CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (CPTED)

ST ANTHONY OF PADUA CATHOLIC SCHOOL

URBIS

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EXECUTIVE SUMMARY

This Crime Prevention through Environmental Design (CPTED) assessment has been prepared by Urbis Pty Ltd (Urbis) on behalf Sydney Catholic Schools in relation to the development application for the State significant development (SSD DA) for the expansion of St Anthony of Padua Catholic School, Austral (the school expansion).

A CPTED assessment is an independent study undertaken to analyse a development against CPTED principles and make recommendations which may help to reduce crime and anti-social behaviour. The four CPTED principles used to assess the school expansion are illustrated below:
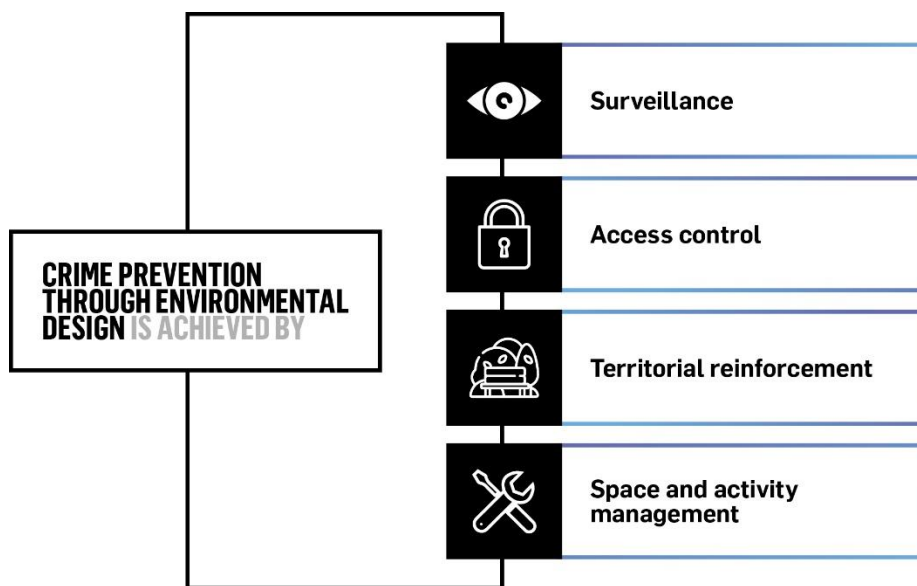
LEGISLATIVE REQUIREMENT

As required by the Secretary's Environmental Assessment Requirements (SEARs) issued for the SSD DA on 19 December 2017, this report assesses the school expansion against CPTED principles.

THE PROPOSAL

The SSD DA will seek approval for the expansion of the school to accommodate up to 2,500 preschool to Year 12 students and approximately 200 staff. The SSD DA seeks consent for concept approval for the entire subject site, including land uses, setting of the school boundary, general site layout, access points, building envelopes, and the resolution of site and environmental issues.

Development consent is sought for various works including:

- Demolition of the existing dwelling houses and demountable classroom.

- Remediation of specific areas of the site.

- Construction of multiple school buildings.

- Provision of open space and landscaping.

- Construction of on-site carparks, set-down, and pick-up area and associated vehicular access points from Tenth Avenue, Eleventh Avenue and Fourth Avenue.

- On-site stormwater, infrastructure and services.

POLICY REVIEW

A policy review was undertaken of relevant State and local government policy priorities to understand the strategic location of the site. Key findings relevant to this proposal include:

- Section 2.5 of The *Liverpool Growth Centres Development Control Plan 2013* (LDCP 2013) outlines CPTED controls including designing development to enhance surveillance of open space and preventing the creation of both areas of concealment and blank walls facing the street.

- Liverpool Council's *Safer by Design – Guidelines for Council Units and Developers* aims to make the built environment safer from initial planning stages by providing recommendations such as creating clear sight-lines, providing effective lighting and designing with a clear distinction between public and private spaces.

- Best practice guidelines for schools list specific design elements of schools which may affect crime and vandalism including multiple entry points, valuable equipment and low levels of activity on weekends, school holidays, public holidays and after-hours.

COMMUNITY PROFILE

A demographic analysis was undertaken based on 2016 census data from the Australian Bureau of Statistics (ABS) for the study area (approximately 3km radius around the site). Key findings relevant to CPTED Assessment include:

- The study area is broadly characterised as a family area, with the majority of the population living in family households.

- There is limited cultural diversity with the majority of residents born in Australia and only speaking English at home.

- The majority of dwellings in the study area are separate houses which reflects the semi-rural character of the area.

- There are lower levels of unemployment compared to Liverpool LGA and Greater Sydney.

CRIME

Crime data from the NSW Bureau of Crime Statistics and Research (BOCSAR) was analysed to identify the crime profile for the suburb of Austral and Liverpool LGA, compared to the NSW average

Austral is generally considered a low-crime suburb, with the proposal site not located within a crime hotspot. The suburb generally has lower crime rates per 100,000 people compared to both Liverpool LGA and NSW, with the exception of 'domestic assault' and 'break and enter non-dwelling'.

The suburb's low crime rates are likely attributed to the suburb's small population and rural setting. However, crime rates in Austral are expected to change in the coming years due to the rezoning of the Austral and Leppington North Precinct and the subsequent population growth, with this precinct eventually to provide 17,350 new homes.

CPTED ASSESSMENT

The school expansion has been assessed against the four CPTED principles and the following priority areas were identified:

Vehicle and pedestrian movements

Car parking areas can be common spaces for offences against property or persons. The school expansion provides four at grade car parks distributed across the site and generally located in areas that will receive good passive surveillance from school buildings. A network of internal footpaths and pedestrian crossings facilitate safe pedestrian movements.

The school expansion utilises different entry and exit points to enhance safety of different user groups, including a new internal access road along the eastern boundary in order to manage drop off and pick up

within the site, a school service entry via a driveway off Fourth Avenue and a separate vehicular entrance and carpark on Eleventh Avenue for the childcare centre.

Recommendations to mitigate potential crime and safety issues include:

- Signalisation of the Fourth and Eleventh Avenue intersection to facilitate safe pedestrian travel in and out of the school as recommend in the Transport and Accessibility Impact Assessment.

- Consider safe movements of future bus services, including drop off/pick up points and turning circles.

- Install wayfinding and traffic control signage throughout car parks to safely manage interactions between cars, pedestrians, cyclists and children.

- Provide adequate lighting in car parking areas and safe pedestrian routes from carparks to school buildings.

- Educate staff, parents and children regarding any changes to the current pick/drop-off procedure, including phasing out informal parking at Craik Park.

- Monitor the need for a 'crossing officer' at pedestrian crossings during school starting and finish times.

External layout

External layouts can resolve safety conflicts and improve activation of the urban environment. The external layout of the site is considered a priority as Austral has higher rates of 'break and enter non-dwelling' compared to Liverpool LGA and NSW.

The school expansion clusters school buildings in the northern portion of the site and large area of sports fields and courts in the southern portion of the site. Recognising that the Austral suburb is anticipated to experience significant growth, the southern portion of the site may currently have limited passive surveillance when the sports fields are not in use. Additionally, the northern portion of the site opposite Craik Park may also be inactive outside of standard school hours. The Landscape Masterplan includes new plantings which will create a clear delineation between public and private spaces.

Recommendations to mitigate potential crime and safety issues include:

- Consider shared-use of the site to active the school outside of traditional operating hours. If shared use facilities are provided, an Operational Plan of Management is recommended to address public access of these facilities whilst limiting access to the rest of the school grounds.

- Implement a lighting strategy to activate the perimeter of the site outside of school hours.

- All entry/exit points should be clearly identifiable to discourage entry/exit at unauthorised points.

- Entry/exit points to buildings should be secured outside of operating hours to prevent unauthorised access to school buildings and facilities.

Maintenance and management

Developments that are well managed and maintained are less likely to attract criminal activity through establishing a sense of ownership and pride for those who live and work close by. Proper maintenance procedures will be required to ensure that all property damage is repaired in a timely manner to ensure students and staff are not exposed to increased levels of risk to crime.

Recommendations to mitigate potential crime and safety issues include:

- Preparation of an Operational Plan of Management which is to consider the following:

  – Maintenance and repairing strategies of lighting, landscaping and removal of graffiti.

  – Shared use agreement procedures (if proposed).

  – Cash management strategies of the café.

  – Safety and security induction for staff and visitors.

- Rooms with valuable equipment, such as the trade training centre, should incorporate access control measures such as swipe cards or locks to minimise the risk of equipment being taken out of the building or stolen.

Construction

Construction activities and staging present a range of potential crime and safety issues, including malicious damage to property and safety risks to site users. Construction safety is particularly important to consider in a school environment.

The school expansion will be built in six stages with works expected to be completed by 2034. Additional year groups will be added consecutively until kindergarten through to Year 12 is operational. Due to the timeframe, construction will be occurring whilst the school is operational.

Recommendations to mitigate potential safety issues include:

- Prepare and implement a Construction Management Plan including strategies and procedures specific to a school environment, which may include working with children checks.

- Students and staff should be briefed on construction activities that may present a safety or health risk.

CONCLUSION

Educational establishments can be targets for crime and vandalism because of their scale, defined operating hours, variety of uses and landmark status.

This report has assessed the expansion of St Anthony of Padua Catholic School against the four CPTED principles and has identified potential risk areas and recommendations which may help to reduce crime and anti-social behaviour.

Overall it is considered that the school expansion incorporates CPTED principles and that the recommendations included in this report are adequate to minimise any potential crime risks related to the operation and construction of the school to provide a safe environment for students, visitors and staff.

1. INTRODUCTION

This Crime Prevention through Environmental Design (CPTED) assessment has been prepared by Urbis Pty Ltd (Urbis) on behalf Sydney Catholic Schools in relation to the development application for the State significant development (SSD DA) for the expansion of St Anthony of Padua Catholic School, Austral (the school).

1.1. LEGISLATIVE REQUIREMENT

As required by the Secretary's Environmental Assessment Requirements (SEARs) issued for the SSD DA on 19 December 2017, this report assesses the school expansion against CPTED principles.

1.2. AIM OF THIS REPORT

A CPTED assessment identifies and analyses potential improvements to design which may help to reduce crime and anti-social behaviour, as per NSW Government best practice guidelines.

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

- Increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture;

- Increasing the effort required to commit crime, by increasing the time, energy or resources which need to be expended';

- Reducing the potential rewards of crime, by minimising, removing or concealing 'crime benefits'; and

- Removing conditions that create confusion about required norms of behaviour.[1]

This report assesses the school expansion against the four CPTED principles illustrated below. Where crime risks are identified, the report makes recommendations in accordance with professional standards and statutory obligations.

Surveillance	Access control	Territorial reinforcement	Space and activity management
Places that are well supervised through natural (passive), mechanical (CCTV) or organised (security guard) surveillance are less likely to attract criminal behaviour.	Designing spaces to control who enters and prevent unauthorised access. This can be achieved through natural barriers, mechanical controls or formal controls.	The way in which a community demonstrates ownership over a space. Places that feel owned and cared for are likely to be used, revisited and protected.	Space and activity management involves monitoring site usage, managing site cleanliness and repairing vandalism and broken physical elements to decrease fear of crime.

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[1] NSW Government Department of Urban Affairs and Planning, *Crime prevention and the assessment of development application,* 2001.

1.3. METHODOLOGY

The following key phases and tasks have been undertaken as part of this CPTED assessment.

Table 1 – CPTED methodology

Stage 1: Review of policies and plans
• Review of plans and identification of potential CPTED priority areas.   • Review of Council policies.
Stage 2: Baseline analysis
• Review of demographic profile and crime statistics to identify potential local crime issues.
Stage 3: CPTED Assessment and recommendation
• Preparation of recommendations.   • Preparation of CPTED report.

1.4. THE SITE

The school is located within Liverpool local government area (LGA) at 125 – 165 Tenth Avenue and 140 – 170 Eleventh Avenue Austral (the site), shown in **Figure 1.**

Figure 1 – Aerial photo of site.

Source: Nearmap

The site has an area of approximately 10.9 hectares and is comprised of semi-rural properties, including the existing St Anthony of Padua school. The site has frontages to Eleventh Avenue, Tenth Avenue and Fourth Avenue. The surrounding development is characterised by:

- Low-density residential dwellings on large lots to the south and west.

- Craik Park, a local sporting field with tennis courts, located north of the site along Eleventh Avenue.

- A small retail strip located to the east of the site on Edmondson Avenue containing local neighbourhood services such as a post office, grocery store, community services centre and Austral Public Primary School.

The area is currently undergoing transition from semi-rural residential to a low-to-medium density residential area in accordance with the rezoning of the Austral and Leppington North Precinct in March 2013. The Austral and Leppington North Precinct is expected to accommodate 17,350 new homes, 135 hectares of open space and new primary and high schools in the coming years[2]. Site photos of the existing development and surrounding land uses are provided in **Figure 3.**

1.5.   THE PROPOSAL

The SSD DA is seeking approval for the expansion of the school site to accommodate approximately 2,500 preschool to Year 12 students and approximately 200 staff. The SSDA seeks consent for the following:

- Concept approval is sought for entire subject site, including land uses, setting of the school boundary, general site layout, access points, building envelopes, and the resolution of site and environmental issues.

- Development consent is sought for the following works:

  – Demolition of existing dwelling houses and classroom demountable

  – Remediation of specific areas of the site

  – Removal of 556 trees

  – Construction of multiple school buildings of up to three stories, comprising:

    ▪ Education classrooms up to Year 12 students surrounding the Forum area

    ▪ Hall building with 250 seat capacity and an indoor pool in the north west corner of the site

    ▪ Administration building and offices

    ▪ Café and hospitality area

    ▪ Resource and wellness hub including a library space

  – Provision of open space and landscaping including:

    ▪ Piazza area in the north of site

    ▪ Full sized grass soccer field, six basketball courts, and two tennis courts

    ▪ Market garden

    ▪ Native bushland preservation areas

    ▪ Hard and soft landscaping across the site

  – Construction of on-site car parks, set-down and pick-up area and associated vehicular access points from Tenth Avenue, Eleventh Avenue and Fourth Avenue

  – On-site stormwater, infrastructure and services

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[2] Department of Planning and Environment, *Austral and Leppington North,* 2018.

The existing buildings approved under the previous local DA in the north east corner of the site are to be retained and used for long day child care centre with 125 places, and a Kindergarten

Future detailed proposals will be submitted for the place of public worship building, the building for a trade training centre, the refurbishment of an existing building for a future child care centre in the south-east of site, and a future building (use undetermined) located in the south of the site.

It is proposed that the development will occur in stages with education buildings constructed in line with school growth, to cater for each progressive year group.

Figure 2 shows the complete proposal.

1.6. ACCESS

Vehicular access to the existing school is via Eleventh Avenue. An onsite student pickup/drop off facility and two bus bays are also provided within the site.

The school expansion will incorporate the following access arrangements:

- Vehicular access and car parking accessed from Eleventh Avenue (existing).

- Vehicular access, car parking and service driveways accessed from Fourth Avenue.

- Vehicular access and major car park accessed from Tenth Avenue.

- A private road is proposed to run down the entire eastern boundary of the site (from Eleventh Avenue to Tenth Avenue) to be used for pick-up and drop offs.

As shown in **Figure 2**, car parking and vehicular access is constrained to the periphery of the site, allowing the remainder of the site to be entirely pedestrianised.

Figure 2 – Site plan

Source: Munns Sly Moore Architects

Figure 3 – Site visit photos.

Picture 1 – Garden area in existing school.

Picture 2 – Recreational area in existing school.

Picture 3 – Eleventh Ave and existing school car park.

Picture 4 – Craik Park.

Picture 5 – Surrounding rural land.

Picture 6 – Tenth Avenue.

2.   POLICY CONTEXT

The following documents were reviewed to inform this assessment:

2.1.   NSW POLICE SAFER BY DESIGN GUIDELINES

The Safer by Design evaluation process is used by NSW Police to identify and quantify crime risks. The evaluation measures statistical probability of crime, consequence, 'hotspots' analysis and situational opportunity. The four key principles to minimise the opportunity for crime are:

- Surveillance – including natural surveillance (when normal space users see and can be seen by others); technical surveillance including CCTV, help points, mirrored panels; and formal surveillance (positioning of guardians).

- Access control – including physical and symbolic barriers that channel and group pedestrians into areas.

- Territorial reinforcement – community ownership and guardianship of public space.

- Space/activity management – involving the control and care of developments and spaces to maximise use and community safety.

2.2.   LIVERPOOL GROWTH CENTRES DEVELOPMENT CONTROL PLAN

The *Liverpool Growth Centres Development Control Plan 2013* (LDCP 2013) is the relevant Development Control Plan for the site. Schedule 1 provides detailed controls for specific development types and locations in the Austral and Leppington North precinct.

Part 2 Precinct Planning Outcomes, includes a section on CPTED with controls including:

- *Buildings should be designed to overlook streets, lanes and other public or communal areas to provide casual surveillance.*

- *The design of all development is to enhance public surveillance of public streets and open space/conservation areas.*

- *Developments are to avoid creating areas for concealment and blank walls facing the street.*

2.3.   SAFER BY DESIGN – GUIDELINES FOR COUNCIL UNITS AND DEVELOPERS

The Council prepared the document *Safer by Design – Guidelines for Council Units and Developers* (Safer by Design Guidelines) to assist applicants to incorporate crime prevention measures in planning and development practices. Further to explaining the four CPTED principles, the Safer by Design Guidelines provides a list of strategies for action which include:

- *Provide a clear border definition of controlled space.*

- *Provide clearly marked transitional zones that indicate movement from public to semi-public to private space.*

- *Redesign or revamp space to increase the perception or reality of natural surveillance.*

2.4.   DRAFT GRAFFITI MANAGEMENT STRATEGY AND ACTION PLAN

The Council prepared the *Draft Graffiti Management Strategy and Action Plan* (Graffiti Plan) to address the problem of Graffiti in the Liverpool LGA. The Graffiti Plan lists preventative actions to reduce the incidence of graffiti in Liverpool which include:

- *Conduct safety audits to promote natural surveillance at identified hotspots.*

- *Investigate options for street art in various locations.*

- *Consult local youth services and young people regarding potential partnership projects.*

2.5.   COMMUNITY SAFETY AND CRIME PREVENTION STRATEGY 2013-2017

The Liverpool Council *Community Safety and Crime Prevention Strategy* (Crime Prevention Strategy) aims to reduce crime and increase community safety and the perception of safety in the Liverpool LGA. Proposed actions include:

- *Install new lighting and replace damaged and broken lighting to enhance natural surveillance, reduce opportunistic crime and improve perceptions of safety.*

- *Remove graffiti across all suburbs of Liverpool within one business day of being reported or recorded by Council.*

- *Maintain trees and vegetation to reduce opportunistic crime.*

2.6.   NATIONAL CLEARINGHOUSE FOR EDUCATIONAL FACILITIES: SAFE SCHOOL FACILITIES CHECKLIST (2006)

Educational establishments may be targets for crime and vandalism because of their scale, variety of uses and landmark status. Specific design elements which may affect crime and vandalism in schools include:

- Schools often have multiple access points.

- They often have up to date (valuable) equipment and technology.

- They often have low levels of activity on weekends, school holidays, public holidays and after-hours[3].

Many of the crimes that affect schools are opportunistic and can be minimised through the adoption of appropriate CPTED principles.

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[3] *National Clearinghouse for Educational Facilities (2006) Safe School Facilities Checklist.*

3. DEMOGRAPHIC PROFILE

To understand the social context that the school will operate in, a community profile has been developed for the study area (approximately 3km radius around the site) based on 2016 ABS Census data. For comparison purposes, the study area has been benchmarked against Liverpool LGA and the Greater Sydney Statistical Area (Greater Sydney). A complete demographic table is contained in **Appendix A.**

3.1. KEY FINDINGS

Analysis of the census data indicates the study area is set out below:

3.1.1. Age

- The study area is characterised by a relatively older population, with a higher average age (41 years) compared to Liverpool LGA (34 years).

- School aged children (0-19 years) make up just under a quarter (24.1%) of the population. By comparison, the broader area has a greater proportion of children with a third (30%) of Liverpool LGA's population aged 0-19 years.

- Over a fifth (22.0%) of the study area are aged 65 years and over, compared to only 10.2% of Liverpool LGA and 13.9% of Greater Sydney.

3.1.2. Household Structure

- The study area is broadly characterised as a family area, with the majority of the population living in family households (75.2%). This however is less than the rate of Liverpool LGA family households (82.5%). Of the study area households, couples with children (48.9%) are most common followed by couples with no children (22.7%).

- There are higher rates of lone person households in the study area (23.7%) compared to Liverpool LGA (15.8%), which also reflects the older study area population.

3.1.3. Diversity

- Cultural diversity is limited in the study area, with the majority of people born in Australia (70.0%) and only speaking English at home (61.1%).

- This is in contrast to Liverpool LGA, which has a highly diverse population. Less than half (44.5%) of the Liverpool LGA population speak only English at home and only 55.8% of the population were born in Australia.

3.1.4. Education and Employment

- The study area is currently characterised by a mix of blue and white collar workers, with technicians and trade workers (18.5%), managers (16.6%) and clerical and administrative workers (14.8%) representing the top three occupation types.

- Unemployment in the study area (4.7%) is lower than the Liverpool LGA rate (7%) and Greater Sydney (6%).

3.1.5. Income

- The study area has a lower weekly household income ($1,682) compared to Liverpool LGA ($1,807) and Greater Sydney ($1,750).

3.1.6. Dwelling Type

- The majority of dwellings in the study area are separate houses (98.4%) which is significantly higher compared to Liverpool LGA (75.8%) and Greater Sydney (56.9%).

3.1.7. Socio-Economic Indexes for Areas

The Socio-Economic Indexes for Areas (SEIFA) has been developed by the Australian Bureau of Statistics (ABS) to provide an overview of social and economic wellbeing and welfare of communities across a range of spatial scales.

The Index of Relative Socio-Economic Advantage and Disadvantage is a continuum of advantage (high values) to disadvantage (low values), and is derived from Census variables related to both advantage and disadvantage. The table below summaries 2016 SEIFA index data for the suburb of Austral compared to Liverpool LGA.

SEIFA results indicate that the suburb of Austral is disadvantaged in terms of 'Advantage and Disadvantage', scoring lower than Liverpool LGA. This may have been influenced by Austral's lower average income and greater number of residents in blue-collar jobs (such as 'technicians and trades workers' and 'machinery operators and drivers') compared to Liverpool LGA.

Table 2 – SEIFA index 2016

Area	Advantage & Disadvantage	
	Score	Decile
Liverpool LGA	972	6
Austral (suburb)	964	4

Source: SEIFA 2016

3.2. POPULATION PROJECTIONS

The following section provides an analysis of the projected population for Liverpool LGA, based on ABS Census data obtained from the NSW Department of Planning and Environment. The full projection table is provided in **Appendix B** of this document.

Liverpool LGA is expected to experience significant population growth, increasing by 116,700 people between 2016 and 2036, a population growth of 54.5%. Liverpool LGA will continue to be characterised as a family area, with close to a third (28.5%) of the population expected to be aged between 0-19 years by 2036. Over 80% (81.6%) of the population are anticipated to be family households in the Liverpool LGA by 2036, with 47% of these households as couples with children.

Liverpool LGA is also expected to experience a growth in the number of older people and lone person households which is consistent with an ageing population.

4. CRIME PROFILE

Crime data from the NSW Bureau of Crime Statistics and Research (BOCSAR) was analysed to identify the crime profile within Austral and Liverpool LGA. This was compared to the NSW average to help assess risk compared to state-wide averages.

4.1. TYPES OF CRIME

Table 3 outlines the major crime offences which occurred in Austral between January 2016 and December 2017, compared to Liverpool LGA and NSW.

Austral generally has lower rates of crime per 100,000 people compared to both Liverpool LGA and NSW, with the exception of 'domestic assault' and 'break and enter non-dwelling'.

The five crime types with the highest rate of occurrence in Austral are:

- Domestic assault;
- Break and enter non-dwelling;
- Malicious damage to property;
- Break and enter dwelling; and
- Fraud;

Table 3 – Crime rates per 100,000 people (January 2016 to December 2017).

Crime Type	Austral	Liverpool LGA	NSW
Domestic assault	547.2	405.2	366.4
Non-domestic assault	160.9	348.2	413.7
Break and enter – dwelling	193.1	374.6	357.9
Break and enter – non-dwelling	160.9	105.5	136.5
Fraud	289.7	790.6	652.3
Liquor offences	Not calculated	64.1	142.6
Malicious damage to property	547.2	657.3	788.7
Motor vehicle theft	160.9	192.2	170.2
Steal from dwelling	160.9	205.0	252.2
Steal from motor vehicle	160.9	576.7	504.4
Steal from person	0.0	50.9	58.8
Steal from retail store	64.4	366.6	316.0

Source: BOCSAR

4.2. CRIME TRENDS

BOCSAR complies crime data to present relevant crime trends within an area over a specific period of time. Data on crime trends in not available at the suburb level, so data on Liverpool LGA was analysed in this section.

Table 4 presents the two-year crime trends from January 2016 to December 2017 for key crime trends in the Liverpool LGA. Overall, Liverpool LGA has seen a stabilisation in crime rates over the last two years, with a positive decrease in the rates of motor vehicle theft and steal from dwelling.

Table 4 – Two-year crime trends (January 2016 to December 2017)

Crime	Liverpool LGA	NSW
Domestic assault	Stable	Stable
Non-domestic assault	Stable	Stable
Break and enter – dwelling	Stable	Down
Break and enter – non-dwelling	Stable	Down
Fraud	Stable	Down
Liquor offences	Stable	Stable
Malicious damage to property	Stable	Stable
Motor vehicle theft	Down	Stable
Steal from dwelling	Down	Stable
Steal from motor vehicle	Stable	Stable
Steal from person	Stable	Down
Steal from retail store	Stable	Up

Source: BOCSAR

4.3. CRIME HOTSPOTS

BOCSAR publishes 'hotspot' maps to illustrate areas of high crime density relative to crime concentrations across NSW. **Figure 4** shows the hotspot maps with the site identified with a red star.

A review of the hotspot maps below indicates the site is not located within a crime hotspot. High crime rates are typically concentrated to the east of the suburb, in the larger and more densely populated centres of West Hoxton, Ashcroft, Cartwright and Green Valley. The low rates of crime in Austral may be attributed to its small population. This however is expected to change in the coming years due to the rezoning of the Austral and Leppington North Precinct and the subsequent population growth, with this precinct eventually to provide 17,350 new homes.

Figure 4 – Crime hotspots in Austral from January 2016 to December 2017.
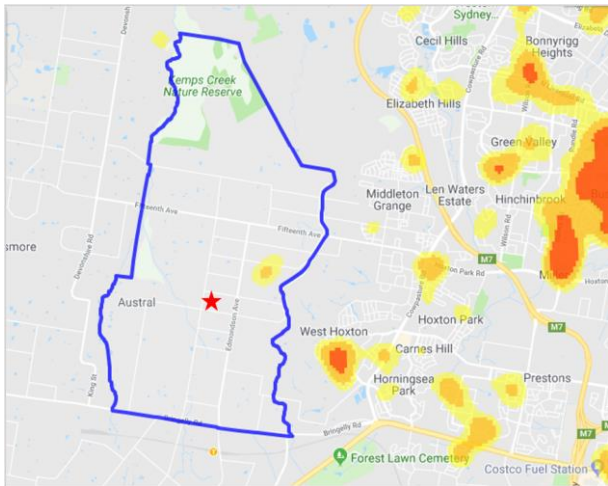
Picture 7 – Incidents of domestic assault.
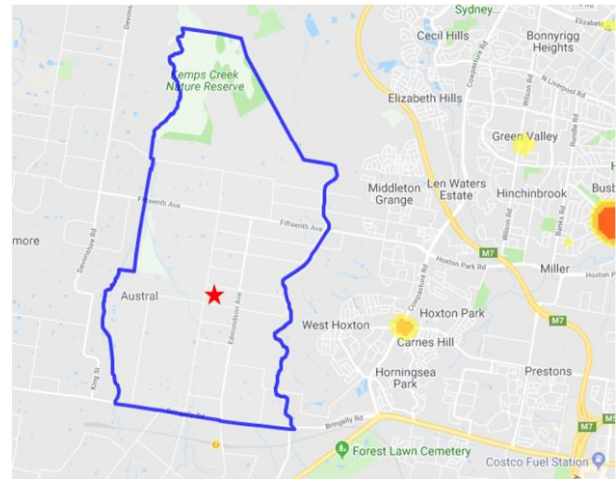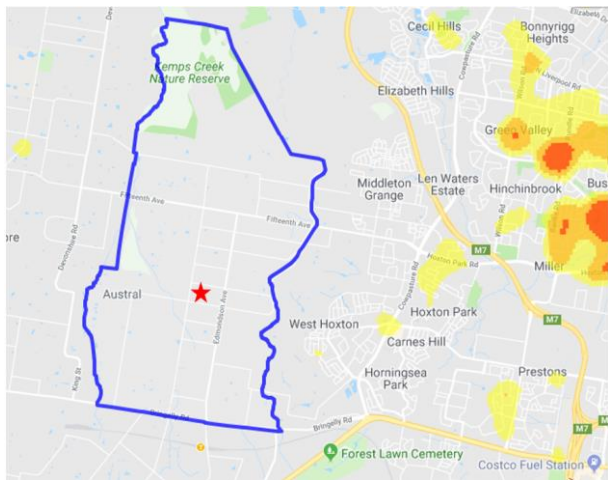
Picture 8 – Incidents of non-domestic assault.
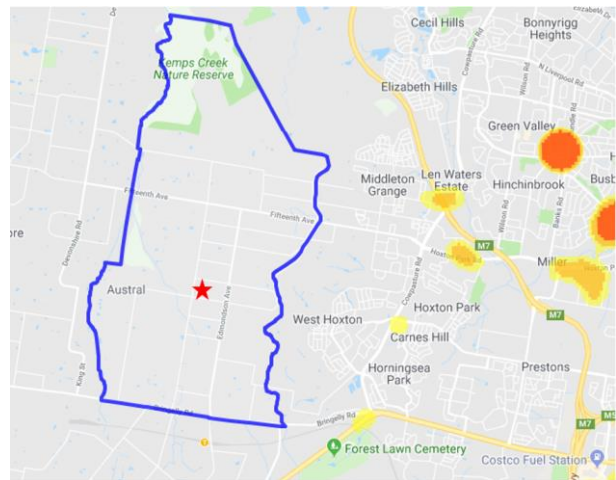
Picture 9 – Incidents of malicious damage to property
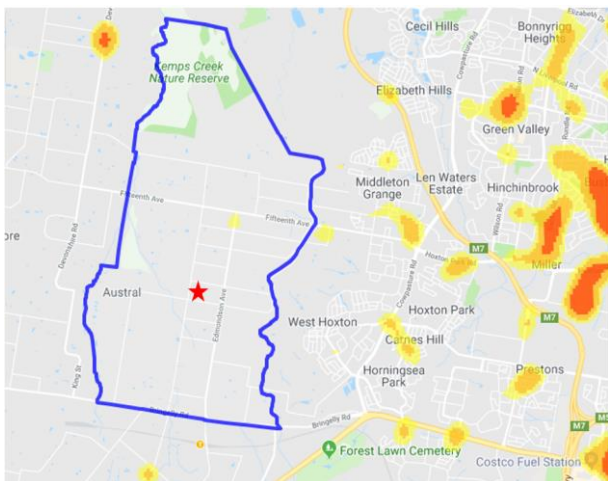
Picture 10 – Incidents of break and enter non-dwelling.
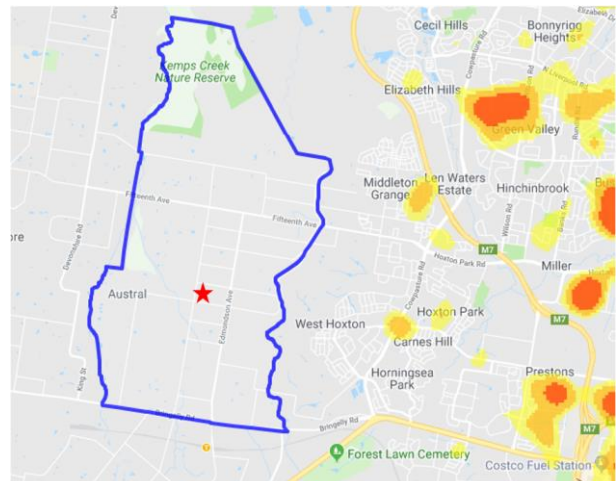
Picture 11 – Incidents of motor vehicle theft.

Picture 12 – Incidents of steal from motor vehicle.

5. CPTED ASSESSMENT

5.1. CPTED PRINCIPLES

A CPTED Assessment identifies and analyses potential improvements to the design of a project which may help reduce crime and anti-social behaviour as per the NSW Government best practice guidelines, outlined below.

| **Surveillance**	**Access control**	**Territorial reinforcement**	**Space and activity management**
Places that are well supervised through natural (passive), mechanical (CCTV) or organised (security guard) surveillance are less likely to attract criminal behaviour.	Designing spaces to control who enters and prevent unauthorised access. This can be achieved through natural barriers, mechanical controls or formal controls.	The way in which a community demonstrates ownership over a space. Places that feel owned and cared for are likely to be used, revisited and protected.	Space and activity management involves monitoring site usage, managing site cleanliness and repairing vandalism and broken physical elements to decrease fear of crime.

5.2. PRIORITY AREAS

There are particular CPTED issues specific to schools due to their function and use. Schools often spend long periods of time unoccupied such as after school hours, on weekends and during school holidays which means long periods with limited passive surveillance.

Schools also often have expensive equipment such as computers and machinery. This could potentially be an issue in light of Austral's higher crime rates per 100,000 people of 'break and enter non-dwelling' compared to Liverpool LGA and NSW. Consequently, security and the control of the entry and exit points of the school will need to be considered carefully.

Priority areas of the development include:

- Car parking.

- External layout.

- Maintenance and management.

- Construction.

5.3. ASSESSMENT

5.3.1. Vehicle and Pedestrian Movements

Car parking areas can be common spaces for offences against property or persons. Avoiding clashes between vehicle and pedestrian movements is a key CPTED consideration, particularly within a school context.

Assessment of proposed development

The school expansion provides four at grade car parks distributed across the site to serve different school buildings and functions. The car parks are generally located in areas where they will receive passive surveillance from school buildings. A network of internal footpaths and pedestrian crossings facilitate safe pedestrian movements.

The school expansion utilises different entry and exit points to enhance safety of different user groups, including a new internal access road along the eastern boundary in order to manage drop off and pick up within the site, a service entry via a driveway off Fourth Avenue and a separate vehicular entrance and carpark on Eleventh Avenue for the childcare centre.

The Transport and Accessibility Impact Assessment prepared by Colston Budd Rogers & Kafes outlines that the intersection between Fourth Avenue and Eleventh Avenue will be signalised to facilitate safe pedestrian travel in and out of the school. This assessment outlines further works will be needed through the development process which include signalising the intersections of Fourth Avenue with Tenth and Eleventh Avenues and installing traffic signals at the intersection of Edmondson and Eleventh Avenues.

Recommendations

Recommendations to mitigate potential safety issues include:

- Signalisation of the Fourth and Eleventh Avenue intersection to facilitate safe pedestrian travel in and out of the school as recommend in the the Transport and Accessibility Impact Assessment prepared by Colston Budd Rogers & Kafes

- Consider movements of future bus services, including drop off/pick up points and turning circles

- Install wayfinding and traffic control signage throughout car parks to safely manage interactions between cars, pedestrians, cyclists and children

- Provide lighting in car parking areas and safe pedestrian routes from carparks to school buildings

- Educate staff, parents and children regarding any changes to the current pick/drop-off procedure, including phasing out informal parking at Craik Park

- Monitor the need for a 'crossing officer' at pedestrian crossings during school starting and finish times

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5.3.2. External Layout

The external layout of a development can resolve safety conflicts and improve activation of the urban environment. Key external layout considerations in regard to CPTED include visibility, activation and prevention of vandalism and graffiti. The external layout is also priority area as Austral has higher crime rates per 100,000 people of 'break and enter non-dwelling' compared to Liverpool LGA and the NSW average.

Assessment of proposed development

The school expansion clusters the school buildings in the northern portion of the site and large area of sports fields and courts are located in the southern portion of the site. Recognising that the Austral suburb is anticipated to experience significant growth, the southern portion of the site may currently have limited passive surveillance when the sports fields are not in use. Additionally, the northern portion of the site opposite Craik Park may also be inactive outside of standard school hours.

The school expansion provides a range of different uses in various buildings throughout the site including kindergarten to Year 12 classrooms, a childcare, school hall, an indoor pool, café and hospitality area. Education rooms may have expensive equipment, such as computers, screens and projectors, which could be a risk due to the high rates of 'break and enter non-dwelling' in Austral.

A Landscape Masterplan has been prepared by Munns Sly Moore architects. Landscaping is to include new planting as well as retaining existing trees along the southern and western boundaries, which assists in reinforcing the separation between public and private spaces.

Recommendations

Recommendations to mitigate potential safety issues include:

- Consider shared-use of the site to active the school outside of traditional operating hours. If shared use facilities are provided, an Operational Plan of Management is recommended to address the provision of access to these facilities whilst limiting access to the rest of the school grounds.

- Implement a lighting strategy to active the permitter of the site outside of school hours.

- All entry/exit points should be clearly identifiable to discourage entry/exit at unauthorised points.

- Entry/exit points should be secured outside of operating hours to prevent unauthorised access to school buildings and facilities.

5.3.3. Maintenance and Management

Developments that are well managed and maintained are less likely to attract criminal activity through establishing a sense of ownership and pride for those who live and work close by. Proper maintenance of landscaping, lighting treatment and other features can therefore assist in the prevention of crime.

Assessment of proposed development

The school expansion is over a large site area and proposes several buildings with different uses. Proper maintenance procedures will be required to ensure that all property damage is repaired in a timely manner to ensure students and staff are not exposed to increased levels of risk to crime.

Recommendations

Recommendations to mitigate potential safety issues include:

- Preparation of an Operational Plan of Management which is to consider the following:

    - Maintenance and repairing strategies of lighting, landscaping and removal of graffiti.

    - Shared use agreement procedures (if agreed with Council).

    - Cash management strategies of the café.

    - Safety and security induction for staff and visitors.

5.3.4. Construction

Construction activities and staging present a range of potential crime and safety issues, including malicious damage to property and safety risks to site users. Construction safety is particularly important to consider in a school environment.

Assessment of proposed development
The school expansion will be constructed in six stages, with works expected to be completed by 2034. Additional year groups will be added consecutively until kindergarten through to Year 12 is operational. Due to the timeframe, construction will be occurring whilst the school is operational.

Recommendations

Recommendations to mitigate potential safety issues include:

- Prepare and implement a Construction Management Plan including strategies and procedures specific to a school environment, which may include working with children checks.

- Students and staff should be briefed on construction activities that may present a safety or health risk.

6. CONCLUSION

This CPTED report has assessed the expansion of St Anthony of Padua Catholic School against the four CPTED principles and has identified potential risk areas and recommendations which may help to reduce crime and anti-social behaviour.

Although educational establishments may be targets for crime and vandalism because of their scale, variety of uses and landmark status, overall it is considered that the school expansion incorporates CPTED principles such as access control and surveillance to provide a safe environment for students and staff. The school expansion will activate a largely inactivate site and provide an improved outcome for students, staff and residents.

DISCLAIMER

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A   DEMOGRAPHIC ANALYSIS

Demographic Analysis:

Data item	Study Area	Liverpool LGA	Greater Sydney (GCCSA)
Total population	6,172	204,326	4,823,991
Average Age	41	34	36 (median)
Age Distribution (%)			
Aged 0-4	4.75%	7.65%	6.4%
Aged 5-9	6.15%	7.67%	6.4%
Aged 10-14	6.71%	7.35%	5.8%
Aged 15-19	6.44%	7.31%	6.0%
Aged 20-24	7.38%	7.16%	7.1%
Aged 25-29	4.99%	7.0%	7.9%
Aged 30-34	5.17%	7.61%	8.1%
Aged 35-39	5.17%	7.34%	7.4%
Aged 40-44	6.26%	7.2%	7.1%
Aged 45-49	7.04%	6.74%	6.7%
Aged 50-54	6.57%	6.58%	6.3%
Aged 55-59	5.69%	5.69%	5.8%
Aged 60-64	5.67%	4.48%	5.0%
Aged 65-69	6.96%	3.59%	4.4%
Aged 70-74	5.06%	2.56%	3.3%
Aged 75-79	4.11%	1.88%	2.4%
Aged 80-84	2.63%	1.2%	1.8%
Aged 85+	3.25%	1.0%	2.0%
Country of Birth and Indigenous Identification (%)			
Australia born	70.04%	55.81%	57.1%
Italy	8.46%	1.39%	0.8%
Lebanon	3.42%	2.2%	1.2%
England	1.63%	1.0%	3.1%
New Zealand	0.9%	1.82%	1.8%
China	2.42%	1.35%	4.7%

Data item	Study Area	Liverpool LGA	Greater Sydney (GCCSA)
Aboriginal and Torres Strait Islander population	0.31%	0.22%	1.5%
Language Spoken at Home (%)			
English only	61.13%	44.47%	58.4%
Arabic	8.84%	12.21%	4.0%
Serbian	1.44%	2.6%	0.4%
Chinese (total)	4.26%	3.19%	7.6%
Italian	12.19%	2.36%	1.3%
Annual Household Income (%)			
Negative/Nil income	2.43%	1.53%	1.94%
$1-$7,800	0.46%	0.61%	0.53%
$7,800-$15,600	1.78%	2.16%	1.77%
$15,600-$20,800	3.95%	3.06%	2.47%
$20,800-$26,000	7.43%	5.84%	5.4%
$26,000-$33,800	5.66%	7.13%	3.76%
$33,800-$41,600	8.22%	3.91%	6.04%
$41,600-$52,000	8.16%	7.05%	5.98%
$52,000-$65,000	9.41%	8.76%	7.63%
$65,000-$78,000	7.7%	8.22%	7.12%
$78,000-$91,000	5.72%	6.78%	6.26%
$91,000-$104,000	5.66%	6.98%	6.1%
$104,000-$130,000	10.13%	12.71%	12.32%
$130,000-$156,000	7.37%	8.72%	7.92%
$156,000-$182,000	5.39%	5.7%	5.65%
$182,000-$208,000	2.7%	3.9%	5.78%
$208,000 plus	7.83%	6.92%	12.04%
Average household income ($/weekly)	$1,682	$1,807	$1,750 (median)
Car Ownership (%)			
0 Cars	5.08%	7.94%	11.1%

Data item	Study Area	Liverpool LGA	Greater Sydney (GCCSA)
1 Car	27.41%	29.93%	37.1%
2 Cars	33.66%	38.06%	32.8%
3 or more vehicles	18.95%	14.92%	10.48%
Household Structure (%)			
Family Households	75.2%	82.49%	73.6%
Group	1.14%	1.23%	4.7%
Lone Person	23.66%	15.8%	21.6%
Housing Tenure (%)			
Fully owned	53.32%	24.84%	29.1%
Mortgage	20.88%	41.27%	33.2%
Renting	33.16%	32.94%	34.1
Mortgage and Rent ($)			
Monthly mortgage repayments (%/monthly)	$1,862	$2,136	$2,167
Median rent ($/weekly)	$339	$347	$440
Family composition (%)			
Couple family with no children	34.4%	23.2%	33.37%
Couple family with children under 15	26.14%	37.09%	32.88%
Couple family with no children under 15	22.73%	19.77%	16.61%
One parent family with children under 15	6.35%	8.62%	6.64%
One parent family with no children under 15	8.94%	9.49%	8.58%
Other	1.43%	1.27%	1.63%
Labour Force (%)			
% Unemployed	4.69%	6.95%	6.0%
Labour Force Participation	57.02%	61.65%	61.6%
Occupation (%)			
Managers	16.59%	10%	13.7%
Professionals	11.69%	15.76%	26.3%

Data item	Study Area	Liverpool LGA	Greater Sydney (GCCSA)
Technicians & trades workers	18.53%	16.08%	11.7%
Community & Personal Service Workers	7.04%	9.45%	9.6%
Clerical & Administrative Workers	14.77%	17.92%	14.6%
Sales Workers	8.86%	9.24%	9.0%
Machinery operators & Drivers	12.26%	10.69%	5.6%
Labourers	10.28%	10.86%	7.5%
Tertiary Education (%)			
Undertaking Tertiary Education	3.4%	5.99%	7.48%
Highest Level of Schooling Achieved (%)			
Year 8 or Below	13.9%	6.89%	4.37%
Year 9 or Equivalent	8.86%	5.25%	4.29%
Year 10 or Equivalent	30.66%	20.31%	18.0%
Year 11 or Equivalent	4.95%	5.04%	4.36%
Year 12 or Equivalent	36.84%	59.55%	67.45%
Did not go to School	3.72%	3.01%	1.49%
Dwelling Structure (%)			
Separate House (%)	98.4%	75.77%	56.9%
Semi-detached (%)	0.35%	10.51%	14.0%
Flat, Unit or apartment (%)	0.18%	13.25%	28.1%
Other dwelling (%)	1.05%	0.15%	0.6%

Source: 2016 ABS Census data

APPENDIX B   POPULATION PROJECTIONS

Liverpool LGA population projections:

Age	Year					% of 2036 population	Change 2016-2036
	2016	2021	2026	2031	2036		
	No.	No.	No.	No.	No.	%	%
Aged 0-4	17,100	19,350	21,350	22,850	24,200	7.31%	41.5%
Aged 5-9	15,650	18,400	21,000	22,350	24,050	7.27%	53.7%
Aged 10-14	15,200	16,600	19,550	21,650	23,200	7.01%	52.6%
Aged 15-19	15,050	16,200	18,000	20,500	22,750	6.88%	51.2%
Aged 20-24	15,600	16,550	18,150	19,500	22,250	6.73%	42.6%
Aged 25-29	16,050	17,400	18,900	19,600	21,550	6.51%	34.3%
Aged 30-34	16,800	18,300	19,950	20,450	21,750	6.57%	29.5%
Aged 35-39	15,300	18,150	20,100	20,800	21,700	6.56%	41.8%
Aged 40-44	15,100	16,350	19,550	20,900	21,800	6.59%	44.4%
Aged 45-49	14,300	15,800	17,350	20,100	21,650	6.54%	51.4%
Aged 50-54	13,750	14,700	16,350	17,650	20,550	6.21%	49.5%
Aged 55-59	11,900	13,600	14,700	16,150	17,500	5.29%	47.1%
Aged 60-64	9,550	11,650	13,400	14,300	15,800	4.78%	65.4%
Aged 65-69	7,750	9,200	11,300	12,850	13,850	4.19%	78.7%
Aged 70-74	5,650	7,450	8,950	10,850	12,400	3.75%	119.5%
Aged 75-79	4,100	5,250	7,050	8,400	10,250	3.10%	150.0%
Aged 80-84	2,750	3,550	4,700	6,250	7,500	2.27%	172.7%
Aged 85+	2,550	3,400	4,500	5,950	8,100	2.45%	217.6%
TOTAL	214,150	241,900	274,850	301,100	330,850	-	54.5%
CHANGE	-	27,750	32,950	26,250	29,750	-	-
GROWTH RATE (%)	-	13.0%	13.6%	9.6%	9.9%	-	-

Source: 2016 ABS Census data, Department of Planning and Environment

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