

We acknowledge the Wiradjuri people as the Traditional Custodians of this place.

We honour Elders past and present, whose profound knowledge systems can teach us much about how we care and design for Country.

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1.1 Introduction

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 residential development of Redleaf, Orange NSW for Landcom and Orange City Council. This report has been prepared to support the Development Application for the project.

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 of crime created by the proposed development by assessing the development in accordance with design and place management principles of CPTED.

OCULUS has prepared this assessment in accordance with the NSW Department of Planning, Housing and Infrastructure Guidelines *Crime Prevention and the Assessment of Development Applications* (2001). This 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.

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.

Urban and landscape design drawings of the residential subdivision, streets and open space for Redleaf prepared by OCULUS 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;
- + review of the NSW Bureau of Crime Statistics and Research (BOCSAR) *Crime in Regional and Rural NSW in 2023: Trends and Patterns* (2024) and *NSW Recorded Crime Statistics Quarterly Update* (2023)
- + collection and analysis of local and NSW State crime statistics from the Bureau of Crime Statistics and Research (BOCSAR);
- + a site visit to assess the current site conditions, situational crime prevention measures and perceived safety of the existing environment; and
- + a crime risk assessment, in accordance with the current NSW policy and practice, of the following regulation and assessment principles: surveillance, lighting/technical supervision, territorial reinforcement, environmental maintenance, activity and space management, access control design, definition and designation.

This CPTED report is to be read in conjunction with the Environmental Impact Statement prepared by Mecone and submitted as part of the Development Application for Redleaf.

1.2 Disclaimer

CPTED strategies must work in conjunction with other crime prevention and social intervention strategies and police operations. By using the recommendations contained in this assessment, a person must acknowledge 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 document was prepared.
- + this document 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.



2.1 Background

Redleaf is a new residential neighbourhood to be developed in collaboration with Landcom and Orange City Council.

"Landcom is working with Orange City Council to create a new residential neighbourhood that will increase and diversify housing options for this growing regional city.

The project will unlock 24.2 hectares of Council-owned land at Orange's eastern entrance to deliver 300+ homes with a mix of housing types including single dwellings, duplexes, town houses and low-rise apartments - providing people with greater choice and affordability.

Redleaf will cater to various household sizes and incomes, with at least 20% of homes to be set aside as Affordable Housing.

The project will be designed with innovation, sustainability and liveability in mind, aiming to set the standard for contemporary new housing in Orange and Central West NSW."

- Landcom, *Welcome to Redleaf*

2.2 BOSCAR Crime Statistics

BOCSAR provides information from NSW Police which summarises the statistical information on crimes to identify trends in crime.

A summary of the BOCSAR data related to the Orange LGA has been outlined within Table 1 for the period 2019-2023.

Table 1 BOCSAR Crime data – Orange LGA

NSW Recorded Crime Statistics January 2019-December 2023

Incidents of crime recorded by the NSW Police Force by Local Government Area: number, rates^a, LGA ranks^{aa} and trends^{aaa}

Local Government Area	Offence type	Jan - Dec 2019	Jan - Dec 2020	Jan - Dec 2021	Jan - Dec 2022	Jan - Dec 2023	Rate per 100,000 population Jan - Dec 2023	LGA Rank Jan - Dec 2023	2 year trend and annual percent change (Jan 2022-Dec 2023)	5 year trend and average annual percent change (Jan 2019-Dec 2023)
Orange	Murder *	2	0	0	0	0	nc	nc	nc	nc
Orange	Attempted murder	0	0	0	0	0	nc	nc	nc	nc
Orange	Murder accessory, conspiracy	0	0	0	0	0	nc	nc	nc	nc
Orange	Manslaughter *	0	0	0	0	1	2.3	2	nc	nc
Orange	Domestic violence related assault	315	263	318	401	267	607.3	46	Down 33.4%	Stable
Orange	Non-domestic violence related assault	275	318	282	314	311	707.4	17	Stable	Stable
Orange	Assault Police	43	20	22	28	15	34.1	39	nc	nc
Orange	Sexual assault	71	95	86	100	85	193.3	33	Stable	Stable
Orange	Sexual touching, sexual act and other sexual offences	99	95	98	63	65	147.9	31	Stable	Down 10.0%
Orange	Abduction and kidnapping	4	1	1	1	2	4.5	31	nc	nc
Orange	Robbery without a weapon	15	10	10	9	12	27.3	4	nc	nc
Orange	Robbery with a firearm	3	1	2	0	1	2.3	22	nc	nc
Orange	Robbery with a weapon not a firearm	11	9	10	14	7	15.9	15	nc	nc
Orange	Blackmail and extortion	0	0	1	9	31	70.5	5	nc	nc
Orange	Intimidation, stalking and harassment	395	398	426	543	459	1044.1	27	Stable	Up 3.8%
Orange	Other offences against the person	18	12	12	13	15	34.1	24	nc	nc
Orange	Break and enter dwelling	477	265	285	269	374	850.7	13	Stable	Stable
Orange	Break and enter non-dwelling	116	80	93	78	103	234.3	31	Stable	Stable
Orange	Receiving or handling stolen goods	54	39	28	32	38	86.4	41	Stable	Stable
Orange	Motor vehicle theft	168	118	113	153	181	411.7	12	Stable	Stable
Orange	Steal from motor vehicle	404	210	282	378	270	614.2	19	Down 28.6%	Stable
Orange	Steal from retail store	274	144	117	217	217	493.6	13	Stable	Stable
Orange	Steal from dwelling	206	165	148	144	109	247.9	40	Stable	Down 14.7%
Orange	Steal from person	28	10	12	14	13	29.6	30	nc	nc
Orange	Stock theft	1	0	1	1	0	nc	nc	nc	nc
Orange	Fraud	288	361	291	245	282	641.4	34	Stable	Stable
Orange	Other theft	189	125	126	99	100	227.5	67	Stable	Down 14.7%
Orange	Arson	97	48	41	54	54	122.8	36	Stable	Down 13.6%
Orange	Malicious damage to property	566	495	557	606	561	1276.1	19	Stable	Stable
Orange	Possession and/or use of cocaine	7	6	9	7	6	13.6	57	nc	nc
Orange	Possession and/or use of narcotics	0	1	4	0	3	6.8	41	nc	nc
Orange	Possession and/or use of cannabis	116	129	99	92	94	213.8	48	Stable	Stable
Orange	Possession and/or use of amphetamines	53	56	38	28	28	63.7	63	Stable	Down 14.7%
Orange	Possession and/or use of ecstasy	7	7	3	1	1	2.3	67	nc	nc
Orange	Possession and/or use of other drugs	30	11	27	29	19	43.2	58	nc	nc
Orange	Dealing, trafficking in cocaine	2	0	0	1	0	nc	nc	nc	nc
Orange	Dealing, trafficking in narcotics	0	0	0	0	0	nc	nc	nc	nc
Orange	Dealing, trafficking in cannabis	4	3	2	3	1	2.3	67	nc	nc
Orange	Dealing, trafficking in amphetamines	4	6	10	8	5	11.4	46	nc	nc
Orange	Dealing, trafficking in ecstasy	0	2	0	0	0	nc	nc	nc	nc
Orange	Dealing, trafficking in other drugs	0	0	1	0	0	nc	nc	nc	nc
Orange	Cultivating cannabis	3	4	7	5	2	4.5	84	nc	nc
Orange	Manufacture drug	0	0	0	0	0	nc	nc	nc	nc
Orange	Importing drugs	0	0	0	0	0	nc	nc	nc	nc

Within the Orange LGA between 2019 and 2023, crime statistics for different types of crime were generally stable or showed a downward trend. The only offence type which showed an increase over this period was Intimidation, Stalking and Harrassment up by aorund 4%.

The BOCSAR document *Crime in Regional and Rural NSW in 2023: Trends and Patterns* provides a summary of the current crime situation in regional NSW. The key findings of this paper include:

- + In the two decades to 2023, property crime fell significantly in Regional NSW (down 48% from 2004 to 2023). However, the reduction in Regional NSW was less than the reduction in Greater Sydney (down 67% over the same period). Due to the different rates of decline, in 2023 the rate of recorded property crime was 59% higher in Regional NSW compared to Greater Sydney.
- + In 2023 the aggregate rate of recorded violent crime in Regional NSW was equivalent to the recorded rate in 2004. In Greater Sydney, however, violent crime declined significantly in the two decades to 2023 (down 20% from 2004 to 2023). The long-term decline in violence in Sydney and relative stability in Regional NSW has increased the disparity between the rate of violent crime in the regions versus the capital city. In 2023 the rate of recorded violent crime was 57% higher in Regional NSW compared with Greater Sydney.
- + During the COVID pandemic (2020 and 2021) crime fell across most offence categories in Regional NSW (and in Sydney). In Regional NSW in 2023 most major offences remained lower than in 2019 (prior to the pandemic). This is true of: break and enter dwelling, break and enter non-dwelling, steal from motor vehicle, steal from dwelling, steal from person, other theft, sexual touching, and robbery. Four major offences, however, significantly increased in Regional NSW over the five years from 2019 to 2023:
 - Motor vehicle theft (up 20% or 1,239 additional incidents)
 - Non-domestic assault (up 14% or 1,825 additional incidents)
 - Sexual assault (up 47% or 1,505 additional incidents)
 - Domestic violence related assault (up 24% or 3,284 additional incidents)
- + The 20% increase in motor vehicle theft from 2019 to 2023 in Regional NSW appears to be due to an increase in offending by young people; legal actions for this group increased by 188% from 2019 to 2023. Police data also shows an increase in vehicle theft incidents co-occurring with break-ins and an increase in keys being stolen in break-ins.
- + The 47% increase in sexual assault reports from 2019 to 2023 in Regional NSW is mostly due to a rise in incidents involving adult victims (aged 16+) (50% of the increase), followed by an increase in historic child sexual assault (35% of the increase) and a smaller increase in contemporary child sexual assault reports (15% of the increase). The 13% rise in sexual assault legal actions from 2019 to 2023 in Regional NSW are entirely concentrated among adult males.
- + The 24% increase in reports of domestic violence related assault is due to an increase in reported family violence (49% of the increase) and an increase in intimate partner assaults (37% of the increase). Domestic violence assault legal actions increased by 19% from 2019 to 2023 in Regional NSW largely due to an increase in legal actions against adult women (51% of the increase), adult men (30% of the increase) and girls (13% of the increase).
- + The 14% increase in non-domestic assault from 2019 to 2023 in Regional NSW is due to an increase in incidents occurring on residential premises (40% of the increase) and on school premises (31% of the increase). Legal actions against young people account for 62% of the total increase in legal actions for this offence in Regional NSW.

The key conclusion of this paper is that the rate of crime in Regional NSW is significantly higher than in Sydney. In 2023 the property crime rate was 59% higher in Regional NSW compared with Greater Sydney while the violent crime rate was 57% higher.

3.1 The Site and Locality

The Site is located on the southeast fringe of Orange, the largest city in the Central West Region. It is adjacent to the suburb of Glenroi, 4.4km from Orange City Centre and approximately 3.2km from Orange train station.



Figure 1 - Site Context (OCULUS)

The Site has a significant frontage along Mitchell Highway (A32) which runs from east to west from the M4 Motorway in Greater Sydney connecting through Penrith, Katoomba, Bathurst to Orange.

The Site lies on the southern side of Redmond Place, bounded by Bathurst Road / Mitchell Highway on the northeast, Lone Pine Avenue on the west and Dairy Creek Road to the south. It is surrounded by a mixture of land uses with low density residential to the west, retail and large format retail to the north, rural farmland to the south and east, as well as a kart racing track 250m north of the Mitchell highway.



Figure 2 - the Site (OCULUS)

The adjoining suburb of Glenroi to the east has a significant proportion of social housing and relatively high rates of unemployment, anti-social behaviour and crime. A community workshop was held in Glenroi on 13.02.2024 and feedback from residents and local community organisations pointed to a lack of opportunities for youth as a significant issue. Given the proximity of Redleaf to Glenroi, there is the potential for the former to be impacted by crime and anti-social behaviour.

Apart from the eastern boundary onto Lone Pine Avenue which is fronted onto by residential properties, the other site boundaries currently have limited passive surveillance. The northern boundary to the large format retail interfaces with the rear of retail buildings with Redmond Place being primarily for service access to these premises. The adjoining lots to the south west are rural residential properties, however, the primary dwelling houses are located away from the rear site boundary with the Redleaf site.

The rural properties on the south side of Dairy Creek Road have limited visibility into the south east part of the Site. Whilst the Mitchell Highway which forms the north east boundary is a major road, visibility into the Site is limited by the row of existing Poplar trees within the site.

The Site itself is approximately 24.2 Ha in size and is currently vacant, except for a structure that previously housed an emergency services helicopter hangar in the northern part of the site. This building is currently used by a number of community organisations for storage. There is also a small historic dairy building located next to the Mitchell Highway.



Figure 3 - Western part of Site (OCULUS)



Figure 4 - Northern part of Site (OCULUS)



Figure 5 - North-western part of Site (OCULUS)



Figure 6 - Eastern part of Site (OCULUS)

3.2 Risk Assessment of Existing Site

A risk assessment of the site in its existing context and use has been undertaken.

The key positive elements of the site are:

- + The site sits has a major road frontage along its longest boundary along with a collector road along part of its southern boundary which support a high level of vehicular traffic;
- + The eastern site boundary interfaces with the existing suburb of Glenroi with residential properties looking into the site and the residential street frontage of Lone Pine Avenue;
- + The large format retail park to the north provides activation in the form of vehicular and pedestrian use during business hours;
- + The existing rural properties forming parts of the southern boundary provide a degree of passive surveillance of the site;
- + The existing hangar building on site is accessed and used by community groups providing occasional access and use of this part of the site;
- + The existing site vegetation is predominantly low level grassland and provides limited opportunities for concealment.

Other elements of the site include:

- + The site is located adjacent to the existing suburb of Glenroi which has relatively high levels of unemployment, anti-social behaviour and crime;
- + The adjoining rural properties have their main dwelling house located close to their respective road frontages, away from the boundary with the site;
- + The large format retail premises face north and have their backs and loading/ back of house areas adjoining the Site;
- + The line of Poplars along the Mitchell Highway limit views into the site from that edge;
- + The largely open nature of the site combined with multiple potential access points may provide multiple opportunities for escape routes.

It is noted that this risk assessment is based on the current physical environment of the site and its surrounds. This assessment does not speculate on the future condition of the surrounding urban environment. The risk assessment of the site could change if the surrounding areas are redeveloped or change use.

4.1 Proposed Development

The key urban design principles for the Redleaf project are outlined as follows.

Connected & Safe

Create safe, walkable and beautiful streets that connect people to homes, open spaces and public transport.

Actions

- + Create streets and connections that are safe, comfortable and direct for pedestrians, with ample street tree canopy cover
- + Use trees to define key streets and avenues, with a mixture of natives and deciduous exotics that reflect both the local environment and Orange as the 'Colour City'
- + Ensure streets support multiple modes of transport

Natural Landscape & Waterways

Design with nature by working with natural systems for water management and biodiversity conservation by providing new parks, wetlands and tree-lined streets.

Actions

- + Achieve a minimum 5 Star Green Star Communities rating
- + Incorporate best practice water treatment throughout the project, and make a feature of water treatment corridors and basins
- + Maximise canopy cover and understorey vegetation
- + Provide local and biodiverse planting

Connecting with Country

Prioritise Country and support the sharing of traditional stories and knowledge

Actions

- + Engage with First Nations stakeholders
- + Incorporate designing with Country principles
- + Respect and regenerate the land and waterways

Active & Healthy

Provide opportunities for play, exercise and healthy living for people of all ages and disabilities.

Inclusive & Welcoming

Foster a sense of belonging and community, with places that bring people together.

Actions

- + Provide public amenity in the form of community facilities and open space
- + Create a community focal point around the existing hangar building
- + Design a place that is safe and equitable for all

Heritage & Culture

Celebrate the history and beauty of the heritage landscape.

Actions

- + Use landscape to reinforce the site as a gateway to Orange, with open space concentrated along the eastern edge of the site
- + Retain the memorial planting and poplar avenue along Mitchell Highway

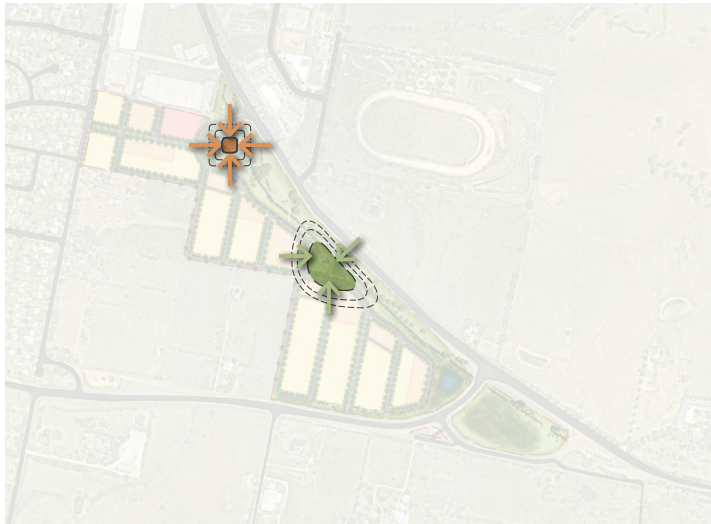
Based on these urban design principles, a number of key design moves have been developed as shown below.



Blue-green corridor



Functional street grid



Community focal points



Density on amenity

Figure 7 - Key Urban Design Moves (OCULUS)

The key urban design moves have informed the development of the final master plan shown below.



Figure 8 - Redleaf Master Plan (OCULUS)

The preferred option achieves the following indicative mix of lot types:

- + 20% affordable housing in the form of 4 storey apartments located in the north part of the site (approximately 66 apartments);
- + approximately 130 medium density residential lots (average 240m²) located fronting onto open space;
- + approximately 135 low density residential lots (average 420m²).

- + a legible hierarchy of streets in a simple grid structure comprising entry streets, local streets, park edge streets, perimeter streets and laneways;
- + footpaths along both sides of streets and a shared pedestrian / cycle path along the green blue corridor next to the highway;
- + proposed bus routes and cycleways (on and off road).

The preferred master plan option also includes:

- + approximately 5.3Ha of open space including a neighbourhood park around the existing hangar building, a village green in the centre of the site, and 2 pocket parks on either side of the southern entry;
- + a number of bioretention basins and an open water basin/wetland located within the blue-green corridor;
- + three access points - from Lone Pine Avenue to the east, from Redmond Place and the Mitchell Highway to the north, and from Brabham Way to the south;

Streets

Streets are vital public infrastructure that help to connect places and create opportunities for social interaction and community building. Streets are for everyone; pedestrians, cyclists, public transport and private vehicles.

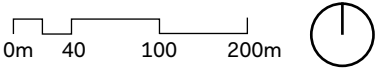
Footpaths will be provided to both sides of the majority of streets, with a shared path network further supporting active transport. A future bus route, using the north and south entry streets and Park Street, has been accommodated in the design.

All streets will be characterised by tree planting within verges on both sides of the street and within the median when a median occurs. Street trees will have clear trunks so as not to impede views and visual surveillance. Verges will be turf with limited low level planting to tree pits in medians and parking lanes.

Legend

- Local Street
- Park Street
- Northern Entry Street
- Southern Entry Street
- Interface Street
- Southern Interface Street
- Laneway





Northern Park

The Northern Park will have a family and community focus, with opportunities for play, gathering, recreation and community events.

It is located next to the hangar building which is intended to be developed for enhanced community use (not part of this DA). The existing car park on the east side of the building will be retained.

Open lawn areas and clear-trunked trees around the hangar building will permit good passive surveillance and allow future community uses to spill out and activate the public open space around.

A community garden, located to the east of the hangar building, will provide an opportunity for community use and add to passive surveillance of the open space.

The proposed playground is located along the main pathway network for access and visibility, and will be fenced to control access. The planting around it will be low-level understorey planting (<1m in height) and clear-trunked trees.

Legend

1	100m ² fenced community garden with raised garden beds
2	Existing hangar building and adjacent car parking retained
3	Hangar building spill out / plaza - pattern cut into existing paving
4	Open lawn area
5	Yarning circle with interpretive signage and views to Gaanha-bula with opportunity for public art overlay
6	Fenced playground for ages 0-12
7	Double swing and nest seat, in-ground trampolines, and informal seating on rubber softfall
8	Shaded softfall mound with embankment slides and climbing grips
9	Shaded mulch area with play tower, natural timber stepping logs and rocker
10	Picnic shelter with picnic table seating
11	2.5m wide shared path
12	Turf mounds
13	Exercise station with 3x exercise elements and seat
14	Existing poplars and memorial planting retained
--	Site Boundary



Central Park

The Central Park will have a youth focus, providing a hangout and recreation space for teenagers and young adults, along with younger children and families.

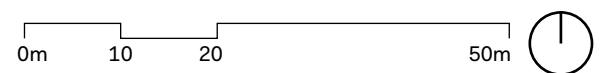
The Central Park is located along Park Road, the primary road through the development, and adjacent to proposed medium density housing fronting the public open space. The main shared pathway along the open space corridor passes through the park.

The adjacent open lawn area, and clear-trunked tree planting and limited low-level understorey planting around and within the park will promote good visibility and passive surveillance.

The multi-purpose half court faces onto the street and housing and will be well lit.

Legend

1	Shaded nest swing and slide
2	Climbing boulders recycled from local stone on site, with nets and climbing grips
3	Double swing
4	Flying fox
5	Picnic shelter and picnic tables
6	Half court with basketball goal and futsal soccer goal. Backing wall to include a public art mural.
7	Open lawn area
8	Seating area with stacked timber seating and shade trees
9	Exercise station with 3x exercise elements and seat
10	Bioretention basin
11	Planted swale
12	Existing poplars and memorial planting retained
--	Site Boundary



Southern Wetland

The Southern Wetland provides a striking entry point to the development with a permanent water body. Paths, seating areas, boardwalks and endemic planting add amenity.

The wetland has a street frontage with medium density housing on its western side, promoting passive surveillance. A shared pathway will form a loop around the wetland, enabling views into and across the area from all sides.

Planting within and around the wetland will be low-level, which along with the clear-trunked tree planting, will enable good visibility.

Legend

1	Planted swale
2	Boardwalk with balustrade
3	Lawn seating area with stone wall to wetland
4	Permanent water body surrounded by endemic planting
5	Stepping stones across planting
6	Bioretention basin
7	Fibre reinforced plastic boardwalk
8	Shared pedestrian / cycle path
9	Existing poplars retained
10	Detention basin
	Site Boundary



5.1 Surveillance

Effective natural and incidental surveillance can reduce the 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; and
- + minimal opportunity for offenders to conceal themselves or entrap victims.

The proposed master plan and landscape design seek to promote surveillance opportunities from the proposed housing lots/houses within the site. The master plan also aims to increase the level of pedestrian activity within the site. Key attributes of the master plan and landscape design which promote surveillance include:

- + a legible street network largely based on a simple grid pattern that maximises sightlines and views;
- + fronting medium density lots onto the main open space corridor;
- + locating the apartments adjacent to the large format retail use to the north (with an appropriate buffer);
- + avoiding backing lots onto open space or the rural lots adjoining the site;
- + providing a street frontage to the rural lots adjoining the site;
- + where rear lanes are provided, minimising the length of these and ensuring clear sightlines into and along them;
- + providing footpaths along all new streets, including both sides of typical streets and one side of asymmetrical streets;
- + providing a looped shared pedestrian and cycle path in the open space corridor and around the water body in the south-east part of the site to promote community use of open space;
- + providing adequate lighting to all streets, footpaths and main pathways through the open space;

- + proposing landscaping, particularly in proximity to pathways, that ensures sightlines and natural surveillance opportunities are promoted by means of appropriate height of planting for the situation, use of clear trunked trees, understorey planting less than 1m in height etc.

5.2 Lighting and Technical Supervision

Effective lighting and discrete technical supervision can reduce fear, increase community activity, improve visibility and enhance the likelihood of offenders being detected. Lighting and technical supervision are integral to increasing safety and perceived safety.

All lighting provided within the proposed development, including pedestrian paths, should meet the minimum Australian Lighting Standard AS/NZ 1158 Lighting for Roads and Public Spaces, specifically addressing the objectives for crime and fear reduction. Lighting levels should be adequate to permit facial recognition and allow for informal surveillance.

The street lighting levels will be based on Category V Lighting - lighting which is applicable to roads on which the visual requirements of motorists are dominant. Lighting columns will generally be located on the verge alignment shown in Orange City Council's Approved Standard Drawings.

Lighting provision to the shared path and public open space corridor in particular will be critical to ensuring a safe and active neighbourhood. Lighting levels for open space will be based on Category P Lighting - outdoor public areas, other than roads, where the visual requirements of pedestrians are dominant e.g. parks. The lighting design for the main pathways and open spaces will meet category PP3 under AS/NZ 1158.

Lighting types should be of a high quality and be vandal resistant to ensure longevity and allow for less maintenance or replacement. The area around the hangar building (not included in this DA) should also be well lit and may benefit from CCTV cameras being installed on the building.

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 connection to or interest in. A well-used and dynamic public space is made safer by natural surveillance. Designing with a clear transition between public and private space, 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.

The proposed master plan and landscape design seek to promote territorial reinforcement through:

- + a clear delineation between public and private domains;
- + a legible street network;
- + fronting medium density lots onto the main open space corridor and avoiding backing lots onto open space;
- + locating the apartments adjacent to the large format retail use to the north (with an appropriate buffer);
- + providing appropriate setbacks for residential lots to provide a transition between public and private domains;
- + providing a street frontage to the rural lots adjoining the site;
- + providing a range of recreational facilities within the open space including pathways, playspaces, seating and picnic areas to promote community use of open space;
- + providing open space around the hangar building (proposed to be upgraded for increased community use); and
- + providing footpaths along all new streets and in the open space corridor.

5.4 Environmental Maintenance

There is a strong association between environmental maintenance and the fear or perceived fear of crime. General image can greatly affect an 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 safety.

The master plan and landscape design seek to achieve high quality design outcomes in terms of street frontages and open space, as well as promoting high quality built form through good planning and appropriate controls. Additionally, lighting, clarity of land uses, and increased activity will help enhance the quality of the environment further.

The ongoing maintenance of the proposed facilities and landscaping is important to balance the safety and aesthetics of the development. Well maintained spaces encourage regular use, which in turn creates natural supervision of publicly accessible areas. The landscape design intent is based on a simple approach to design and materials, developed with Orange City Council, that will lessen the likelihood of damage and contribute to the ongoing maintenance of the development. The future maintenance of public streets and open spaces will be by Council.

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 in order to reduce crime.

The Development Application effectively introduces a clearly defined use for the site (i.e. predominantly residential use) and will increase the occupation of the area both during the day and night. As more homes are built on the site and the residential population increases on the site, surveillance and natural community policing of the area will improve. The development will encourage people to use the space and provide new community and recreational opportunities, therefore resulting in people using the site for longer periods of time.

The potential expanded community use of the hangar building (not part of this DA) and its associated open space will function as an activity hub. Residents and visitors will be encouraged to utilise these facilities and feel a sense of shared ownership for them and the broader development.

Overall the proposed development will redevelop an underutilised site that will greatly enhance its image and contribute to a sense of shared space.

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 master plan provides three main points of entry into the site as follows:

- + From Lone Pine Avenue to the east;
- + From Redmond Place to the north; and
- + From Brabham Way to the south.

Each of these connects directly to entry streets that provide clear views into the site as well as strong passive surveillance of the entries from the public realm and residential lots.

Unauthorised access into the site is limited by the street frontages, the adjoining rural properties to the south, and the large format retail park to the north. The open space corridor along the Mitchell Highway provide clear views from both highway and the residential lots fronting onto the open space. Similarly, the setback to Brabham Way enables views from the road and residential lots fronting onto the setback/road. The perimeter roads provided along the boundary to the adjoining rural properties to the south and the residential lots fronting onto these streets enables clear views of these interfaces.

Movement within the site is only possible by means of the public street network which provides clear views along/across streets and passive surveillance from adjoining residential lots. Streets and laneways have been designed to be through streets with multiple points of access and no dead-end streets or cul-de-sacs are proposed.

The open space within the site will provide clear points of access, legible circulation paths, and clear sightlines. The linear form of the main open space enables good surveillance from within the site and outside. Other smaller pieces of open space are located with direct interfaces with public streets and in close proximity to residential lots.

5.7 Design, Definition and Designation

The master plan and landscape design of the proposed residential development at Redleaf reflects its purpose, and while perpetrators will often exploit areas with unclear spatial definition, the design of the proposed development generally addresses multiple principles of CPTED.

The clear and legible structure of the master plan, with its grid of public streets, open space and lot layout fronting onto streets, site edges and open space, has been developed with CPTED principles in mind. The provision of community and recreational facilities, and the internal circulation system connected to the wider pedestrian, cycle and vehicular circulation network, will promote public use, activation and surveillance within the site.

6.1 Summary and Recommendations

It is considered that from a crime and safety perspective, the master plan and landscape design provides an improved outcome for the site and is considered to be generally consistent with the principles of CPTED.

The recommendations below however aim to further improve the safety and security of the proposed development as part of the next phases of design or beyond the scope of this DA.

Surveillance

- + Maintain sightlines to, from and within the proposed development and the surrounds by ensuring buildings and landscaping do not create a significant visual obstruction.
- + Ensure the design of built form avoids creating opportunities for concealment and ensures sightlines are maintained.
- + Ensure the design of the built form and the interfaces with the public domain allow sightlines between the development and the public domain.

Lighting and Technical Supervision

- + Maintain a consistent level of lighting throughout the public domain. Lighting should be adequate to permit facial recognition and provide visibility into a vehicle.
- + Maintain public domain lighting to ensure that ongoing public safety and compliance with standards is achieved.
- + Review the need for an appropriately designed CCTV network around the existing hangar building (outside of the scope of this DA).

Territorial Reinforcement

- + Provide wayfinding signage where appropriate to reinforce perceptions of safety and legibility in the development.

Environmental Maintenance

- + Ensure that landscaping is well maintained and cared for to prevent vegetation from becoming overgrown and creating opportunities for concealment.
- + Ensure mechanisms are in place to facilitate the on-going maintenance of the hangar building (outside of the scope of this DA), including the implementation of a rapid response policy for vandalism repair and the removal of graffiti.

Activity and Space Management

- + Promote the use of the hangar building for ongoing appropriate community use to activate this part of the site (outside of the scope of this DA).
- + Maintain recreational facilities within open space to encourage its ongoing use throughout the day and year.

Access Control

- + Maintain vegetation to site boundaries and edges in order to promote clear visibility and surveillance.

Design, Definition and Designation

- + Promote and encourage the design of houses which are based on CPTED principles.

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