Meadowbank Education and Employment Precinct Schools Project CPTED Assessment

SSD 18_9343
Prepared by WSP
For School Infrastructure NSW
10 October 2019

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Meadowbank Education and Employment Precinct Schools Project Crime Prevention Through Environmental Design Assessment

Woods Bagot

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REV	DATE	DETAILS
01	24/08/2018	Draft for Comment
02	05/11/2018	Final
03	05/04/2019	Draft SDR - Updated to Incorporate New Architectural Design
04	02/05/2019	SSDA Submission
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Approved by:	Rob Beck	29/05/2019	

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1 INTRODUCTION

1.1 Overview

This Crime Prevention Through Environmental Design Assessment has been prepared by WSP on behalf of the NSW Department of Education (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 18_9343) for the new Meadowbank Education and Employment Precinct Schools Project (hereafter referred to as MEEPSP) at 2 Rhodes Street, Meadowbank (the site).

The K-12 MEEPSP will cater for 1,000 primary school students and 1,620 high school students. The proposal seeks consent for:

- A multi-level, multi-purpose, integrated school building with a primary school wing and high school wing. The school building is connected by a centralised library that is embedded into the landscape. The school building contains:

    – Collaborative general and specialist learning hubs, with a combination of enclosed and open spaces;

    – Adaptable classroom home bases;

    – Four level central library, with primary school library located on ground floor and high school library on levels 1 to 3.

    – Laboratories and workshops;

    – Staff workplaces;

    – Canteens;

    – Indoor gymnasium;

    – Multipurpose communal hall;

    – Outdoor learning, play and recreational areas (both covered and uncovered).

- Associated site landscaping and public domain improvements;

- An on-site car park for 60 parking spaces; and

- Construction of ancillary infrastructure and utilities as required.

The purpose of this Crime Prevention Through Environmental Design Assessment is to report on the proposed security services design intent and criteria for the subject site.

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1.2 Secretary's Environmental Assessment Requirements

The Crime Prevention Through Environmental Design Assessment report is required by the Secretary's Environmental Assessment Requirements (SEARs) for SSD 18_9343. This table identifies the SEARs and relevant reference within this report.

Table 1.1 SEARs and Relevant References

SEARs Item	Report Reference
Crime Prevention Through Environmental Design	Section 4.18(8) Part 2

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2 THE PRINCIPLES OF CPTED

2.1 CPTED Overview

Crime Prevention through Environmental Design (CPTED) is the use of design and space management principles in order to influence human behaviour. CPTED is a crime prevention strategy based on the proper planning, design and structure of cities, neighbourhoods, precincts or individual sites to create an effective use of the built environment which can lead to a reduction in the fear and incidence of crime, as well as an improvement in quality of life.

The design of a particular space has to ensure that the intended activity can function properly, as well as directly support the control of behaviour, in order to reduce the opportunity for crime. The design of the new MEEPSP is required to incorporate the three overarching CPTED strategies – Natural Access Control, Natural Surveillance and Territorial Reinforcement.

2.2 Natural Surveillance

Natural surveillance aims to create an actual and perceived risk of detection of antisocial and illegal activities. Natural surveillance can be achieved through ensuring and creating clear sightlines, generating more 'eyes on the street' by creating environments that encourage and attract legitimate users to a space for long periods of time, and through adequate lighting.

Areas with good natural surveillance ensure potential offenders are kept under observation from legitimate users of the space, or from oversight from neighbouring areas, or passing pedestrian and vehicular traffic, which deter and discourage illegitimate users of the space.

Natural surveillance also aims to provide opportunities for people engaged in their normal daily business to observe the space around them.

Natural surveillance works by designing the placement of physical features, activities and people in such a way so that maximum visibility and positive interaction occurs among legitimate users of the space.

Good natural surveillance can be achieved or improved by considering the following design principles:

— Ensure the Schools precinct can be regularly observed from neighbouring areas and passing traffic;

— Utilise glazing over solid walls where possible, particularly around high use areas, and along highly trafficable areas;

— Utilise an open plan and minimalist design where possible, in order to reduce excessive clutter, furniture and structures that may impact sightlines, and create areas of concealment or entrapment;

— Implement mixed-uses into the precinct (e.g. open the school up for community uses outside of school hours), to ensure regular use of the space, and minimise the length of time that the space is unused. Creating 'more eyes on the street' improves the opportunity for natural surveillance;

— Adequate and effective lighting is critical in order to attract legitimate users to a space, deter illegitimate users, and enhance the ability of both natural and electronic surveillance;

— Minimise alcoves, dead-ends, hard corners, and small / tight spaces that may provide an opportunity for entrapment, and decrease the ability to naturally survey the area;

— Provide facilities and designs that promote the use of the precinct, and in particular any identified high risk areas, and increase the length of time people stay in the space (e.g. provide seating/benches/recreation equipment/relaxation areas and amenities etc.);

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— Select and regularly maintain vegetation so that it doesn't negatively impact on natural and electronic surveillance, and obstruct sightlines. Mature shapes and heights of vegetation should be considered during the selection of vegetation; and

— Provide as much green space as possible, as people are attracted to green areas, and tend to spend longer periods of time in them.

2.3 Natural Access Control

Natural access control involves decreasing opportunities for crime by controlling access to a potential target, and by creating a perception of risk to an offender. Physical and symbolic barriers can be used to attract, channel or restrict the movement of people.

Effective natural access control can be achieved by:

— Using footpaths, walkways and pedestrian thoroughfares to deliberately direct and control pedestrian movement through an area;

— Using signage, way-finding, indicator boards, symbols, monuments, markers, or landmarks to direct and control pedestrian movement through an area, and to notify or symbolise building/precinct entries, boundaries or areas;

— The use of lighting that draws authorised people to an area, or along designated pedestrian routes, and discourage potential offenders from entering these areas;

— Designing spaces, buildings and precincts which attract a diverse range of people to use the area, during the widest timeframe possible (e.g. creating mixed-use spaces), and discourage and deter potential offenders from entering the area; and

— Controlling access to restricted/semi-restricted areas and high-risk areas using symbolic barriers such as raised garden beds, planter boxes, low height hedging, trees, artwork, monuments, and street furniture.

2.4 Territorial Reinforcement

Territorial reinforcement aims to clearly define the use of a space and to create a sense of ownership in that space for legitimate users. The created ownership shows that the owner(s) have a vested interest in the location, which increases the actual and perceived risk of detection of offenders, as they're more likely to challenge unacceptable or suspicious behaviour.

Physical and symbolic barriers such as fences, change in pavements, signage, lighting and landscaping can be used to define and signify public, semi-public and private space. Care is needed to ensure that territorial reinforcement is not implemented by making public spaces portrayed as private spaces, through the use of uninviting and overly overt/hard barriers.

Territorial reinforcement can be achieved through:

— A design with a clear distinction between public and private spaces by using physical barriers (e.g. fences) and symbolic barriers (e.g. vegetation, changes in paving design, signage etc.);

— A design that encourages people to gather and regularly use space and to feel some responsibility for its use and condition. Regular community engagement and interaction is an important consideration for the new schools, to help foster that community relationship and invested interests, outside of the parent cohort;

— Environmental markers (e.g. signage, walkways, pavers, lighting, bollards and fencing) which define intended use and ownership;

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— Regular maintenance of vegetation, infrastructure, and prompt removal of graffiti and vandalism to signal to potential offenders that the space is highly valued and regularly used;

— Creating and providing well-designed green space that attracts people to spend more time in that area. The presence of more people in the area makes it harder for criminals to go unnoticed, due to additional 'eyes on the street'. Increasing the number and opportunity for encounters also helps foster greater social networks and relationships. Fostering stronger social and community networks in the area helps create results in a lower likelihood of crime from within the community (territorial reinforcement);

— The amount of vegetation in an area also influences the length of time people spend in that area. The more trees and grass present in an area, the longer people are likely to spend in that area; and

— Mixed use activation of an area is an effective CPTED strategy that enhances the opportunity for natural surveillance, and encourages territorial reinforcement. A mixed use area increases the chance of the area being used, and lengthens the time that the area is used. Conversely, a single use area, such as a business park, tends to have high use during business hours on week days, but remains largely vacant on the weekends and outside of business hours. These low use times increase security risk, as criminals are less likely to be seen committing offences. The new Schools could look to allow public community access to the schools assets and infrastructure outside of school hours. The Schools could allow/provide public and community access to the following typical facilities:

  — Outdoor playgrounds and equipment;

  — The sports fields, courts, and gym;

  — The hall;

  — Commercial kitchens; and

  — Trade workshops.

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3 RELEVANT / REFERENCE DOCUMENTS

3.1 Documents List

The following documents and excerpts should be referred to in consideration of this report:

— Department of Urban Affairs and Planning: Crime prevention and the assessment of development applications - Guidelines under section 79C of the Environmental Planning and Assessment Act 1979 (now Section 4.15 following issue of the Environmental Planning and Assessment Amendment Act 2017);

— NSW Police Force Safer By Design Evaluation;

— NSW Police Force Companion to Safer By Design Evaluation;

— City of Ryde Crime Prevention Plan (July 2011 – July 2014); and

— City of Ryde Graffiti Action Plan (2014 – 2016).

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4 DEMOGRAPHIC AND COMMUNITY PROFILE

4.1 Community Profile

The community and population profile detailed in the table below is based on information collected during the 2016 Census, for the City of Ryde LGA.

The City of Ryde LGA has an above average number of residents who were born overseas, with only 48.5% of residents born in Australia compared to the NSW state average of 65.5%. After Australian ancestry, the most common ethnicities in Ryde are Chinese, Korean and Indian populations.

The Ryde LGA has a slightly younger population that the state average, with a median age of 36, compared to the average of 38. Ryde LGA also has above average representation within the 15-29 age bracket.

Over 50% of households within the Ryde LGA speak languages other than English at home, double the state average of around 25%. There are significant Mandarin, Cantonese, and Korean speaking populations within the LGA.

An above average number of atheists/agnostics live in the area, as well as Buddhists, and a below average number of Anglicans.

The Ryde LGA tends to be a high to Medium rise area, with 35.6% of dwellings Flats, Units or Apartments, compared to the state average of 19.9%. Only 47.3% of dwellings are separate houses, compared to the state average of 66.4%

Table 4.1 Community and Population Profile

Indicator	Percentage	NSW Average
Population	116,302 (Total)	7,480,231 (total)
Males	48.6%	49.3%
Females	51.4%	50.7%
Australian Born	48.5%	68.6%
Overseas Born	65.5%	31.4%
Indigenous	0.4%	2.9%
Age Structure		
Aged 0-14 years	16.2%	19.2%
15-29 years	22.7%	19.7%
30-44 years	23.9%	20.9%
45-64 years	23.0%	25.5%
Aged 65+	14.3%	14.7%
Median Age	36	38
Birth Place		
Australia	48.5%	65.5%
China	12.5%	3.1%
Korea, Republic of (South)	3.9%	0.7%
India	3.6%	1.8%

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Hong Kong	2.4%	0.6%
England	2.0%	3.0%
Both Parents Born Overseas	60.3%	37.0%
Both Parents Born in Australia	25.2%	45.4%
Religion		
No Religion	30.2%	25.1
Catholic	25.3%	24.7%
Anglican	8.6%	15.5
Buddhism	4.1%	2.8%
Language		
English Speaking Only	47.7%	68.5%
Households where a non-English language is spoken	51.1%	26.5%
Mandarin	12.7%	3.2%
Cantonese	7.0%	1.9%
Korean	4.7%	0.8%
Italian	2.2%	1.0%
Arabic	1.7%	2.7%
Dwelling Structure		
Separate House	47.3%	66.4%
Semi-Detached, Row or Terrace House, Townhouse	16.3%	12.2%
Flat, Unit or Apartment	35.6%	19.9%
Total Occupied Private Dwellings	92.9%	90.1%
Total Unoccupied Dwellings	7.1%	9.9%

Source: 2016 ABS Census

4.2 Socio-Economic Context

The Ryde LGA has above average income levels, with the median personal income 12.3% higher than the NSW state median. It also has a lower rate of unemployment at 4.7%, compared to the NSW state unemployment rate of 5.9%, and above average full time employment. Ryde has above average representation in the Professionals, Managers and Clerical and Administrative Workers, and below average representation in Labourers, Sales Workers, Machinery Operators and Drivers, and Technicians and Trade Workers professions, signifying a generally 'White Collar' workforce.

Legal and Accounting Services, Computer System Design and Related Services, Hospitals, and Education are some of the most common industries of employment for Ryde LGA residents.

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Socio-Economic Context

Indicator	Percentage	NSW Average
Employment Status		
Employed – Full Time	64.2%	60.2%
Employed – Part Time	26.3%	28.2%
Away from Work	4.9%	5.7%
Unemployed	4.7%	5.9%
Total Labour Force	11,134	3,334,858
Occupation		
Professionals	27.5%	22.7%
Managers	13.6%	13.3%
Clerical & Administrative Workers	17.3%	15.1%
Community & Personal Services Workers	8.2%	9.5%
Sales Workers	8.6%	9.3%
Technicians & Trade Workers	12.3%	13.2%
Labourers	6.6%	8.7%
Machinery Operators & Drivers	3.9%	6.4%
Industry of Employment		
Cafes, Restaurants, & Takeaway Food Services	4.0%	4.1%
Legal and Accounting Services	2.9%	2.4%
Hospitals	3.9%	3.2%
Computer System Design and Related Services	3.3%	1.7%
School Education	3.8%	4.4%
Median Incomes (Weekly)		
Personal	$738	$664
Family	$2,106	$1,780
Household	$1,786	$1,486
Housing Tenure		
Owned Outright	29.3%	33.2%
Owned with a Mortgage	29.3%	32.3%
Rented	38.2%	31.8%
Dwelling Structure		
Separate House	47.3%	66.4%

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Semi-Detached, Row or Terrace House, Townhouse	16.3%	12.2%
Flat, Unit or Apartment	35.6%	19.9%
Total Occupied Private Dwellings	92.9%	90.1%
Total Unoccupied Dwellings	7.1%	9.9%

Source: 2016 ABS Census

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5 CRIME PROFILE

5.1 Overview

The MEEPSP is located within the Ryde Local Government Area (LGA). As will be demonstrated in the ensuing sub-sections, the Ryde LGA is a relatively low crime area, with six of the top 10 crime rates also reducing over the past five years.

Non-domestic violence related assault, malicious damage to property, and break and enter - non-dwelling, are the most prevalent crimes within the Ryde LGA, relevant to education locations.

5.2 Local Crime Profile

5.2.1 Ryde Local Government Area (LGA)

The following crime types, drawn from the NSW Bureau of Crime Statistics and Research (BOCSAR) are relevant to the development. The table below identifies the crime counts, rates, 5-year trend, and LGA rank (out of 120, with 1 being the worst LGA):

Offence Category	5 Year Trend	Offence Count 2018	Rate per 100,000 Population		2018 LGA Rank
			Ryde	Sydney	
Fraud	-14.32%	802	644.2	703.2	28
Malicious Damage to Property	-12.36%	461	370.3	600.9	112
Steal from Motor Vehicle	-16.57%	302	242.6	413.2	94
Other Theft	-63.79%	293	235.3	312.2	93
Assault - Non-Domestic Violence Related	7.94%	231	185.5	345.7	105
Harassment, Threatening Behaviour, Public Nuisance	19.65%	207	166.3	333.1	108
Sexual Offences (Indecent Assault, Sexual Assault, Acts of Indecency, & Other Sexual Offences)	19.23%	124	99.6	138.8	106
Motor Vehicle Theft	-23.81%	80	64.3	136.9	112
Break and Enter Non-Dwelling	-26.17%	79	63.5	84.4	105
Trespass	27.78	69	55.4	86.1	111

2017 Crime Statistics for Ryde LGA (source: BOCSAR)

5.2.2 Education Premises - Ryde LGA

The following crimes are the most common crimes to occur within an education premises, within the City of Ryde LGA:

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1. Non-Domestic Violence Related Assault – 14 offences;

2. Malicious Damage to Property – 12 offences;

3. Break and Enter Non-Dwelling – 9 offences;

4. Sexual Offences – 6 offences;

5. Domestic Violence Related Assault – 2 offences;

6. Steal from Person – 1 offence;

7. Steal from Motor Vehicle – 1 offence; and

8. Motor Vehicle Theft – 1 offence.

5.2.3   *Crime Hot Spots- Ryde LGA*

5.2.3.1   Overview

The eight available criminal offence hotspots for the City of Ryde LGA are profiled below, with accompanying analysis on their impact on the MEEPSP site. Each crime hot spot map details the amount and location of each particular offence to occur within the LGA throughout 2018. The location of the MEEPSP site is indicated by a large red dot.

5.2.3.2   Malicious Damage to Property

The map below portrays the malicious damage to property hotspots for the City of Ryde LGA, from January 2018 to December 2018:
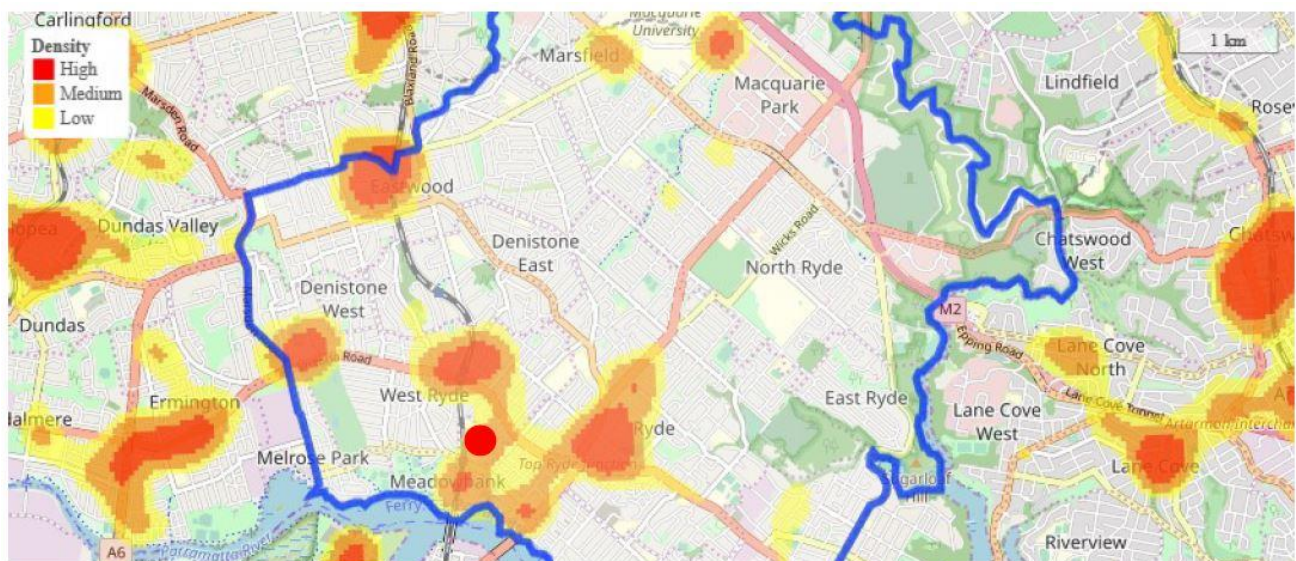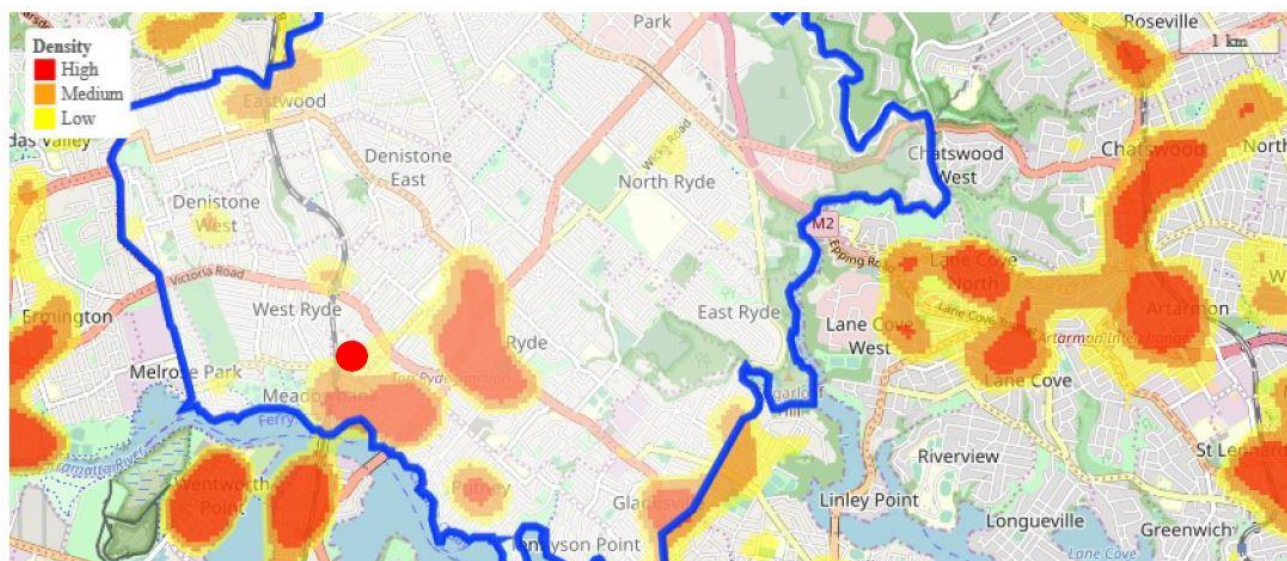

As can be seen in the crime hot spot map above, malicious damage to property offences do tend to occur around the MEEPSP site, however, they are more likely to occur within the Eastwood commercial area, around the Top Ryde shopping centre, the West Ryde Train Station and Marketplace, and the Ermington Public School/Marsden High School area.

This offence category will require some attention as part of this CPTED process, due to the fact that it's the second highest offence type to effect education premises within the LGA, and the fact that Marsden High School is relocating to this new school.

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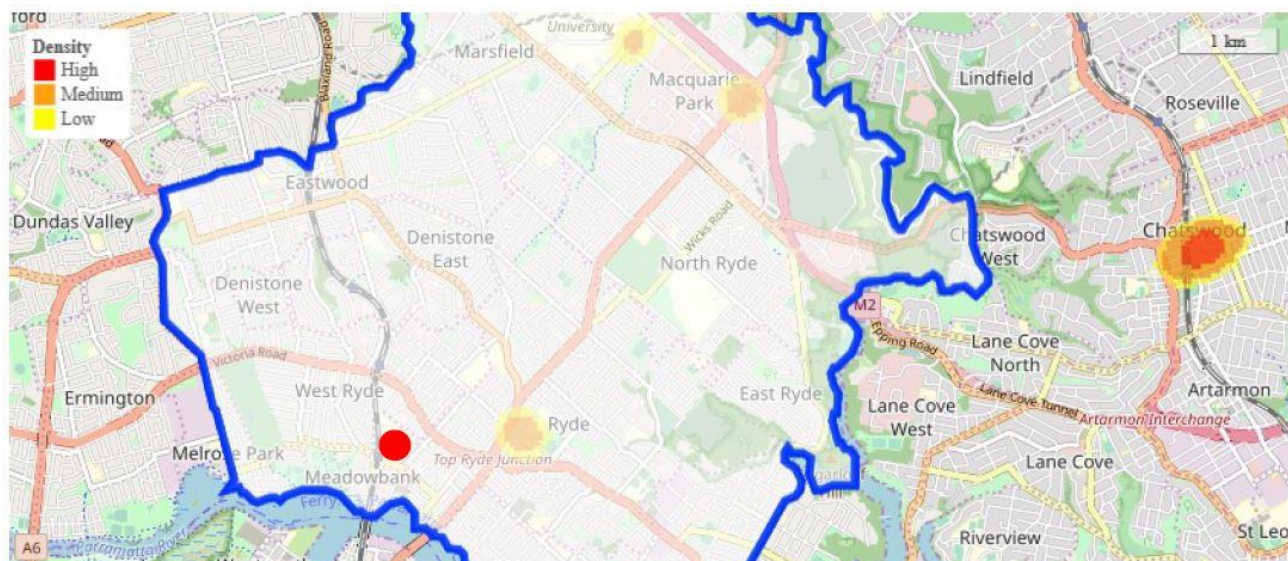
5.2.3.3   Steal From Motor vehicle

The map below portrays the steal from motor vehicle hotspots for the City of Ryde LGA, from January 2018 to December 2018:

As can be seen in the hot spot map above, steal from motor vehicle offences within the City of Ryde LGA are most likely to occur around the Top Ryde Shopping Centre area, and the area immediately south-east of the Meadowbank Train Station. Due to the close proximity of these crime hot spots, this offence type will therefore require consideration as part of this CPTED process, and throughout the project design phases.

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5.2.3.4   Steal From Person

The map below portrays the steal from person hotspots for the City of Ryde LGA, from January 2018 to December 2018:

Steal from person offences within the Ryde LGA are most likely to occur in the Top Ryde Shopping Centre area, and around the Macquarie Centre/Macquarie University area along Herring Road, and the Lane Cove Road/Talavera Road intersection. Steal from person offences are not likely to be of great security concern for the new MEEPSP.

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5.2.3.5   Motor Vehicle Theft

The map below portrays the motor vehicle theft hotspots for the City of Ryde LGA, from January 2018 to December 2018:
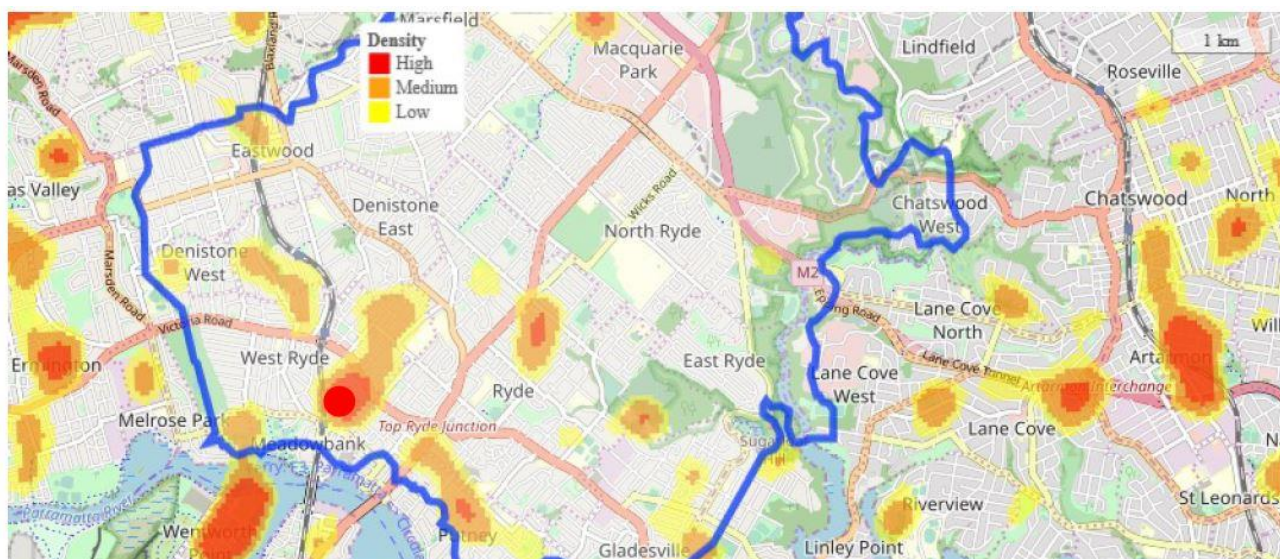
Motor vehicle theft is of concern for the Schools Project, as the new schools will be located in the area with the worst rates of the crime to occur within the LGA. Motor vehicle theft in this area appears to target commuter cars parked in neighbouring streets around Meadowbank Train Station.

To put the risk of motor vehicle theft into context though, the City of Ryde has the 9th lowest rate of motor vehicle theft within Sydney.

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5.2.3.6 Non-Domestic violence Related Assault

The map below portrays the non-domestic violence related assault hotspots for the City of Ryde LGA, from January 2018 to December 2018:
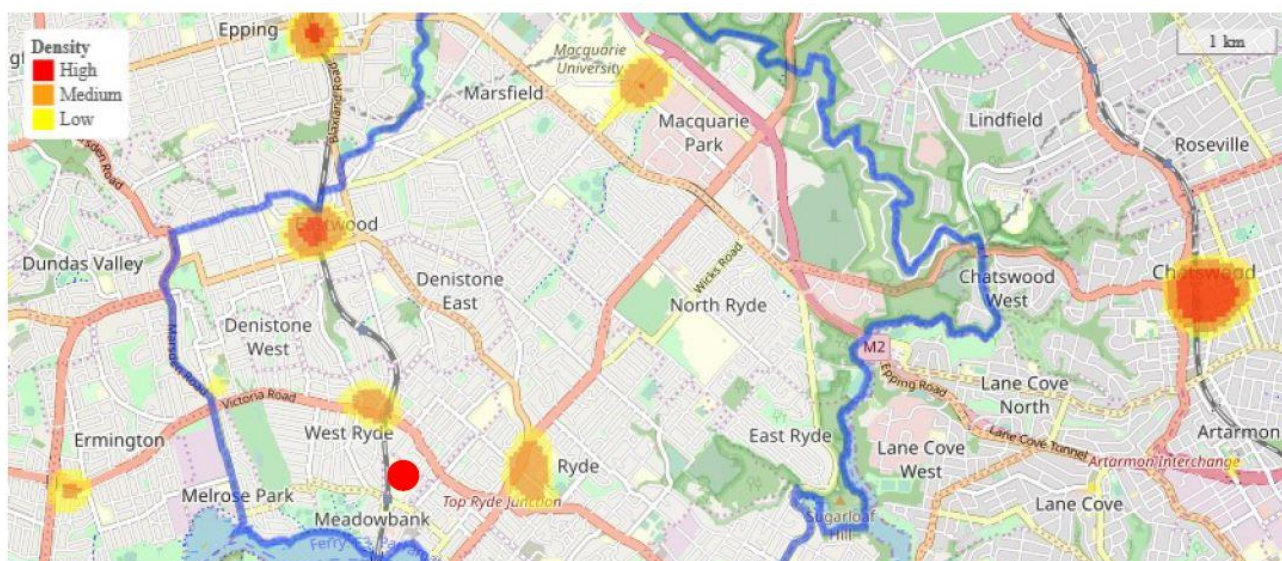

Non-domestic related assault is most likely to occur within the Eastwood commercial area, around the Top Ryde shopping centre, the West Ryde Train Station and Marketplace, and the Macquarie University/Macquarie Centre area.

Non-domestic related assault is not currently a major security concern in the MEEPSP site area, but as the most prevalent offence type to occur within the LGA's education settings, will need to be further considered as part of this CPTED process, and the project design phases.

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### 5.2.3.7   Domestic Violence Related Assault

The map below portrays the domestic violence related assault hotspots for the City of Ryde LGA, from January 2018 to December 2018:
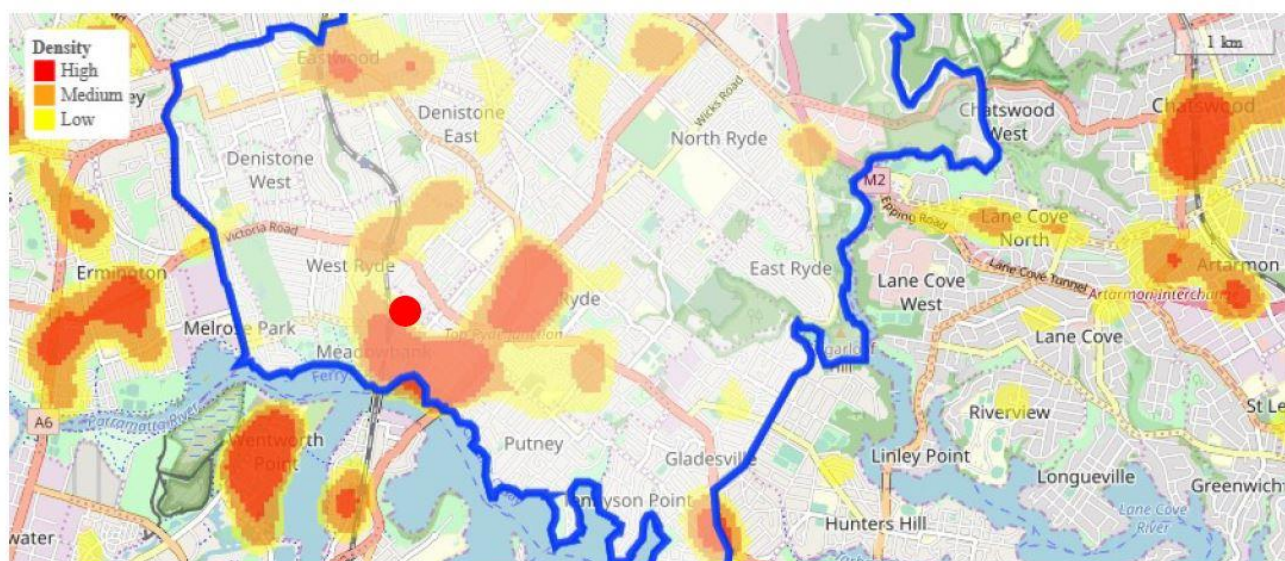
As the 5th most common offence type to occur with education settings, within the Ryde LGA, the risk of domestic related assaults needs to be considered in relation to the security risks associated with the new Schools Project. As can also be seen in the hotspot map above, domestic violence related assaults within the Ryde LGA are most likely to occur in the West Ryde Train Station/Meadowbank Train Station/Top Ryde Shopping Centre arc. Domestic related assaults, are therefore of concern for the MEEPSP site area, and will need to be considered further as part of this CPTED process, and the project design phases.

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5.2.3.8   Break and Enter Non-Dwelling

The map below portrays the break and enter non-dwelling hotspots for the City of Ryde LGA, from January 2018 to December 2018:
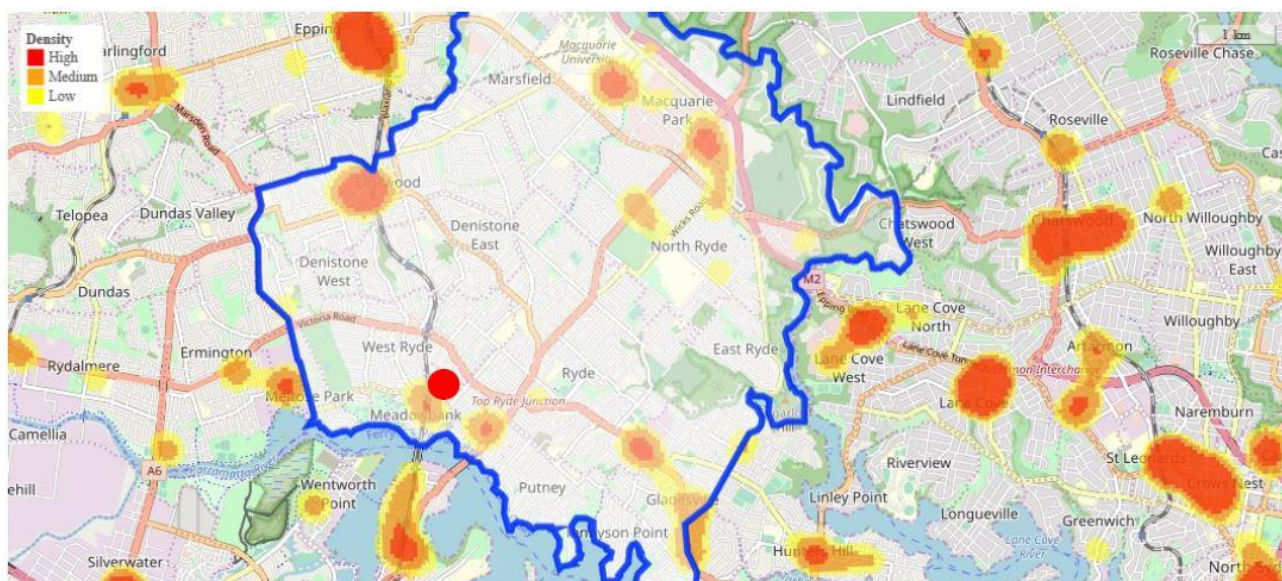
Break and enter offences are of greatest concern in the Gladesville area along Victoria Rd, the Macquarie Park Lane Cove area, and the Eastwood town centre/commercial areas. There are some small high density occurrences of break and enter offences around Meadowbank Train Station, presumably at the adjoin commercial premises. Due to the close proximity of these offences occurring around Meadowbank Train station, this offence type will also be further considered as part of this CPTED process, and during the project design phases.

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5.2.3.9   Robbery

The map below portrays the robbery hotspots for the City of Ryde LGA, from January 2018 to December 2018:
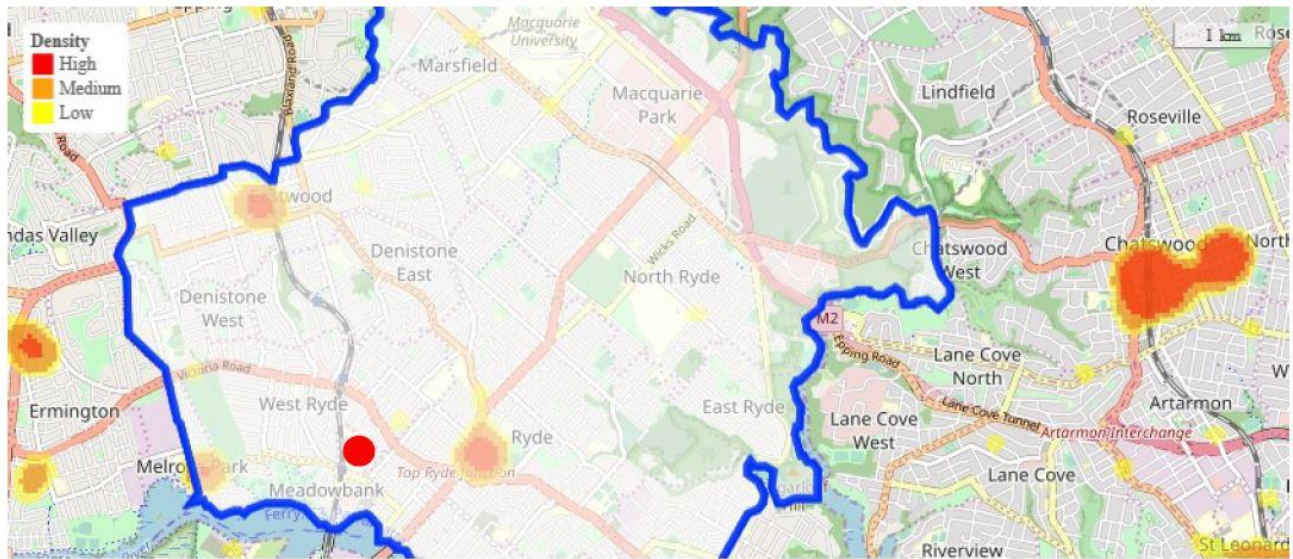
Robbery offences within the Ryde LGA, are largely confined to the Top Ryde Shopping Centre, and Eastwood town centre/commercial areas, and not of major concern for the new MEEPSP Project.

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6   CPTED ASSESSMENT

6.1   Overview

The Architectural design of the MEEPSP site as a whole, and each building level has been assessed against the key CPTED aspects of natural surveillance, natural access control, and territorial reinforcement. Other security related architectural design issues have also been assessed and documented within the annotated drawings below.

6.2   Site Wide Review

6.2.1   Review Overview

The detailed CPTED review of this level is documented on the next page.

6.2.2   Review Outcomes

The MEEPSP site, as depicted above, generally has very good CPTED qualities. Natural access control throughout the site is very well defined, through the use of extensive and clearly defined footpaths and walkways. Entry and exit points to the site have also been clearly defined, and limited to only a few locations.

Natural surveillance within the site, is generally well supported due to the large open plan areas, large paved areas, numerous sports fields, and use of either grass and low ground cover vegetation, and the presence of tall mature trees with high canopies.

From neighbouring properties and areas, however, the natural surveillance tends to be poor, due to the light industrial uses located on the opposite side of Rhodes St, and the neighbouring rail corridor. The significant changes in gradient between the school and the neighbouring TAFE, also limit the effectiveness of natural surveillance of the school from the TAFE campus.

The main areas for further consideration and co-ordination as the design develops, is around the vegetation and landscaping design, and ensuring they don't negatively impact on natural and electronic surveillance, and lighting.

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6.3 Playground Level Plan

6.3.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.3.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Bike parking located in areas with good natural surveillance;

— Toilet entries, whilst contained within an alcove/dead-end, do have clear sightlines from likely high use areas such as the COLA and outdoor uncovered area. Alcove is also relatively wide, to minimise the risk of entrapment;

— Canteen has clear sightlines to naturally survey the COLA, lift and outdoor covered area;

— Good natural surveillance of outdoor covered and uncovered areas, COLA, and lift due to wide open spaces with clear sightlines;

— Good natural access control to and from the outdoor uncovered areas, with clearly defined pedestrian routes and stairs; and

— Poor natural surveillance of stairs and lift entries. Potential entrapment opportunity due to long, narrow layout.

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6.4 Lower Ground Review

6.4.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.4.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Car park has good natural surveillance due to its large open space, with minimal structures and no nooks and crannies that restrict sightlines, or provide potential areas of entrapment;

— Good natural access control within outdoor landscaped areas due to well defined footpaths and routes, and well defined and clear building entry points;

— Natural surveillance of the lift landing partially obstructed by the stairwell;

— Generally good natural surveillance within the high school outdoor covered area due to the large wide clear areas, providing unobstructed sightlines; and

— In order to improve natural surveillance from the canteen, provide plenty of glazing or concertina walls to open up the canteen and integrate it into the covered space.

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6.5 Ground Floor Review

6.5.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.5.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Good natural access control through clearly defined entry points for each school;

— Good natural surveillance opportunities from the community hall and admin entry vestibule due to use of glazing. The COLA and primary school outdoor uncovered area are able to be casually monitored from these areas;

— The large open plan design of the COLA provides good natural surveillance from within the COLA, and surrounding areas. Use of glazing on the surrounding walls also facilitate natural surveillance from neighbouring areas;

— The other COLA has a solid walled amenities block in the middle of it, which restricts sightlines within the area and provide a negative impact on the natural surveillance;

— The neighbouring solid walled staff room also prevents natural surveillance of the COLA. It is recommended that glazing, or a high number of windows be used along this wall, in order to enhance natural surveillance of the COLA, and help reduce the negative impact on sightlines caused by the amenities block;

— A blind spot was identified within the COLA, due to a hard 90 degree corner. This location does not have natural surveillance from the nearby circulation space. Natural surveillance of this location from within the COLA is also made worse due to the amenities block;

— Excellent natural surveillance along main circulation routes, due to clear sightlines;

— Good natural access control, through clearly defined circulation paths throughout and between the buildings;

— Excellent natural surveillance of primary school lift landing / waiting areas;

— Poor natural surveillance of primary school outdoor uncovered area, from library, due to the lack of windows and glazing;

— Poor natural surveillance of lift landing / waiting area at high school lifts;

— A blind spot was identified within the high school outdoor covered area, due to a hard 90 degree corner. This location does not have natural surveillance from the nearby circulation space;

— Good natural access control throughout the external landscaped area due to clearly designated footpaths and stairs; and

— Staff room location provides good natural surveillance of external landscaped area.

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6.6 Level 1 Review

6.6.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.6.2 Review Outcomes

The CPTED assessment for this level found the following outcomes:

— Generally good natural surveillance throughout this level;

— Good natural access control, with clearly defined walkways and pedestrian links;

— The main circulation routes have glazing along the majority of the routes, providing good natural surveillance from the adjoining rooms;

— The high school lift landing within the outdoor covered area was identified as having poor natural surveillance, limited to within the covered area, and a small section of the circulation space;

— One of the primary school's outdoor covered areas consists of a large open plan area, which provides good natural surveillance from within the area, and has glazed surrounding walls providing oversight from the neighbouring homebase;

— The other primary school outdoor covered area has a corner identified as having poor natural surveillance from the circulation space, and also has solid walls surrounding it, preventing natural surveillance from neighbouring areas;

— The many large voids on this level provides great natural surveillance of the areas below;

— The void in the middle of the circulation space adjacent to the admin/clerical area has the potential to restrict sightlines. The balustrade around this void is recommended to be glazing to limit any negative impacts on natural surveillance; and

— One high school outdoor covered area has glazing running along either side, providing an opportunity for natural surveillance from the adjoining rooms. The other high school outdoor covered area has solid walls, preventing natural surveillance from the adjoining areas.

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6.7 Level 2 Review

6.7.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.7.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Generally good natural surveillance throughout this level;

— Good natural access control, with clearly defined walkways and pedestrian links;

— The main circulation routes have glazing along the majority of the routes, providing good natural surveillance from the adjoining rooms;

— Some areas within the outdoor covered areas were identified as having poor natural surveillance from the circulation space;

— The high school lift landing within the outdoor covered area was also identified as having poor natural surveillance, limited to within the covered area, and a small section of the circulation space;

— Some of the covered outdoor spaces had glazing running along either side, providing the opportunity for natural surveillance from the neighbouring areas, whilst others and the COLA's had solid walls, which prevented natural surveillance from these areas;

— One of the COLA's consists of a large open plan area, which provides good natural surveillance from within the COLA, but the solid surrounding walls restrict oversight from neighbouring areas; and

— The location of the staff room on this level provides good opportunity for natural surveillance of external student areas, and the high school outdoor covered area.

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6.8 Level 3 Review

6.8.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.8.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Generally good natural surveillance throughout this level;

— Good natural access control, with clearly defined walkways and pedestrian links within each building, and between the buildings;

— The high school outdoor uncovered area provides good natural access control, with clearly defined entry and exit points to this area. This location also provides great natural surveillance of the landscaped area below, and both adjoining schools;

— Some areas within the outdoor covered areas were identified as having poor natural surveillance from the circulation space, due to hard 90 degree corners;

— The high school lift landing within the outdoor covered area was also identified as having poor natural surveillance, limited to within the covered area, and a small section of the circulation space;

— Some of the covered outdoor spaces had glazing running along either side, providing the opportunity for natural surveillance from the neighbouring areas, whilst others had solid walls, which prevented natural surveillance from these areas; and

— The location of the staff room on this level provides minimal opportunity for natural surveillance of external student areas.

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6.9 Level 4 Review

6.9.1 Review Overview

The detailed CPTED review of this level is documented on the next page.

6.9.2 Review Outcomes

The CPTED assessment for this level made the following observations:

— Generally good natural surveillance throughout this level;

— Good natural access control, with clearly defined walkways and pedestrian links within each building, and between the buildings;

— Some areas within the outdoor covered areas were identified as having poor natural surveillance from the circulation space, due to hard 90 degree corners;

— The high school lift landing within the outdoor covered area was also identified as having poor natural surveillance, limited to within the covered area, and a small section of the circulation space;

— Some of the covered outdoor spaces had glazing running along either side, providing the opportunity for natural surveillance from the neighbouring areas, whilst others had solid walls, which prevented natural surveillance from these areas; and

— The location of the staff room on this level provides minimal opportunity for natural surveillance of external student areas.

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6.10 Roof Plan Review

6.10.1 Review Overview

The figure below depicts the roof level of the MEEPSP Project.

Figure 1 Roof Level

6.10.2 Review Outcomes

The roof level comprises a metal roof, solar photovoltaic (PV) panels, and an Ethylene Tetra Flouro Ethylene (ETFE) roof. A CPTED assessment is not relevant for the roof level, as its use is expected to be limited to irregular maintenance access only.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 CPTED Review outcome

The current Architectural design for the MEEPSP project has been assessed against the principles of Crime Prevention Through Environmental Design.

In summary, the design demonstrates many of the CPTED principles, including good opportunities for natural surveillance, well defined natural access control, and territoriality through a well-designed, low maintenance site, and clearly established private use space. The anticipated opening up of sections of the site for community use will help foster and develop a sense of territoriality and ownership in the site, and increase the schools' times of use.

The assessment has identified and documented a number of areas that may require further review and confirmation, or design adjustments to improve their CPTED and security attributes.

The following recommendations should be considered during design development to enhance security within the development:

— Where identified, potential areas of CPTED and security concern should be further reviewed, and confirmed;

— A security risk assessment should be conducted in order to identify, assess, and determine the actual security risks that this site is exposed to, and their risk ratings. An understanding of the actual risk, their ratings, and the DoE tolerance to that risk, will assist with the determination of which identified CPTED issues need to be addressed further;

— Identified areas of concern should be redesigned where possible and reasonably practical, to design out the identified security issues;

— Where security and CPTED issues have been identified, reviewed, and confirmed, and it isn't reasonably practical to redesign, other measures should be implemented in order to help minimise the security risk. Other measures could include the provision of CCTV coverage in areas with poor natural surveillance. In outdoor covered area locations identified as presenting blind spots due to hard corners, the building corners could be rounded-off to reduce the blind spot, and further open up the area. Alternatively, the corner could be closed off to access through the provision of a raised garden bed, or other feature that restricts access to this area;

— Review of the lighting reference design, to obtain confirmation that as-built lighting levels (provided by feature lighting / spill over or installed lighting) are sufficient to support either natural surveillance or technical surveillance (CCTV);

— It is recommended that identified staff rooms/areas be repositioned to overlook external areas likely to be commonly used during lunch and recess, to provide the opportunity for natural surveillance;

— Ground Level primary school staff room - It is recommended that glazing, or a high number of windows be used along the wall adjoining the COLA, in order to enhance natural surveillance of the COLA, and help reduce the negative impact on sightlines caused by the amenities block;

— Ensure trees and vegetation are well maintained so they don't negatively impact on natural and electronic surveillance, and on lighting levels; and

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— It is recommended that the new Schools look to allow public and community access to the schools assets and infrastructure outside of school hours. The Schools could allow/provide public and community access to the following typical facilities:

- Outdoor playgrounds and equipment;

- The sports fields, courts, and gym;

- The hall;

- Commercial kitchens; and

- Trade workshops.

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