes of social housing, with dwelling typologies ranging from two-storey townhouses to four-storey residential apartments. The dwellings are owned and managed by LAHC. The Estate also includes significant vegetation along its south-east and south-west boundaries. Located within the vegetation along the south-east frontage of the Estate are various elements of public recreation, including a skate-bowl and open grassed areas. The Masterplan site also includes part of 2-4 Lyonpark Road that will accommodate a new road link over Shrimptons Creek. It is noted that parts of the Estate are currently undergoing demolition works as part of a separate process.

Figure 3 Townhouse dwellings located on the Site

Source: Ethos Urban

Figure 4 Apartment buildings located on the Site

Source: Ethos Urban

Figure 5 Typical cul-de-sac within the Site

Source: Ethos Urban

Figure 6 Skate bowl located adjacent to Shrimptons Creek boundary

Source: Ethos Urban

Figure 7 Open grassed area along Shrimptons Creek boundary

Source: Ethos Urban

Figure 8 Commercial building located at 2-4 Lyonpark Road

Source: Ethos Urban

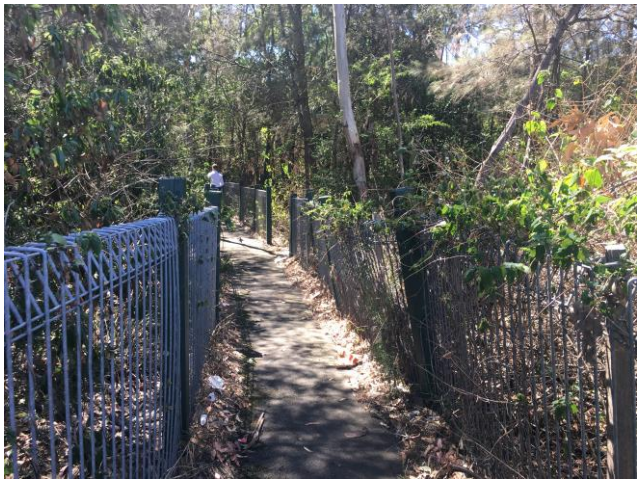

Figure 9 Pedestrian access connection Ivanhoe Estate and Epping Road

Source: Ethos Urban

Figure 10 Recreational Space adjacent Shrimptons Creek

Source: Ethos Urban

2.2.1 Access

Access to the A1 and C1 sites is provided by Ivanhoe Place, which connects to Herring Road at the north-west boundary of the Estate. Ivanhoe Place is the only point of vehicle access to the Estate and connects to the greater network of cul-de-sacs throughout the Estate. Pedestrian access is also provided by Ivanhoe Place.

2.2.2 Topography and Landscaping

The A1 and C1 sites experience a significant change of topography. The Site falls from its highest point at Herring Road (north-west frontage of the estate) toward Shrimpton Creek (south-east boundary of the estate).

As the A1 and C1 sites feature residential development, the sites are free from large areas of dense vegetation. However, both sites feature significant trees and vegetation.

2.3 Surrounding Development

Ivanhoe Estate is located within the Macquarie University Station Precinct, with surrounding development including residential and commercial uses. Located between the Estate's north-west frontage and Herring Road is a smaller site of which residential flat buildings are currently under construction. 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**.

Figure 11 Pedestrian underpass (Epping Road) adjacent the Site

Source: Ethos Urban

Figure 12 High-density residential development located north-west of the Site

Source: Ethos Urban

Figure 13 Vacant residential apartment buildings pending redevelopment, located north-west of the Site

Source: Ethos Urban

Figure 14 Epping Road frontage to the Site

Source: Ethos Urban

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 'moderate'. The reasons for this are:

- The Site's location within an existing urban area;
- Minimal activity on the Site, as a result of vacating tenants and surrounding construction activity;
- Visible evidence of graffiti within the Site;
- Visible evidence of litter and dumping within the Site, and;
- Multiple areas of unspecified use.

3.0 The Proposed Development

3.1 Secretary's Environmental Assessment Requirements (SEARs)

On 11 December 2017, the DPE issued the SEARs for the Ivanhoe Estate Redevelopment - Stage 1 Application (SSD 8903). Key issue 11 requires the following:

- *Outline design and operational measures to ensure the safety of residents, visitors, and child care centre users and workers within the development and in the surrounding public domain.*

- *Provide a Crime Prevention Through Environmental Design Report.*

Accordingly, this CPTED assessment responds to key issue 11. Further, key issue 28 requires consultation with NSW Police. A meeting was held with Ryde Local Area Command of NSW Police on 30 October 2017 to discuss the proposed Masterplan and proposed conceptual buildings in the context of the CPTED principles. This report incorporates the comments made by NSW Police. We note that in this consultation meeting, NSW Police discussed detailed building design issues such as letterbox security and basement design, which have been addressed as part of the CPTED assessment. On 13 February 2018, Ryde Local Area Command of NSW Police were contacted via email to provide specific feedback on the Stage 1 Application. To date, no response has been received.

3.2 Proposal Description

The EIS to which this CPTED report is appended is submitted to the DPE in support of an SSD application for Stage 1 of the Ivanhoe Estate Redevelopment. This application is specific to sites A1 and C1 of the Ivanhoe Estate Masterplan (the Site) in addition to the road network and associated landscaping. 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 1 application seeks approval for the following development:

- site preparation works, including tree removal, demolition of roads and services, and earthworks across the Ivanhoe Estate;
- the provision and augmentation of utilities and services infrastructure across the Ivanhoe Estate;
- the construction of all internal roads including public domain within the road reserves, and the bridge crossing and road connection to Lyonpark Road including changes to parking, site access, landscaping and ancillary works at 2-4 Lyonpark Road;
- the consolidation of existing lots and subdivision of the Ivanhoe Estate to reflect the revised road layout, open space, and provide superblocks corresponding to the Masterplan;
- the construction and use of Buildings A1 and C1 comprising residential uses (including social housing), a childcare centre, and retail/community spaces.

Architectural plans and associated design report prepared by Bates Smart and Candalepas Associates, and landscape plans prepared by Hassell are included within the Stage 1 SSD application submission, to which this assessment is appended.

3.3 Access

Vehicle access to the proposed development remains from Herring Road, utilising the existing intersection. Access to the various development sites within the Estate is created by the proposed road network. The proposed road network connects to the Estate's south-east boundary, bridging over Shrimptons Creek and connecting to Lyonpark Road through the 2-4 Lyon Park Road site.

A slip road is also proposed along the Estate's frontage to Epping Road. The slip road permits vehicles to enter the Estate from Epping Road but does not provide access to Epping Road for vehicles exiting the Estate.

Pedestrian access is also afforded by the above-mentioned roads, as well as new pedestrian connections that affords access to Epping Road and Peach Tree Road. This is in addition to the pedestrian access created by paths that follow the alignment of Shrimptons Creek.

3.4 Car parking

Car parking is located within the basement levels of each building, with access afforded by the new road network. The A1 and C1 sites have been provided with basement parking and do not include at-grade car parking, however, the design of the road network includes provisions for on-street parking.

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 2018 found that the most commonly occurring crimes relevant to CPTED within the Ryde LGA were:

- Assault – non-domestic violence related
- Assault – domestic violence related
- Break and enter of dwelling
- Steal from motor vehicle
- Steal from retail store
- Steal from dwelling
- Malicious damage to property
- Fraud

The frequency of the above crimes in the suburb of Macquarie Park, between September 2014 and September 2018 are detailed below.

Table 1 Statistics of recorded crime in Macquarie Park (suburb) between September 2014 and September 2018

Crime	Incidents 2014/2015 Sept	Incidents 2015/2016 Sept	Incidents 2016/2017 Sept	Incidents 2017/2018 Sept	2014-2018 Sept Trend	2018 Rate per 100,00 Population
Assault – non-domestic violence related	31	39	35	35	Stable	Very Low
Assault –domestic violence related	15	20	11	7	Stable	Very Low
Break and enter – dwelling	21	48	33	31	Stable	Moderate
Steal from motor vehicle	29	51	36	27	Stable	Very Low
Steal from retail store	186	201	249	202	Stable	Very Low
Steal from dwelling	20	22	19	27	Stable	Moderate
Malicious damage to property	46	57	63	36	Stable	Very Low
Fraud	221	364	496	161	Stable	Very Low

Source: *Bureau of Crime Statistics and Research NSW, 2019*

As illustrated in **Figures 16** to **Figure 23**, The BOCSAR database indicates that the Site is located within close proximity of a crime 'hotspot' for the following crimes relevant to CPTED. It is noted that the frequency of Fraud is not displayed in hotspot mapping.

- 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 motor vehicle

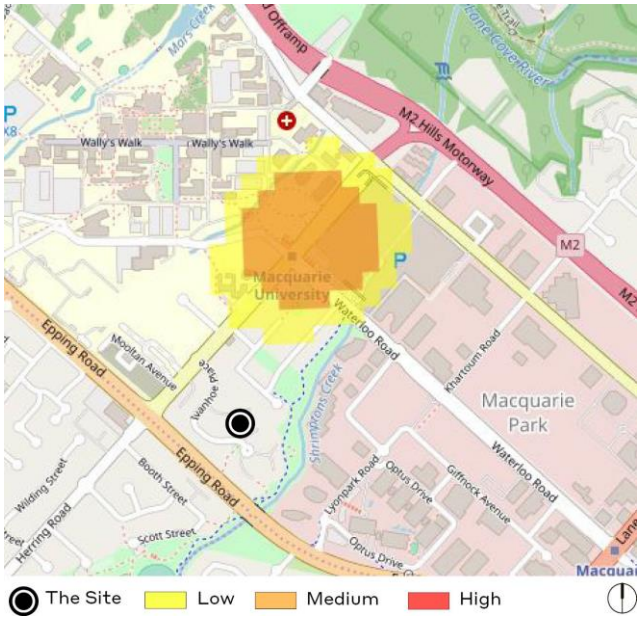

Figure 15 Assault – non-domestic related

Source: BOCSAR, Ethos Urban

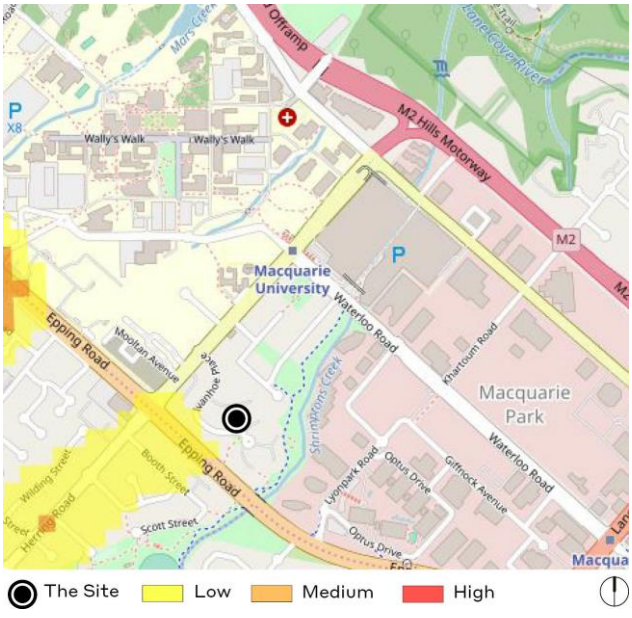

Figure 16 Assault –domestic related

Source: BOCSAR, Ethos Urban

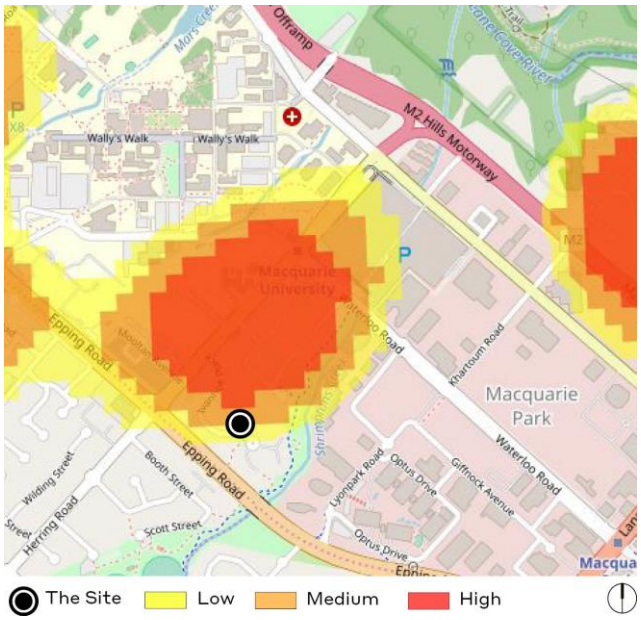

Figure 17 Break and Enter – Dwelling

Source: BOCSAR, Ethos Urban

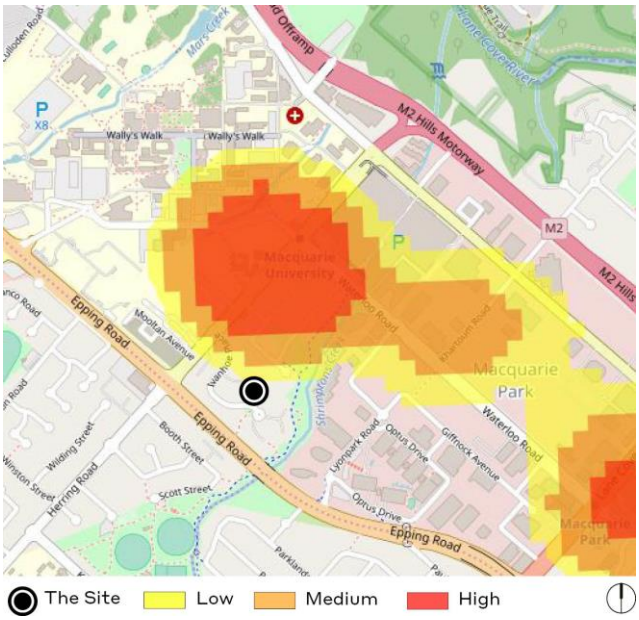

Figure 18 Break and Enter – Non-Dwelling

Source: BOCSAR, Ethos Urban

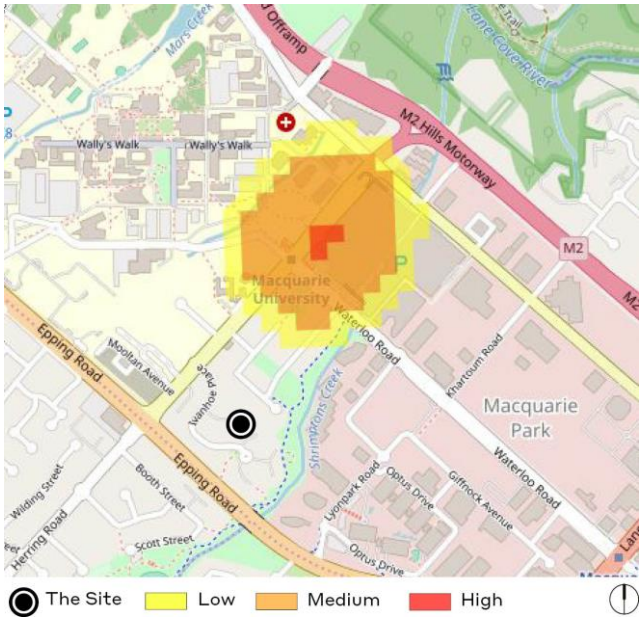

Figure 19 Malicious Damage to Property

Source: BOCSAR, Ethos Urban

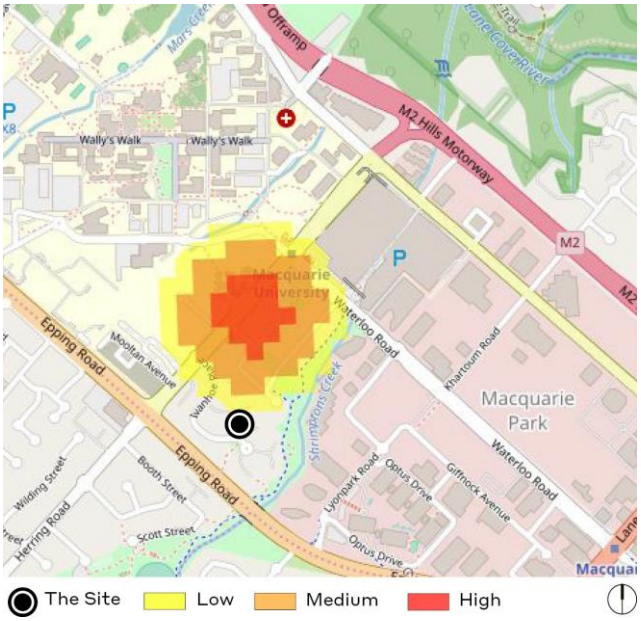

Figure 20 Motor Vehicle Theft

Source: BOCSAR, Ethos Urban

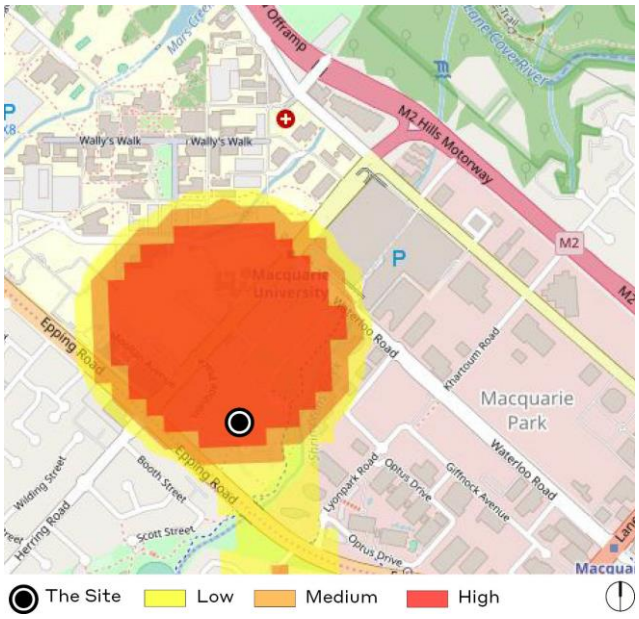

Figure 21 Steal from Dwelling

Source: BOCSAR, Ethos Urban

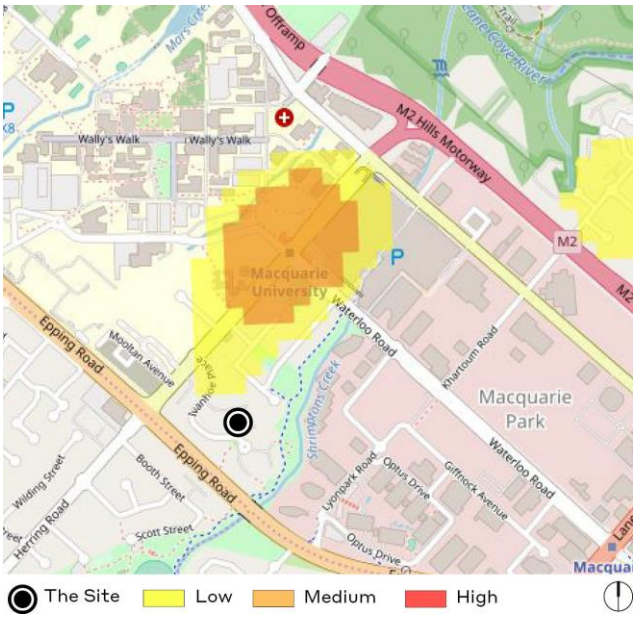

Figure 22 Steal from Motor Vehicle

Source: BOCSAR, 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 BOCSAR 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, child care facilities and small-scale 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 Land & Housing Corporation, 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

Effective natural and incidental surveillance can reduce opportunities for crime. The principle indicates that offenders are often deterred from committing a crime in areas with high levels of natural surveillance. The following design interventions benefit optimal natural surveillance:

- Clear sight lines between public and private places and maximising natural surveillance
- Appropriate lighting and effective guardianship of communal and/or public areas
- 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.

A1 Building

As the building proposed on the A1 site consists of residential dwellings and a child care centre, the proposed development is benefited by increased occupancy. The child care centre and residential dwellings are likely to be occupied at various times, benefitting opportunities for natural surveillance from the development to the surrounds. While the childcare centre ensures the building will be occupied during business hours, the internal layout of the child care centre has minimal opportunities for natural surveillance to the proposed new road and surrounds. This is due to the location of the child care centre within the surrounding topography. The topography change means the child care centre is partially concealed by the retaining walls which stabilise the landscape. While this concealment limits opportunities for natural surveillance, the concealment is not considered to be a significant concern as opportunities for natural surveillance will likely be provided by the surrounding future development of Ivanhoe Estate.

The linear orientation of lobbies and corridors within the proposed building benefits clear sight lines while the general absence of recesses limits opportunities for concealment within these spaces. Additionally, the linear orientation of car park bays avoids recesses of unspecified use, reducing opportunities for concealment within the car park.

C1 Building

Similar to the A1 building, the C1 building also experiences a significant change in topography that may limit opportunities for natural surveillance. However, unlike the A1 building which places all residential dwellings above the levels affected by the abutting topography, the C1 building features residential dwellings throughout all levels, including those at ground level.

As with the A1 Building, the residential dwellings are orientated to provide frontages in all directions, and together within a predominantly glazed façade, benefits opportunities for natural surveillance and effective guardianship to the communal open space and the surrounds. The communal open space is located in areas of topography change, therefore the placement of dwellings on various levels with frontages to these spaces ensures opportunities for natural surveillance are maximised. Further, the orientation of dwellings may also assist natural surveillance to future development located east of the C1 site. Natural surveillance is further benefited by the placement of a retail tenancy toward the north-east boundary of the C1 site, ensuring the occupation of the site during business hours.

The linear orientation of lobbies and corridors within the proposed building benefits clear sight lines, and the general absence of recesses limits opportunities for concealment. Further, the width of corridors seen in the C1 building assist the visibility within the space. Additionally, the linear orientation of car park bays avoids recesses of unspecified use, reducing opportunities for concealment within the car park.

Public space, road network and landscaping

The orientation and design of the road network improve opportunities for natural surveillance. The linear orientation of roads ensures clear sight lines are maximised. A linear design is also seen in the pedestrian paths that bi-sect the C1 site through the communal open space. The linear design of pedestrian paths benefited clear sightlines. The width of these paths and the low landscaping that surrounds the paths reduces opportunities for concealment and entrapment. However, clear sight lines are challenged by the change in topography seen throughout both the A1 and C1 sites. The topographical changes can result in reduces visibility to activity on various levels, further challenges by landscaping elements (such as tree plantings) which can screen activity on various levels. Recommendations in respect of surveillance are provided in **Section 6.1.1** of this assessment.

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. 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, 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.

A1 Building

Within the A1 building, the placement of CCTV should address areas where multiple user groups share space or points of access. These include areas such as the car park entry and visitor access to the residential lobby. CCTV is also recommended in areas that are publicly accessible, including the perimeter of the building and forecourt areas. While CCTV is ideally placed at the entry points of the child care centre, placement of technical supervision throughout the centre is at the discretion of the management of the child care centre and will require installation with the relevant guidelines.

C1 Building

As with the A1 building, the placement of CCTV within the C1 building should address areas where multiple user groups share space or points of access. While the C1 building is designed with greater separation of building uses, the inclusion of a retail/community space is anticipated to increase activity and effective guardianship of the immediate area. It recommended that CCTV addresses all public areas within the C1 site in addition to monitoring key entry/exit points of the proposed building.

Public space, road network and landscaping

The consistent lighting of roads and public spaces throughout Ivanhoe Estate will be critical in ensuring opportunities for natural surveillance are maximised and spaces are appropriately used. However, technical supervision by way of CCTV is not considered appropriate in monitoring the road network of Ivanhoe Estate. Lighting is particularly critical in areas where the public are likely to congregate, such as areas surrounding the retail/community space (at the north-eastern boundary of the C1 site). 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. Users will be more inclined to visit areas that are maintained and to which they feel they have a vested interest in. A well-used and dynamic public space is made safer by natural surveillance. 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 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 dwellings. 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.

A1 Building

Territorial reinforcement of Building A1 is benefited by the absence of a public thoroughfare or shared access points to public and private space. Building A1 features separate access to the child care centre and residential lobbies, which assists in reinforcing what are public and private space. Further, the design of the A1 building features minimal public entries. The location of building entries are within close distance of public roads, with the change of entry-level limiting the user's ability to cut-through the A1 site. The proposed development is also absent of undefined and un-designed space, with landscape treatment extending to the site's boundary and therefore clearly delineating public from private space.

C1 Building

In contrast, the proposed building to be located on the C1 site does not benefit from the same territorial reinforcement seen with the A1 building. This is due to the retail/community space that is located fronting the site's north-eastern boundary. As this area requires public access for its operation, the differentiation and reinforcement of the adjacent private space is challenged. Territorial reinforcement in the communal open space located central of the C1 site is benefitted by an access control mechanism which restricts public access to this space.

The design of the C1 building separates building entries of public and private use. The entry to the retail/community space is located a significant distance from the residential lobbies. The clarity of entry can reduce conflict of the various user groups. Additionally, residential dwellings are further separated within the building, meaning a limited number of dwellings are accessed per lobby. The separation of lobbies and circulation is beneficial for territorial reinforcement.

Public space, road network and landscaping

Territorial reinforcement is understandably absent in the design of the road network and associated public space. The road and footpath network are inherently public space. The consistency of design elements effectively communicates the public nature of these spaces and allow each development stage to design and implement territorial reinforcement that is appropriate to the uses proposed on each development site. The absence to clear territorial reinforcement is therefore considered appropriate within the road network and its associated landscaping. Recommendations in respect of territorial reinforcement are provided in **Section 6.1.3** of this assessment.

5.4 Environmental Maintenance

There is a strong association between environmental maintenance and the fear or perceived fear of crime. The 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.

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.

A1 and C1 Buildings

The external environments within sites A1 and C1 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 communal open space of the C1 site will require specific attention and they include a significant quantity of planting and landscape treatment. Environmental maintenance should also consider the effect of topography and associated retaining walls. This is specifically relevant in the A1 site where poorly maintained landscaping could adversely affect the child care centre. Generally, environmental maintenance procedures should ensure that this vegetation does not compromise other principles of CPTED such as access control and surveillance.

Public space, road network and landscaping

As the roads and associated landscaping will be dedicated to Council, maintenance of these spaces will be at the discretion of Council. 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. 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. 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 A1 and C1 sites include uses such as a child care centre and retail tenancies, these commercial uses are likely to have their own policies and procedures in relation to the management of activity and space, particularly the child care centre. 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), they may involve the participation of other stakeholders, including the child care centre proposed in the A1 building and the retail tenancy proposed in the C1 building. It is noted that an operational statement has been provided by

Mission Australia regarding the operation and management of the buildings. 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, the child care centre, 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 A1 and C1 buildings demonstrate the physical separation of car park bays associated with the various uses within a development.

A1 Building

Access control is generally well considered within the A1 Building. The design of the building clearly separates the entries of the child care centre and residential dwellings and is further benefited by the separation of lift cores for these uses. Also noted in the design of the A1 building is the internalisation of the mail room. This design feature benefits access control to mail, thereby reducing the potential for fraud and identity theft by criminals stealing mail.

However, the control of access to the basement car parking is less restrictive. The design of the car park clearly separates visitor and child care centre parking from residential parking. While these spaces are controlled through a boom-gate system, there is no control of pedestrian movement within the multiple levels of car parking. It is expected that the roller-door located at the entrance of the car park would be open during the childcare centre's operational hours, resulting in unrestricted access to the loading area as well as parking designated for the child care centre, visitors and residents.

Waste storage for the A1 building is also located in the basement area. Access control is greatly benefitted by the waste chute system as details in the architectural plans. The use of waste chutes limits access to the waste storage area, with the area likely to be accessed only by a waste management contractor.

Given the size of the basement car park, a car park manager is not proposed. It is noted that the architectural plans detail provisions for basement access to the adjacent A2 site. As such, a holistic approach to the management of access control within the two sites is required.

Access control may be challenged by the topography of the site, specifically in areas such as the child care centre which feature an outdoor play area that is significantly lower than the adjacent ground level. Access control along the perimeter of the retaining wall surrounding this outdoor play area requires consideration.

C1 Building

Likewise, access control is well considered within the C1 building. The design of the C1 building shows the clear separation of access relating to the use, with entries to private communal open space and the retail/community space located a significant distance from the residential lobbies. This separation is mirrored in the basement car parks of the C1 Building. The proposed Building C1 displays the separation of car park bays in relation to the above uses. As this separation is achieved through partitions, there is minimal opportunity for pedestrians to move through these spaces. Similar to Building A1, Building C1 features the separation of lift cores, which significantly improves the control of access between the building's various uses and levels. Within the private landscaped areas of Building C1, the landscape plans indicate a mechanism of physical access control, intended to limit the access to this space.

Public space, road network and landscaping

The roads and associated landscaping do not feature physical or technical access control mechanisms. This is considered appropriate as these roads are understood as unrestricted public spaces. As with territorial reinforcement, it is important to maintain the proposed development 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. While appearing to fortify the proposed development is considered inappropriate, areas within the proposed development such as the child care centre may require provisions that increase access control. 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 will often exploit areas with unclear spatial definition, the design of the proposed development is generally consistent with 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 A1 and C1 building sites are of a mixed-use, 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 Stage 1 architectural plans prepared by Bates Smart and Candalepas Associates and landscaping plans prepared by HASSELL 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 'moderate' category. An assessment of the proposal using CPTED principles has found that, provided the actions recommended below are implemented, the rating could improve within the 'moderate' category. Furthermore, as the proposed development represents the first stage of a precinct-wide re-development of Ivanhoe Estate, the Crime Risk Rating may change when considering the future environment of the Ivanhoe Estate.

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 Stage 1 buildings of the Ivanhoe Estate is 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

A1 and C1 Buildings

- In areas of the proposed development that have minimal opportunities for natural surveillance created by adjacent uses, ensure concealment and entrapment opportunities are minimised.
- In areas of reduced natural surveillance, such as areas of residential storage, services and car parking, consider the installation of convex mirrors where the visibility of a direct path is unclear.
- In maintaining opportunities for natural surveillance, prohibit shop-front window displays that limit views to the surrounds. Full window displays that conceal views in/out of the commercial tenancies should be strongly discouraged.
- Limit the unnecessary placement of temporary signage and banners along pedestrian paths.

Road network and landscaping

- 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 and access points to the child care centre.
- 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-spilt 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 basements ceilings 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 Mission Australia and other agencies and partners.

A1 Building

- During the child care centre's hours of operation, the designated car parking area is likely to be publicly accessible. Outside of these hours, public access to the basement should be prohibited. It is recommended that visitors be afforded access to designated car parking through an intercom system.

C1 Building

- 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.

6.1.6 Access Control

- Ensure that any access control does not appear to fortify the environment. Any fencing along internal street boundaries to terrace style units be visually attractive and low in height.
- Ensure access to residential lobbies is controlled, ideally with electronic pass systems and intercoms.
- Ensure the access control mechanisms and physical barriers separating vehicles of the various uses (child care, residential, commercial and visitor) areas also restrict the movement pedestrians between these areas. (i.e. non-residents should be restricted from accessing the residential parking areas).
- Residential storage areas within the basement levels should be secured. The contents of storage lockers should not be visible from their exterior (ie storage cages where the internal contents are visible are not recommended).
- Lifts within the residential parking areas should not compromise access control to residential lobbies and levels. Technical access control is recommended for lifts that access residential levels.
- All apartment mailboxes should be secure and internal to the building to avoid mail theft. CCTV may also be considered appropriate to monitor these areas. Apartments with individual direct street access are excluded from this requirement.

6.1.7 Design, Definition and Designation

- As the proposed development of sites, A1 and C1 are the first stages of the Ivanhoe Estate, benefits and disadvantages of the proposed development's relationship with the remaining stages of the Estate's development and the future surrounds is not currently known. As a result, design changes and greater definition may be required in the future in order to maintain CPTED principles.