



Lowes Creek Maryland (Birling) Precinct

Post Rezoning, Housekeeping Minor Amendments

Planning Proposal Addendum Report

Proposed Medium Density Site Amenity Analysis

26 June 2022

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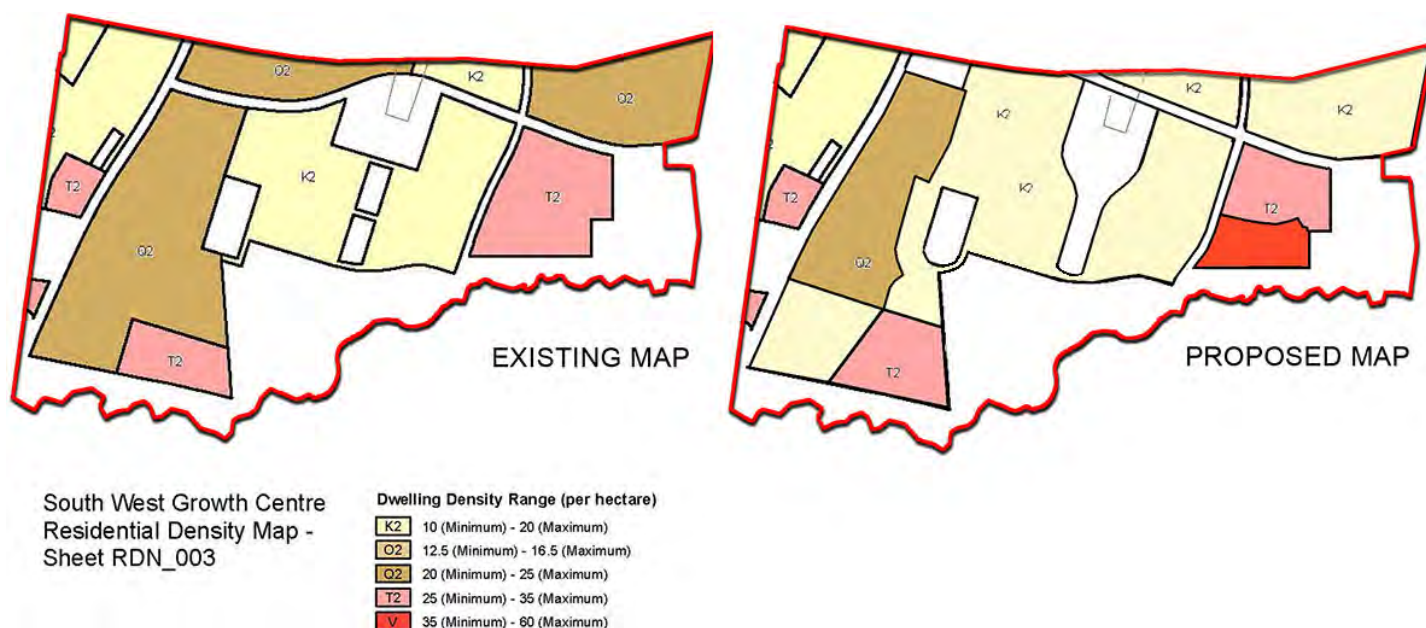
1.0 Introduction

1.1 Overview

Cameron Brae Properties has submitted a Planning Proposal to Camden Council requesting it undertake minor amendments to the zoning and density maps in the Camden Growth Centres Precinct Plan (Appendix 5) contained in the State Environmental Planning Policy – SEPP - (Precincts—Western Parkland City) 2021 (formerly the Sydney Region Growth Centres 2006) as they apply to the Birling property, 975 The Northern Road, Bringelly, in the Lowes Creek Maryland Precinct.

The requested amendments also incorporate corresponding amendments to the Indicative Layout Plan (ILP) and Residential Structure figures in the Camden Growth Centre Precincts Development Control plan (DCP).

One of the requested amendments seeks to reconfigure the density controls in the Birling property (both increasing and decreasing the density controls in certain places). These proposed amendments are illustrated in the extract of the existing, and proposed amended SEPP Density Map in **Figure 1** below.

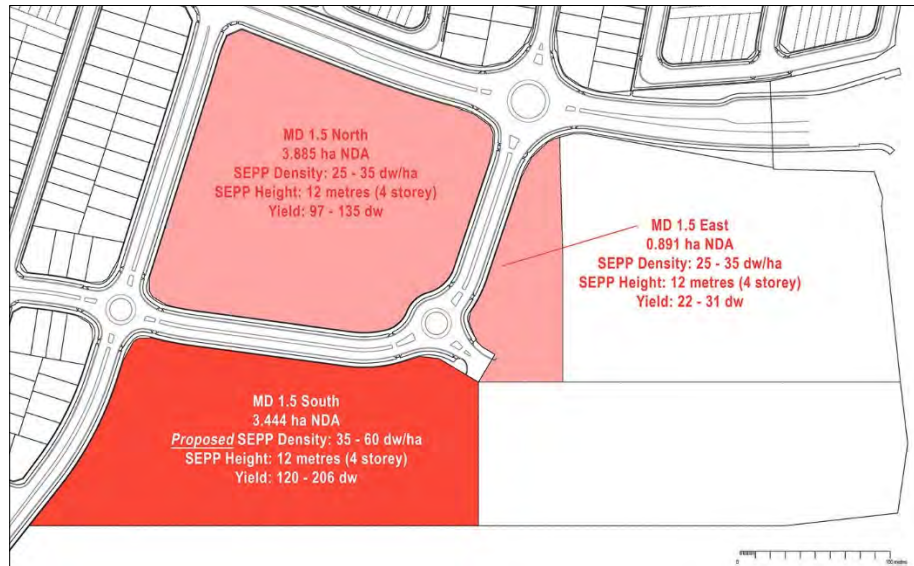


> Figure 1: Density Map in SEPP (Precincts—Western Parkland City) 2021

Specifically, the proposed amendments seek to adopt a “Salt and Pepper Approach” enhancing diversity of housing types/choice and affordability whereby:

1. A small area of Medium Density Band 2 (35 - 60 dw/ha max) is proposed in the south east corner of the site. Its location is distinguished by its red colour and identified as “V” in the SEPP Map. It would be located immediately to the west, and within convenient walking distance, of the site’s bulky goods centre. The centre includes a small capped amount of convenience retail floor space (3,500 sqm) that can include a small, low scale neighbourhood retail role; and
2. Greater areas of Low Density Band 1 (10 - 20 dw/ha max) are proposed in the west and other parts the site. They are hatched in a sandy colour identified as “K2” in the SEPP Map.

The area of proposed Medium Density Band 2 (35 - 60 dw/ha max) in the south east corner of the site is located within a larger precinct of medium density (25-35 dw/ha) zoned land. This is illustrated in **Figure 2**.



> Figure 2: Location of Proposed Medium Density Band 2 (35 – 60 dw / ha) in Adopted Indicative Layout Plan /SEPP

1.2 Council Request for Further Information

Camden Council has requested further information that addresses the following matters.

1. Initial concerns are raised regarding the location of the increased density to 35-60 dw/ha within the eastern portion of the site and whether there is sufficient amenity to support the proposed level of density. Can you please provide some further justification within the Planning Proposal report including some benchmarking with areas of similar density; and
2. Examples of expected built form outcomes within the proposed 35-60 dw/ha should be provided.

This addendum report addresses the two matters.

1.3 Summary of Purpose of the Proposed Density Change

As described in the Planning Proposal, the current pattern of densities is highlighted in the SEPP density map (left image) in **Figure 1** includes a large expanse of “upper” Low Density Band 1 (20 – 25 dw/ha) area extending through the western part of the site (annotated as “Q2” in the SEPP Map).

This application of such a large uniform higher density control in this location has a number of implications for the objectives of the rezoning of the precinct:

1. Maximisation of the Low Density Band 1 control of 20 to 25 dwellings per hectare NDA will effectively result in a medium density outcome of 25 dw/ha across 45% of the dwellings in the site;

2. This, together with a further 25% of the site with a 25 – 35 dw/ha density control, will result in 70% of the dwellings within the site being of essentially a medium density (25 – 35 dw/ha) dwelling type. This dwelling form is predominantly comprised of small /narrow lot terrace / townhouse or duplex dwellings form. This large dense concentration of dwellings within the site will visually dominate and determine the built form, streetscape and townscape character of the site and minimise the diversity of the housing within the site;
3. The location of the density type in the western part of the site will be distant from public transport, the K-12 school and retail and community facilities within the future local centre in Maryland to the south; and
4. This concentration will establish a broad sweep of effectively medium density built form adjoining and to the north of Birling 1812 and in the peripheral and rear view of the ILP view corridor of Birling 1812 from Maryland to the south, impacting on the heritage values of Birling and Maryland further afield that the planning vision for the Lowes Creek Maryland Precinct seeks to preserve and enhance.

The proposed Amended ILP improves the housing diversity offered by the site and reduces the dominance and environmental impact of the current 70% of housing in the medium density (25- 35 dw/ha) dwelling range. The change in housing diversity supported by the Amended ILP is illustrated in **Table 1** below.

Density Band	Existing ILP		Proposed Amended ILP	
	Max Dwelling No.	%	Max Dwelling No.	%
Environmental Living (max 10 dw/ha)	16	1	16	1
Low Density Band 1 (10 to 20 dw/ha)	630	30	1,149	55
Low Density Band 2 (20 to 25 dw/ha)	937	45	321	15
Medium Density Band 1 (25 to 35 dw/ha)	515	25	402	19
Medium Density Band 2 (35 to 60 dw/ha)	0	0	206	10
Total	2,098	100	2,094	100

> Table 1: Comparison of Dwelling Diversity in Site in Adopted and Proposed Amended ILP and SEPP Density Controls

The diversity of housing is improved across the whole site as:

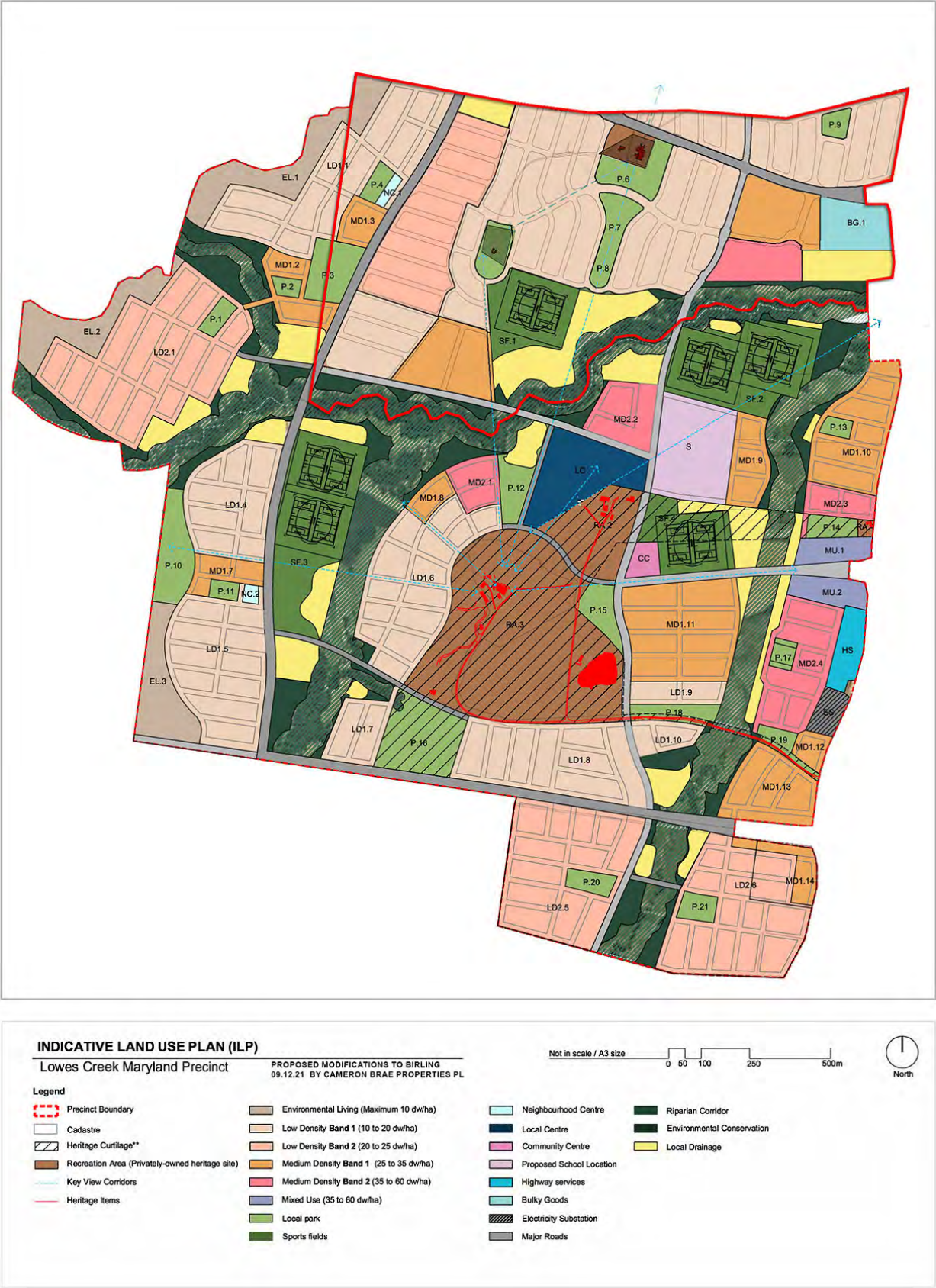
- The dominance of the medium density housing density of 25 – 35 dw/ha is reduced from 70% to 34%;
- The proportion of lower density housing (10 – 20 dw/ha) increases from 30% to 55%; and
- A new dwelling density type is introduced (35 – 60 dw/ha) that comprises 10% of dwellings.

The broader range of dwelling types that are offered by the proposed amendment may also improve housing affordability by increasing dwelling choice offering a more expansive range of price points for families and households in Camden. In particular, the potential introduction of apartment type dwellings in the 35 to 60 dw/ha zoning may also provide cost effective opportunities for single person households, communal (e.g. rental) households and households seeking downsizing or ‘aging-in-place” dwelling types.

It is important to note that the proposed amendments to dwelling type and proportion do not:

- Seek to reduce the provision of open space, notwithstanding the change in dwelling type may reduce the formulaic demand for open space; and
- Reduce or increase the overall maximum dwelling yield within the site which, in the proposed amended ILP is essentially the same as the current ILP (2,094 dwellings proposed versus 2,098 dwellings current).

The proposed amendments are presented in an amended ILP in Figure 3 below.



> Figure 3: Proposed Amended ILP for Birling (red boundary) shown in adopted Lowes Creek Maryland ILP

2.0 : Concept Master Plan of Site

2.1 Site Plan

To address the questions an architectural concept master plan has been prepared for the proposed 35 – 60 dw density part of the site. It illustrates the potential form of development that may be achievable in accordance with the proposed maximum 60 dw development density control. The master plan is presented in the images below and described in more detail in the following parts of this paper.



> Figure 4: Location of Concept Master Plan for 35 – 60 dw/ha part of site



> Figure 5: Site Plan for 35 – 60 dw/ha part of site

The site plan in **Figure 5** presents the following:

- Two/three story terraces addressing the northern frontage of the site. The terraces will match and form a transition between the site and the medium density sites to the north (that will be predominantly comprise a terrace / townhouse built form as a result of its 25 – 35 dw / ha density control). The terraces have a minimum frontage (lot width) of 6.0 metres to accommodate a double garage with level 1 room / granny flat ('Fonzie flat');
- Seven apartment buildings with a height ranging from 2 to 4 levels. The average size of the apartments in the plan is 90 sqm. In reality it would comprise a mix of 1 ,2 or 3 bedroom dwellings;
- An internal landscaped local lane anchored by communal open space and recreation facilities that would form the principle access to the dwellings. Attention to landscaping, detailed building design and the requirements for recessed garage doors, secondary entrances and balconies to the above garage granny flats / rooms will establish a distinctive high quality 'mews' style streetscape character for the lane that will mitigate the visual impact of the garages and contribute to activation of the space;
- Capitalisation in the site plan of extensive outlook and views to surrounding internal and external roads, the Lowes Creek Riparian Corridor and the large drainage basins; and
- Pedestrian links to local convenience retail, bus stops on the adjoining collector road and the Northern Road and to the shopping centre, K- 12 school and recreation / community facilities in Maryland to the south.

2.2 Built Form

The massing and scale of the built form proposed within the Concept Master Plan is illustrated in **Figure 6** below.



> Figure 6: Axonometric (3D) Concept Master Plan for 35 – 60 dw/ha part of site

2.3 Height, Separation and Setbacks

All Proposed heights are below the maximum permissible height of 12 metres and will remain below the tree canopy height established by the existing retained vegetation in the Lowes Creek riparian corridor. This is illustrated in Figure 7.

The image also presents possible setback and separation distances between buildings (drawn to scale). The extents demonstrate that the site can be developed to the density proposed in a manner that meets and can exceed the suggested separation and setback distances in Parts 2F and 2G of the ADG (which, for apartments up to four storeys, are 12 metres between balconies, 9 metres between habitable and non habitable rooms and 6 metres between non habitable rooms).



> Figure 6: Proposed Building Heights, Separation and Setbacks. All proposed heights are below the maximum permissible height of 12 metres and the established tree canopy crown in Lowes Creek (inset image)

2.4 Development Yield

The potential yield in the Concept Master Plan in the images above is presented in Table 2 on the following page and comprises:

- 206 dwellings total (i.e. the maximum proposed density control of 60 dw / ha);
- 28 x two / three story terraces addressing the northern frontage of the site;
- 178 apartment type dwellings in seven buildings with a height ranging from 2 to 4 levels with an average of seven apartments on each level across all apartment buildings.

	Levels				
Building	1	2	3	4	Total
Terrace A		8			8
Terrace B		8			8
Terrace C		12			12
Apt 1	7	7	7	7	28
Apt 2	7	7	7	7	28
Apt 3	7	7	7	7	28
Apt 4	7	7	7	7	28
Apt 5	7	7	7	7	28
Apt 6	7	7	7	7	28
Apt 7	5	5			10
Total					206

> Table 2: Development Yield based on proposed dwelling typologies and site planning in Concept Master Plan

2.5 Urban Design and Approach to Amenity

The approach to the urban design of the site seeks to achieve two goals:

1. The potential to ensure that a high level of amenity is secured *internally* within the site. That is, the proposed site of the increased density is capable of supporting the increased density, both in terms of its physical characteristics and location, and in terms of achieving commonly accepted planning amenity objectives and planning controls; and
2. The potential for the proposed increase in density to maintain expected levels of amenity *external* to the site. That is, the context of the proposed site (surrounding development, environment and public and private places i.e. the amenity external to the site) is not impacted by the proposed increase in density.

The Concept Master Plan seeks to create a unique, landmark 'urban village' type character ultimately comprising apartments and terraces that are fully integrated with the surrounding lower density suburban fabric and most importantly enhances and contributes to the lifestyle, sense of place and community well being of it's context.

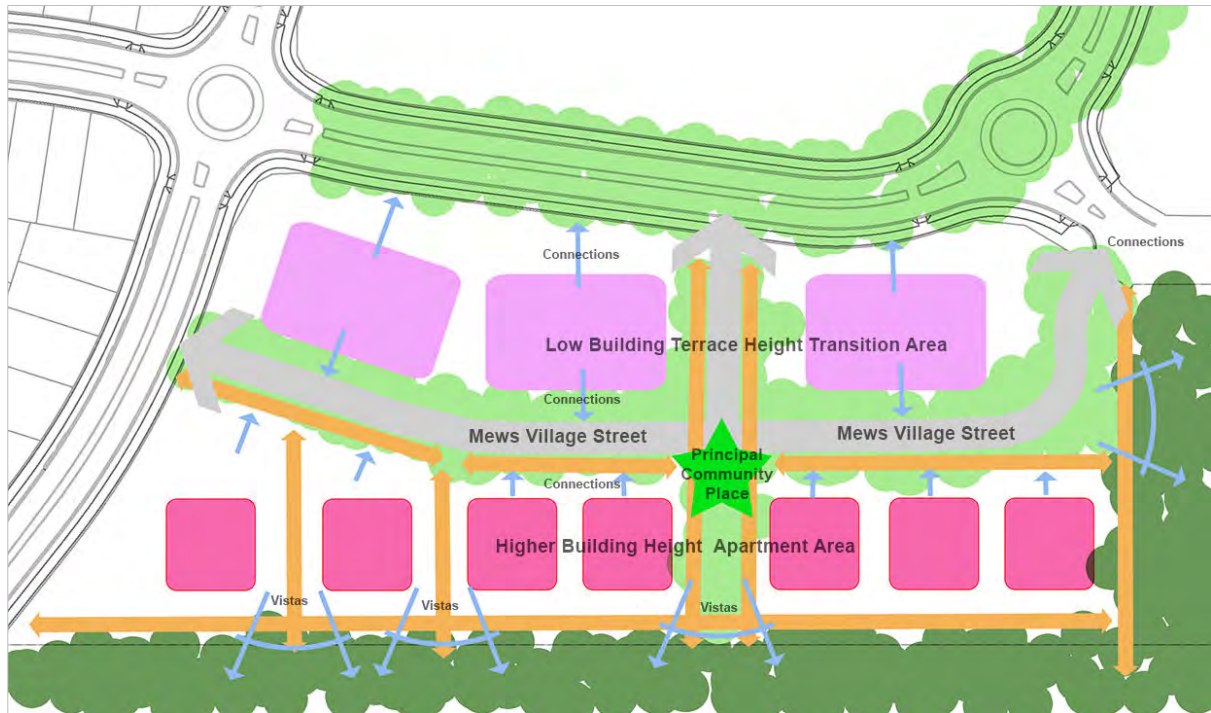
It is supported by attention to the following matters illustrated in **Figure 7** on the following page:

Landscape and Public places

The master plan generates a layout that extends from its suburban context to create a strong and distinctive east-west axis vehicle and pedestrian link. The mid-site street is connected and fully accessible to the public. A sequence and pattern of communal spaces and places has been created along it reminiscent of the traditions that distinguished a traditional village.

Streetscape

An essential principal has been to establish a fully integrated interface between Lowes Creek, the internal street and the residential activity. Street level front doors of buildings address the street and the design articulates the division of public and private realm in a manner that distinguishes traditional village type residential environments.



> Figure 7: Urban Design Principles and Amenity Approach

Pedestrian and Vehicle Access

Dwellings are generally accessible from the internal street ensuring a low use low speed pathway that may permit shared pedestrian/vehicle zones if supported.

Furthermore in terms of public realm, the development, rather than turning its back on the internal and external streets and the Lowes Creek riparian corridor, seeks to be an extension of these spaces to establish a vibrant village character that is generated by providing significant, connected 'flowing' linkages with the master plan 'inviting' the streets and spaces into the development through legible, attractive and comfortable pedestrian laneways. Therefore rather than predictably creating a 'walled' community (which so often characterises this density of residential development) the development seeks to be not only a good neighbour, but also be part of and contribute to the vibrancy, vitality and character of this part of the Lowes Creek Maryland Precinct.

Dwelling Mix

Development within the site is proposed to comprise a wide range of sensitively located dwelling types including terraces and apartments creating substantial housing diversity which responds to the wide socio economic characteristics of the market. This creates opportunities for the development of a balanced community within the site, contributing to the surrounding area and the well being of the resident population.

3.0 Is There Sufficient Amenity to Support the Change in Density?

3.1 Approach

A useful start to the response to this question is to adopt the definition of 'amenity' as that presented in Schedule 1 of State Environmental Planning Policy (SEPP) No. 65 – Design Quality of Residential Apartment Development.

The response then proceeds to address the second part of the question "*include some benchmarking with areas of similar density*"

The definition of 'amenity' is defined in SEPP No. 65 as:

Principle 6: Amenity

Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well being.

Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas and ease of access for all age groups and degrees of mobility.

The following criteria / measures, derived from the definition above, are discussed:

1. Appropriate room dimensions and shapes;
2. Access to sunlight;
3. Access to natural ventilation;
4. Outlook;
5. Visual and acoustic privacy;
6. Storage;
7. Indoor and outdoor space;
8. Efficient layouts and service areas; and
9. Ease of access for all age groups and degrees of mobility.

3.2 Appropriate Room Dimensions and Shapes.

The Concept Master Plan has adopted, for the purpose of this site planning exercise, a common unit size of 90 sqm internal space. The Concept Master Plan demonstrates that site planning can achieve room dimensions and shapes that exceed those commonly adopted in similar developments with significant site area to spare available for detailed design flexibility in the future.

This configuration allows significant design development in the final built outcome as it satisfies and exceeds the minimum apartments size range in Part 4D of the Apartment Design Guide (the ADG) that accompanies SEPP No.65. Part 4D specifies a minimum apartment size of 35 to 90 sqm for studio to 3 bedroom apartments. Refer to the extract from the ADG in **Figure 8** below. In reality, the detailed design of the development would be expected to offer a mix of 1, 2 and 3 bedroom apartments.

However, at this early stage of the process the Concept Master plan demonstrates that even by adopting as a 'base case' a universal maximum apartment size of 3 bedrooms, site planning illustrates that these generous areas within the site will still achieve this objective. That is, the density is not crowded into the site such that minimum apartment size ADG standards cannot be achieved and easily exceeded.



> Figure 8: ADG Apartment Configuration. The Concept Master plan adopts 90 sqm (3 bedroom minimum) as the standard unit size for site planning purposes.

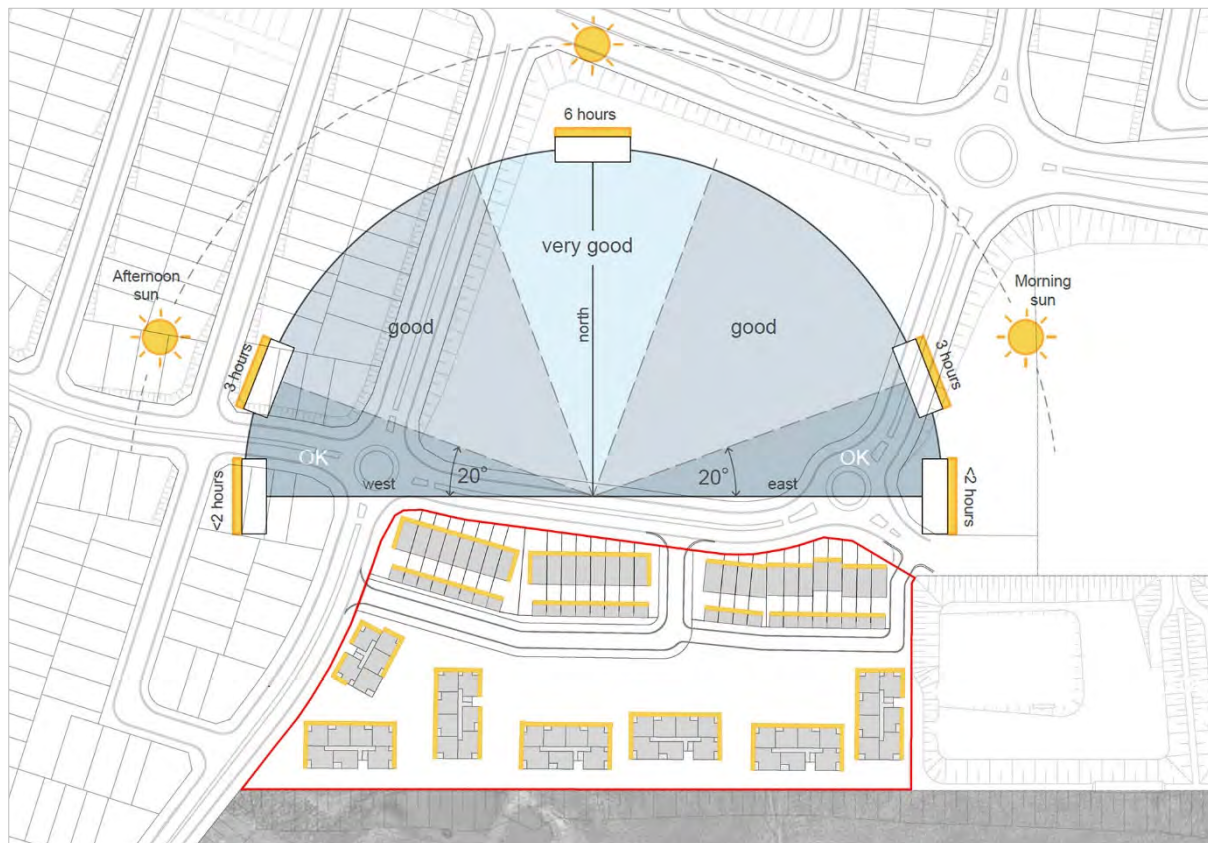
3.3 Access to Sunlight

Application of the AGD Sunlight Guidance Diagram (Figure 4A.1 in the ADG) to the Concept Master Plan is illustrated in **Figure 9** below.

The exercise demonstrates that the maximum dwelling capacity can be achieved within the proposed building heights (which are as adopted and not requested to be changed as illustrated in **Figure 6** earlier) whilst simultaneously attaining good solar orientation that ensures that the majority of dwellings within the site have the opportunity to enjoy good access to sunlight that meets ADG criteria and commonly accepted expectations.

Figure 9 illustrates that, in the Concept Master Plan, only 18 dwellings of the 206 shown are south facing and have no window or balcony with access to north, east or west sunlight. This represents 9%, which exceeds the ADG Objective 4A-1 of no more than 15%.

Notwithstanding this, it is likely that more detailed and innovative architectural design at the development application stage should be able to improve this measure further given the flexibility for innovative design built into the site planning.



> Figure 9: Solar Access (based on mid winter, 21 June, ADG Figure 4A.1)

3.4 Access to Natural Ventilation

The site planning presented in the Concept Master Plan demonstrates that this site can be developed with good access to natural ventilation; For example:

- 28 dwellings (14%) are dual frontage terrace houses, that enjoy simple cross flow ventilation; and
- There is a large number of corner apartments, given the small footprint of apartment buildings (i.e. 5 of the seven apartments per level (71%) have corner configurations), which assists cross flow ventilation giving confidence that detailed design will meet, if not easily exceed, the ADG Objective 4B-3 of at least 60% of apartments being able to be naturally cross ventilated.

3.5 Outlook

The Concept Master plan capitalises on the context of the site established by the existing adopted ILP. **Figure 10** demonstrates that the development of the site to the proposed maximum 60 dwellings per hectare enjoys good outlook as:

- The terraces face the street and will enjoy a busy urban 'local street' streetscape comprising street trees and footpaths. It will provide an attractive and pleasant experience for households;
- All apartments enjoy separation from other apartments by setbacks that exceed ADG minimums;
- The majority of apartments will enjoy uninterrupted and unobscured views to streets, the drainage basin or Lowes Creek Trees;
- Apartments that only have an internal (i.e. within site outlook) will also enjoy views to generously landscaped separation between buildings; and
- As all buildings are not proposed to exceed the current 12 metre height lint in the SEPP, elevated perpetual views to the sky and tree canopies particularly to those within Lowes Creek will not be obscured.



> Figure 10: Potential landscape Quality of Outlook from dwellings

3.6 Visual and Acoustic Privacy

The separation between buildings in the Concept Master Plan demonstrates that windows and private open spaces can enjoy a high level of visual and acoustic privacy on account of:

- All separation distances between apartment buildings potentially exceeding ADG dimensions;
- Terraces are located and configured to maximise outlook to the street and rear where street trees and building separation can facilitate high levels of visual and acoustic privacy; and
- Apartment buildings are configured so that a substantially large number of units may enjoy uninterrupted privacy with no overlooking due to their outlook to green areas or streets.

3.7 Storage

The Concept Master Plan does not address storage, as this is a matter for any future development application. However the low site coverage and potentially large average apartment size of the units demonstrate that all dwellings in the site will be able to be provided with appropriate storage to facilitate a level of amenity for households.

3.8 Indoor and Outdoor Spaces

The low site coverage and high proportion of deep soil planting areas in **Figure 10** illustrate the potential quality of indoor and outdoor spaces within the site.

3.9 Efficient Layouts and Service Areas

Each apartment building does not exceed the maximum number of apartments serviced by each level 's per lift rise / service corridor required by the ADG (being 8 per level).

The internal (potentially private) road ensures that service areas (loading / unloading, visitor parking, and bin storage) can be conveniently accessible to a wide range of vehicles. Location and access can also be easy to understand (i.e. -legible - not difficult or confusing to find) without needing to be in a visually or functionally adverse position that may affect the aesthetics and amenity of the development.

3.10 Ease of Access for all Age Groups and Degrees of Mobility

The Concept Master Plan does not address this amenity measure from a detailed building design perspective as compliance with building design codes would be addressed in any future development application.

However at a broader scale the site offers a high level of access for all age groups. This is illustrated in **Figure 11** and comprises:

- Access into the site is clear, convenient, legible and easy to find as it forms an integral part of the grid pattern road network in the locality. There are multiple access points and obvious connections to the adjoining collector and sub arterial road network, as well as Lowes Creek, adjoining convenience retail and the education, recreation, community and retail services in the Maryland project to the south;
- Access to neighbouring retail and commercial facilities and services is good. Small scale local convenience facilities will be available in the Bulky Goods precinct immediately to the east of the site (all within 400 metres walking distance); while the Future Maryland shopping centre will be approximately 700 metres walking distance to the south, accessible by dual use path and bus based passed public transport;
- Convenient access to bus based public transport and dual use cycle and pedestrian paths is enjoyed from adjoining roads and open spaces. The site will adjoin a future bus stop located directly on its north-south collector road frontage;
- K-12 education facilities will be available within 600 metres direct walking distance; and similarly
- Access to passive and active recreation facilities is within 400 metres walking distance.



> Figure 11: Access to Amenities and Activities in the ILP, Public Transport Services (Blue Dotted Line) and the Dual Use Pedestrian/Cycle Network (Orange Dotted Line)

4.0 Benchmarking Examples

4.1 Illustrative Examples

Illustrations of the elements of the potential built form (4 storey low rise apartments, terraces and rear lane mews homes' environments) are presented below.



> Figure 12: Views of Possible 4 Storey Apartment Buildings Intended (and Sought) for the Site.



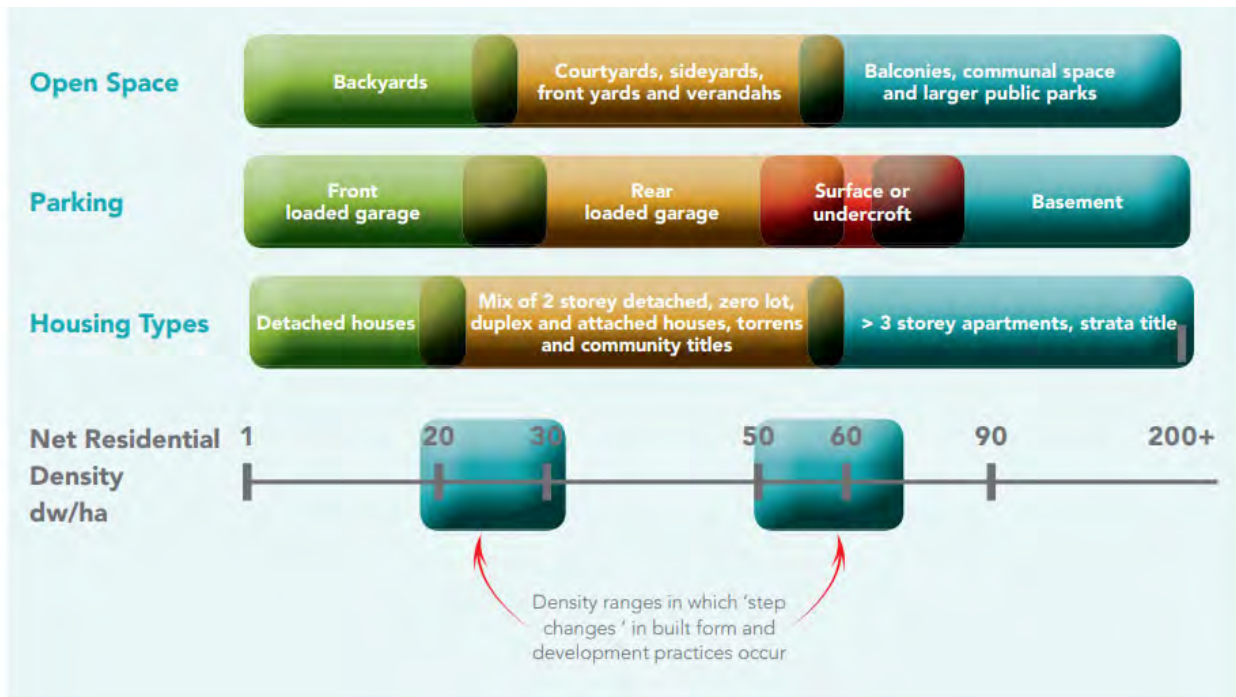
> Figure 13: Views of Proposed Approach to Terrace Design (i.e. façade articulation, use of colour, recessed openings and doors, variety in roof form, balconies, avoidance of blank walls and front setback territoriality).



> Figure 13: Views of Proposed Approach to Mews Laneways (i.e. façade articulation, use of colour, recessed garage doors, variety in roof form and building height, building entries, Fonzie flats, major windows and balconies for overlooking, robust landscaping, lighting, use of different entry threshold and pavement materials and avoidance of blank walls and monotonous facades / garage doors).

4.2 Planning Examples

Examples of planning studies examining similar densities that confirm / reiterate the expected built form character of the density outcome are presented on the following pages.



Rules of thumb

Reference Chart | Net residential density



> Figure 14: From Landcom, 2014, Residential Density Guide for Landcom Project Teams

3.3 Higher density does not always equal higher buildings

While it is true that higher buildings often result in increased net residential densities, the same result can be achieved with different housing types. This is because factors other than height (such as site coverage) also influence net residential density.

The correlation between density and site coverage is best illustrated at net residential densities of 40-60 dwellings per ha.

Traditional Victorian terraces in Paddington achieve a net residential density of around

56dw/ha. This is similar to three storey block-edge apartments. This is because, while the dwelling arrangement is different, site coverage and built form is very similar (attached two to three storey housing built to the boundary).

If the site coverage is reduced, more height is needed to achieve the same net residential density. So, a five-storey apartment building within generous landscaped areas and including recreation facilities, surface visitor parking and driveways, can also yield the same net residential density as terraces.



Height is not necessarily the same as density | Three different building types – terrace, urban apartment and suburban apartment – can result in approximately the same net residential density, depending on site coverage.

3.4 Higher net residential density does not always equal more people

Occupancy rates will vary for different residential building forms. Apartments usually have fewer occupants. This means that a higher net residential density does not always guarantee a higher population density.

The example on the next page demonstrates that if you had a 1 ha site (made up of a 8,150m² development site plus a street component of 1,850m²) and you planned to develop it with 45 two storey row-houses (each 5m wide) and 13 loft apartments above garages, this would yield a net residential density of 58dw/ha. At an occupancy rate of 2.36 people/row-house and 1.31 people/loft, this would result in a net residential density of 123 people/ha.

The same site could be developed with 64 apartments in three storey buildings and would yield a higher net residential density of 64dw/ha. But because the occupancy rate for apartments is lower (1.93 people per apartment), the net population density would remain at 123 people/ha.

In this case, a higher density development would house the same overall number of people.



Population density depends on occupancy rates | Different house types and net residential densities can yield the same population density, due to varying occupancy rates.

3.5 The same building type can yield different net residential densities

You can apply a shorthand approach to understanding density by grouping different housing forms into types, each of which has an approximate net residential density. For example, a detached house on a 15m wide lot normally equates to a net residential density of around 15dw/ha⁷.

However, rules of thumb will only be useful if they relate to local development controls and conventions. This is because the measured net residential density of any place will depend on a range of other factors such as street design and block layout, site coverage and dwelling size⁸.

The following examples demonstrate how some of these other factors can directly influence density.

The higher the site coverage, the higher the net residential density.

A three storey apartment building on a large site (one which includes extensive landscaped setbacks, surface parking and common open space) can yield a net residential density of 70dw/ha. But the same building form and height located on a smaller inner-urban site (one which has no setbacks) could yield up to 100dw/ha.

- 7 Further examples can be found in the 'Net residential density reference chart' provided with this guide.
- 8 The density resources provided with in this guide are based on current development practices in NSW (e.g. street widths are as recommended in Landcom's Street Design Guidelines).



> Figure 16: From Landcom, 2014, Residential Density Guide for Landcom Project Teams



Low-rise Apartments

CASE STUDY 10

205 Musgrave Road, Red Hill, QLD 4059

Neighbourhood context

- The site is located approximately 3km north west of the Brisbane CBD.
- The suburb is characterised by traditional timber and tin Queenslander style residences set among a landscape of ridges and valleys.

Accessibility and transport

- Access to the apartments is gained from an internal entrance lobby, with stairways accessed by residents only.
- Parking for residents is provided at the rear of the property with access gained from a small side street.
- A city bound bus stop is located at the front of the site.

Design and amenity

- Each apartment is provided with a front balcony.
- A small setback from the footpath and street provides opportunities for passive surveillance.
- The development provides minimal on site open space, but is located in close proximity to Red Hill Park (approximately 800m away).
- The development presents a modern architectural style and design.

Medium Density

SITE CHARACTER	
Land Uses	Residential
Site Area	1517m ²
No. of Dwellings	8
Height (storeys)	3
Car Parking (spaces/dw)	2
Proximity to Public Transport	Bus 30m

DENSITIES	
Site Density (dw/ha)	53
Net Residential Density (dw/ha)	19
Net Population Density (persons/ha)	42
Occupancy Rate Local (persons/dw)	2.2
Gross Residential Density Local (dw/ha)	14
Plot Ratio	0.85



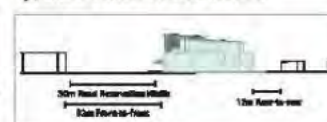
3D View



Study Area 1:5000



Typical Street Portion 1:1000



Section 1:1000



Low-rise Apartments

CASE STUDY 12

11 Promenade Avenue, Robina QLD 4226

Neighbourhood context

- The site is located approximately 14km from Surfers Paradise on the Gold Coast.
- The four storey low rise building comprises several one to three bedroom apartments and has frontage to Lake Lido.
- The surrounding neighbourhood comprises a mix of modern two storey villas and townhouses.

Accessibility and transport

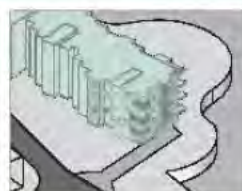
- The site is highly accessible to public transport with bus and train services located within 400m of Robina.
- Basement parking is provided for each dwelling and on street parking is available due to adequate road widths.
- As a connecting side street, vehicular speeds on Promenade Avenue are generally low and safety is facilitated by a general absence of through traffic.

Design and amenity

- Each apartment is provided with a balcony and a communal public space area provided in an area bordering the lake.
- High quality landscaping is provided throughout the site.

SITE CHARACTER	
Land Uses	Residential
Site Area	2816m ²
No. of Dwellings	18
Height (storeys)	3-4
Car Parking (spaces/dw)	1.7
Proximity to Public Transport	Bus 300m, Train 375m

DENSITIES	
Site Density (dw/ha)	64
Net Residential Density (dw/ha)	26
Net Population Density (persons/ha)	62
Occupancy Rate Local (persons/dw)	2.4
Gross Residential Density Local (dw/ha)	5.2
Plot Ratio	1.22

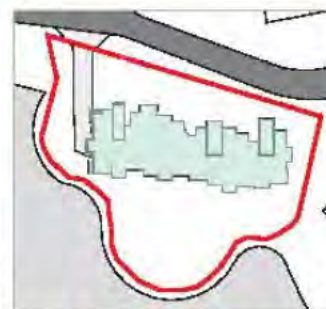


3D View

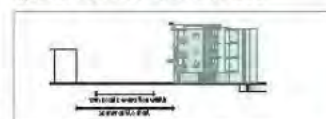


Study Area 1:5000

Medium Density



Typical Street Portion 1:1000



Section 1:1000



Attached Housing

CASE STUDY 13

20 Anthony Street, West End, QLD 4101

Neighbourhood context

- The site is located in close proximity to the Brisbane River and is approximately 3km south west of the Brisbane CBD.
- The dwellings are part of a modern low medium rise apartment development and attached terraced housing complex.
- The surrounding neighbourhood is characterised by a mix of residential low medium rise apartments, commercial and general industry developments.

Accessibility and transport

- Vehicular access is via a lane to the rear of the terraces.
- Pedestrians are able to access the site via the front and rear.
- On street parallel parking is provided along Anthony Street.
- Cycle and pedestrian paths are provided adjacent to the terrace developments, with direct access to the riverside cycleway and South Bank Parklands located approximately 1.5km away.
- The site is located approximately 150m from public transport with the form of a bus route on Montague Road.

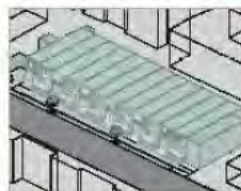
Design and amenity

- The two storey terraces have direct on street access and frontage.
- Balconies and small courtyards have been provided at the front of the dwelling.
- A minimum setback of 2m from the front boundary enhances surveillance of the street, while privacy has been maintained through the use of low landscape screening.
- Extensive landscaping is provided across the site.

Medium Density

SITE CHARACTER	
Land Uses	Residential
Site Area	1950m ²
No. of Dwellings	13
Height (storeys)	2
Car Parking (spaces/dw)	1.5
Proximity to Public Transport	Bus 143m

DENSITIES	
Site Density (dw/ha)	67
Net Residential Density (dw/ha)	80
Net Population Density (persons/ha)	144
Occupancy Rate Local (persons/dw)	1.8
Gross Residential Density Local (dw/ha)	15.9
Plot Ratio	0.6



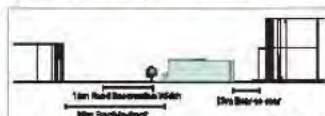
3D View



Study Area 1:5000



Typical Street Portion 1:1000

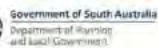


Section 1:1000

Medium Density



Date Built: 2007
Built Form: 2 & 3 storey row dwellings



Medium Density



Date Built: 2009
Built Form: 2 & 3 storey detached, semi-detached
& row dwellings



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