SJB Urban

Kellyville Station Precinct
Urban Design Guidelines

Kellyville
The Hills Shire
Sydney

Prepared for
Landcom

Issued
23 June 2020

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We create amazing places

At SJB we believe that the future of the city is in generating a rich urban experience through the delivery of density and activity, facilitated by land uses, at various scales, designed for everyone.

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Contents

Introduction

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1.1 Land to which this document applies

These guidelines apply to government owned land around the Kellyville Station as indicated in Table 01 and illustrated in Figure 1. They area consistent with the LEP provisions for the site and provide site specific development controls that future development will be required to comply with.

No.	Lot No.	Plan No.	DGL/LMA	Owner	Ownership
1	169	DP1252052	DGL	Sydney Metro	Government
2	170	DP1252052	DGL	Sydney Metro	Government
3	171	DP1252052	DGL	Sydney Metro	Government
4	12	DP1184376	DGL	Sydney Metro	Government
5	1406	DP1249937	DGL	Sydney Metro	Government
6	1407	DP1249937	DGL	Sydney Metro	Government
7	1408	DP1249937	DGL	Sydney Metro	Government
8	1402	DP1249937	LMA	Sydney Metro	Government
9	1401	DP1249937	LMA	Sydney Metro	Government
10	1400	DP1249937	LMA	Sydney Metro	Government
11	172	DP1252052	LMA	Sydney Metro	Government
12	168	DP1252052	LMA	Sydney Metro	Government
13	167	DP1252052	LMA	Sydney Metro	Government
14	162	DP1252052	LMA	Sydney Metro	Government
15	163	DP1252052	LMA	Sydney Metro	Government
16	161	DP1252052	LMA	Sydney Metro	Government

Table 01: Allotments that are the subject of the SSDA

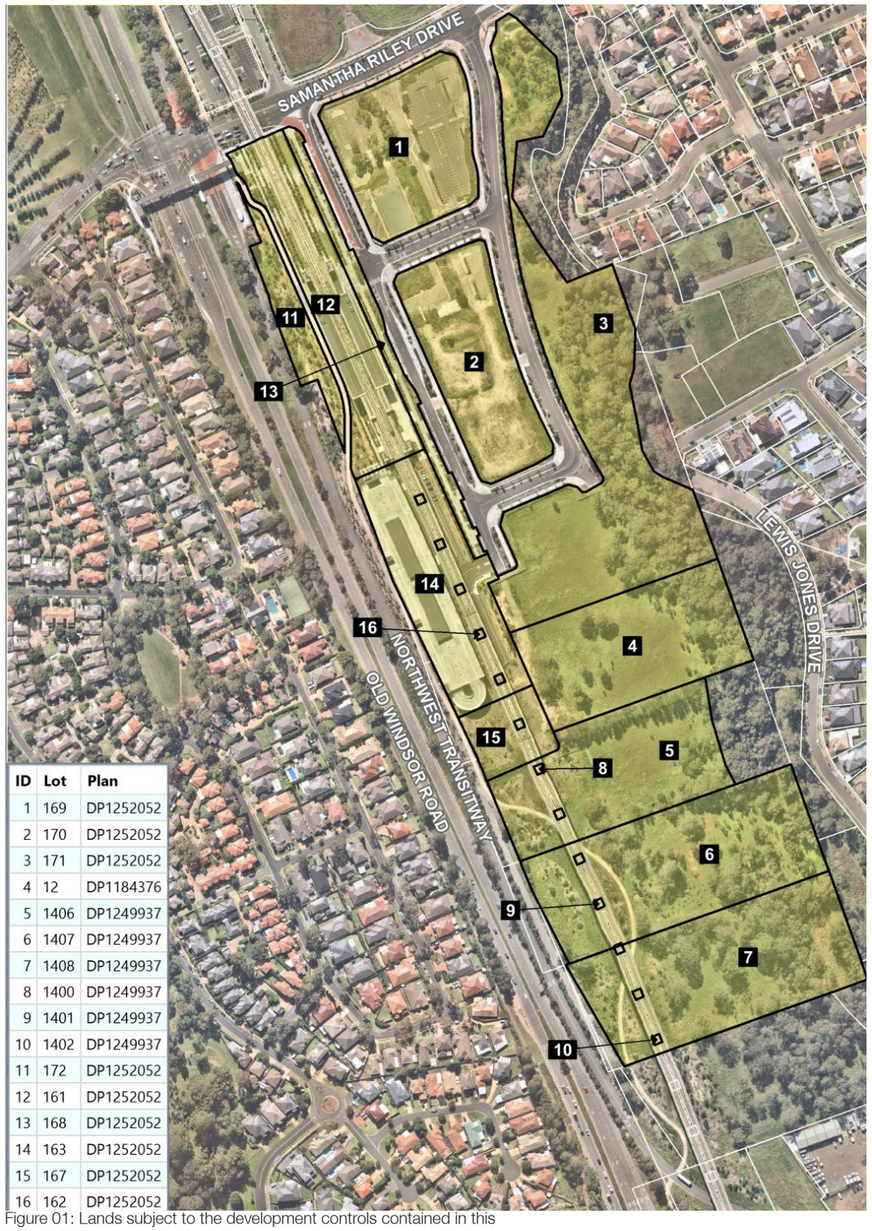


Figure 01: Lands subject to the development controls contained in this guidelines

1.2 Purpose of this document

The urban design guidelines for the Kellyville Station Precinct have been developed to provide detailed design direction for the subsequent stages of planning, design and development. In an effort to ensure that the design guidelines are concise and effective every effort has been made to avoid unnecessarily duplication of other existing policies and guidance that may relate to the site. As such, it is assumed that the good practice and design guidelines contained in SEPP 65, Apartment Design Guidelines, specifically in relation to unit sizes, solar access, cross ventilation, building separation etc. will be met.

The guidelines included in this report are site specific and seek to ensure that future development is consistent with the development vision set out in the SSD Application. In the absence of Development Control Plan for the site, these urban design guidelines will be used as a framework to assess future development applications.

The guidelines are objective based and in each section the objectives are outlined first followed by more specific controls.

Figure 02: Impression of the desired future character of the precinct illustrating the Local Urban Park which is the centre of the community

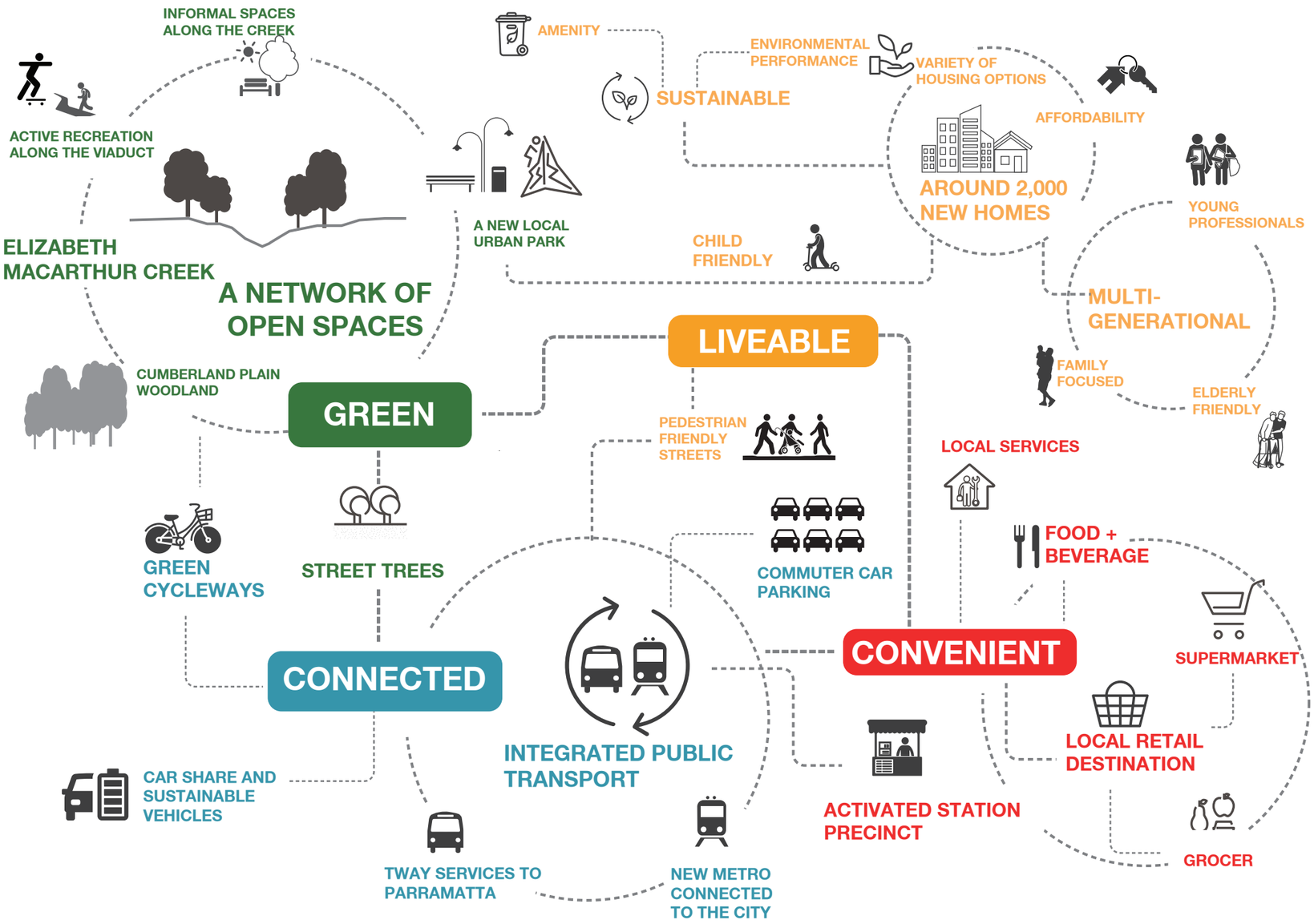
Vision and Principles

2

2.1 Vision

The vision for the Kellyville Precinct seeks to reflect and synthesise the previous work on the corridor and precinct, our understanding of the site and its context, as well as Landcom's aspirations for the future development around the Metro. The adjacent info-graphic identifies the key elements of the vision for the precinct. This is then captured in the following statement:

Kellyville will be a vibrant community, whose outdoor living room is Elizabeth Macarthur Creek. It will be connected and dynamic - offering the convenience and amenities of inner city living amongst the riparian bushland setting of north-west Sydney with spectacular views of the Blue Mountains and Hills Shire.



2.2 Development Principles

In order to achieve the vision, the following principles have informed the development of the masterplan and will continue to direct future development within the Kellyville Station Precinct.

Character and Identity

- Celebrate and enhance Elizabeth Macarthur Creek usability for recreation whilst protecting its ecological value to the area
- Extend the green qualities of the riparian corridor to Old Windsor Road
- Retain and integrate existing mature trees of significance and create a green character for the precinct through integrated spaces and landscaping
- Celebrate the entrances and gateways into the precinct, and the views of the precinct from the passing metro (i.e. viaduct level)
- Harness views from the site to the Blue Mountains and surrounding hills

Land Use

- Increase the intensity of land uses, activities, built form and residential density around an active station precinct and new public Station Plaza
- Provide a variety of housing options to cater for a range of family types and household profiles, specifically affordable housing
- Ensure flexibility in the subdivision and built form to accommodate changes in land use and market conditions

Movement and Access

- Connect meaningfully into the surrounding neighbourhoods, particularly eastwards into Kellyville and southwards into Bella Vista
- Encourage passive movement along Elizabeth Macarthur Creek
- Prioritise pedestrians and active modes of transportation to local destinations
- Support public transport use and provide alternatives to private car use
- Provide convenient access to the station and commuter parking without impacting the pedestrian environment
- Discourage undesirable through traffic through street design & connections

Public Domain

- Convenient access to a network of integrated, high quality public open spaces and amenities (playgrounds, walking paths, BBQ areas, etc.)
- Define open spaces in response to the area's unique characteristics:
  - A vibrant urban Station Plaza
  - Open spaces under the viaduct are activated by recreational spaces
  - Integrated spaces along the riparian corridor
  - Public spaces within the residential blocks
- Ensure the open spaces are safe and multi-functional
- Retain and integrate existing mature trees into the landscape design

Built Form

- Focus density and building heights towards the station, and stepping down towards the riparian corridor
- Siting, form and orientation of built form to carefully consider sunlight access into public spaces, communal areas, streets and residential buildings
- Active frontages with weather protection along primary pedestrian routes

Sustainability

- Embed adaptation measures in precinct design to address climate change risks and improve precinct resilience
- Passive design principles to be considered in built form to maximise energy efficiency
- Create a low carbon precinct through integrated use of renewables and energy saving technologies
- Use an integrated approach to water management to conserve resources and manage stormwater quality and flows
- Improve thermal comfort through use of sustainable materials, tree canopy and soft landscaping throughout the precinct
- Create an affordable precinct that provides accessibility, connectivity, health and wellbeing benefits for all

Structure Plan and Concept Master Plan

3

3.1 Structure Plan and Key Elements

The Structure Plan consists of the following key elements:

1. Elizabeth Macarthur Creek is celebrated as the unifying open space within the precinct. A shared pedestrian and cycle path is provided along the length of the corridor with a potential foot / cycle bridge over Memorial Avenue at its southern end into Bella Vista, and linking northwards to Caddies Creek
2. Mixed use station precinct and Station Plaza on Darani Avenue opposite the Metro station and a through-site link from the Station Plaza to Elizabeth Macarthur Creek
3. Local Urban Park in the order of 6,000sqm in the centre of the site with a potential footbridge over the creek linking to Lewis Jones Drive Reserve
4. Linear activity strip to the west of the viaduct activated by formal and informal recreational facilities
5. A “fast” active mobility route for residents travelling longer distances is provided on the western edge of the site along the viaduct providing easy access to the Metro and T-Way stations; and the school and district facilities in Bella Vista
6. Two smaller passive open spaces associated with the western edge of Elizabeth Macarthur Creek connected by a linear pedestrian path which meanders along the creek and connects the two precincts
7. The main street weaves through the development to provide access to the precinct and to discourage unnecessary through traffic. It enters the site at the intersection of Samantha Riley Drive and Decora Avenue and then proceeds southwards to the Local Urban Park, then westwards along the northern edge of the park before turning southwards again along the viaduct.
8. At the southern end of the site, the main street takes a final turn eastward where a new bridge is proposed over Elizabeth Macarthur Creek connecting into Colonial Street and Arnold Avenue which intersects with Memorial Avenue.

Figure 03: Proposed masterplan framework

3.2 Character Areas

Three character areas were identified for the broader Kellyville Station Precinct that stretches between Memorial Avenue and Samantha Riley Drive. Only two of these character areas form part of the SSDA submission and will be bound by the controls laid out in this document. The following character statements relate specifically to the Station Precinct and Residential Core and are provided to ensure that proposals contribute positively to the character and identity of the Hills Shire and support the development of precincts with distinct identities. All future proposals will need to demonstrate consistency with these statements.

Station Precinct Character Statement

Located at the northern end of the study area, the Station Precinct is the northern gateway to the site and a hub for retail and social activity. The Metro Station, T-Way and bus stops generate pedestrian movement between the different modes of public transport that helps to bring activity to the precinct throughout the day with the Station Plaza as the focus of social life. In contrast to other parts of the masterplan the plaza is compact, enclosed by buildings and more urban in nature. The buildings are mixed use in nature with retail uses (potentially including a local supermarket and grocer) serving as local retail destinations for the broader Kellyville community. Structured parking is provided in basements and in above ground parking wrapped with active uses, with entrances strategically located with the view of discouraging vehicle trips through the precinct and past the Station Plaza.

Above the retail podium the buildings offer well located high density residential accommodation in the form of apartments and shop-top housing. The buildings vary in height, from 8 to 15 storeys, with generous building separation providing distant views of the Blue Mountains and angled views of the creek. The tallest buildings are located close to the station with variation in buildings heights. The public domain interface is more urban with appropriate setbacks ensuring an active ground floor and privacy for ground floor apartments. Communal open space is provided above podiums and within the centre of the block.

Figure 05: Central community focussed space - Rouse Hill

Figure 06: Enclosed plaza - Darling Square

Figure 07: Active streetscapes - Rouse Hill

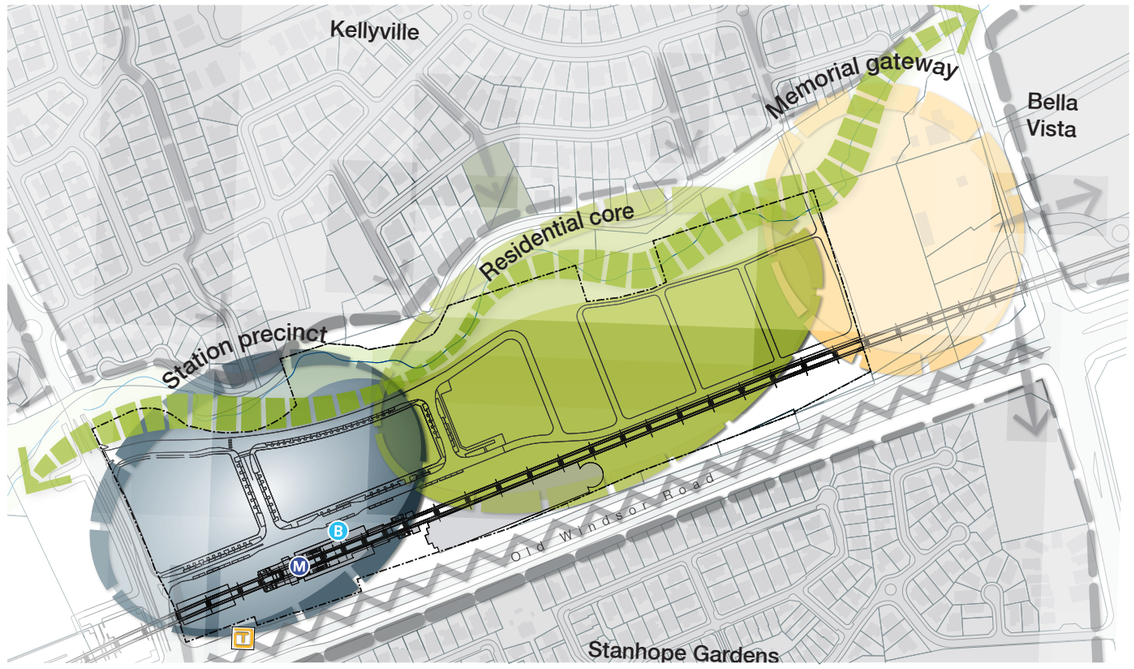


Figure 04: Character Area plan

Figure 08: View of the proposed Station Plaza

Residential Core Precinct Character Statement

The Residential Core is located in the centre of the site and is focused around the Local Urban Park. The main street is diverted along the viaduct offering more direct spatial connection between Elizabeth Macarthur Creek and development. The streets within the precinct are green, lush and pedestrian oriented with planted verges and large trees within the on street car parking zone. Existing significant trees and remnants of the Cumberland Plain Woodland habitat are retained and integrated into the courtyard and public domain. The Viaduct Park to the west provides for active recreation and is safe and well overlooked by development.

The precinct is predominantly residential providing a range of urban dwelling types including apartments with terrace style units integrated at ground floor level. Limited, small scale compatible non-residential uses (such as childcare or community cafes permitted in the LEP) could help activate key locations, such as around the urban park. The building footprints are generally smaller with taller buildings (up to 12 storeys) located along the viaduct providing surveillance of the viaduct park. The communal courtyards located in the centre of the urban blocks open out towards Elizabeth Macarthur Creek offering glimpses of the riparian corridor. Through-site links offer residents convenient access to the open space amenities. The precinct is unified with a minimum 4 storey street wall with upper level setbacks to reduce the perceived scale of taller buildings, creating more intimate streets and spaces. Buildings include planters on balconies and green roofs to offer amenity and pleasant outlook.

Figure 10: Proposed view of the Local Urban Park from above Elizabeth Macarthur Creek looking northwards

Figure 09: Residential apartments arranged around communal courts with views to Elizabeth Macarthur Creek

Figure 11: Examples of the nature of the residential development envisaged within the Residential Core with green communal courts opening onto the creek corridor

General Controls

4

4.1 Design Excellence

Objectives

1. To ensure the delivery of development that is consistent with the vision and objectives of the Kellyville Station Precinct set out in the urban design report
2. To achieve high quality outcomes in terms of urban design, architecture and landscape design, materials selection and detailing
3. To encourage architectural diversity and innovative design
4. To ensure the form and appearance of proposed new buildings improve the quality and amenity of the public domain
5. To ensure that development is inclusive and caters to a wide range of potential user groups

Controls

1. *All future development including built form and key open spaces, should follow the Design Excellence Strategy developed by Landcom in collaboration with GANSW.*
2. *Public art is to be procured in accordance with the SMNWP Public Art Guidelines prepared by Landcom*
3. *Developers acquiring and developing more than one lot are encouraged to employ multiple architects or architectural practices to encourage architectural diversity, competition and design excellence*
4. *Architects and landscape architects should be selected from the Government Architect's 'Prequalification Scheme for Strategy and Design Excellence' or collaborate with a pre-qualified Architect*
5. *All development to be planned and designed on sound Crime Prevention Through Environmental Design (CPTED) principles*
6. *20% of apartments within the precinct should achieve a minimum 'Design and As-Built' Liveable housing Australia Silver level accreditation*

4.1.1 Indigenous and European Heritage

Objectives

1. To ensure that development is designed and located to protect and enhance Aboriginal and European sites and archaeological relics
2. To minimise adverse impacts on the significance of the Aboriginal and European heritage items and be sensitive and direct interfaces with heritage sites.
3. To ensure that development is designed and located to protect and enhance Aboriginal sites and archaeological relics
4. To minimise adverse impacts on the significance of the heritage items and be sensitive and direct interfaces with heritage sites.

Controls

1. *Development will be designed and located to protect indigenous sites and archaeological relics and avoid disturbance*
2. *Development is appropriately designed with regard to sensitive and direct interfaces with heritage sites, specifically those identified within the creek corridor*
3. *Development is sited and designed to appropriately engage with indigenous heritage items*
4. *Indigenous names to be utilised where possible for the naming of places in consultation with LAHC and must be consistent with Council's street and place naming requirements*
5. *The report prepared by Kelleher Nightingale Consulting titled "Kellyville Station Precinct - Aboriginal Cultural Heritage Assessment" dated July 2019 is to guide any future site-specific Aboriginal heritage assessments and management of Aboriginal heritage sites, values, objects and/or places within the boundaries of the Kellyville Precinct*
6. *The report prepared by ADVISIAN titled "Landcom European Heritage Services for the Bella Vista and Kellyville Precincts – Precinct Wide Heritage Significance and Impact Assessment" dated May 2019 is to guide any future site-specific heritage assessments and management of heritage sites, values, objects and/or places within the boundaries of the Kellyville Precinct*

Figure 12: Full integration of architectural and landscape design - Rhodes

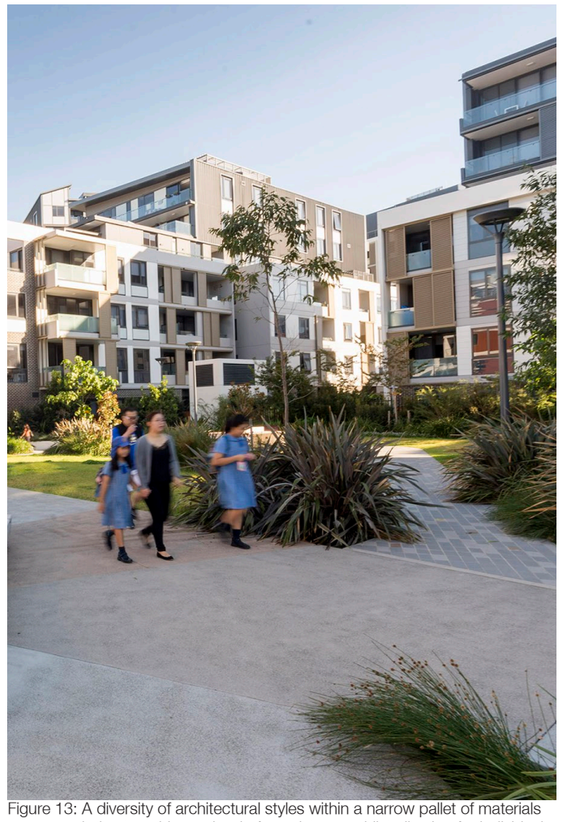


Figure 13: A diversity of architectural styles within a narrow pallet of materials helps to achieve a level of consistency whilst allowing for individual expression - Hudson Street Park

4.1.2 Environmentally Sustainable Design

Objectives

1. To ensure buildings meet, and where possible exceed, sustainable design principles set out in SEPP 65 . Specifically, in terms of sunlight, ventilation, wind, reflectivity, visual and acoustic privacy, safety and security and resource, energy and water efficiency.
2. Development adapts to climate change.
3. Development contributes to decreasing the urban heat island impact.
4. Development contributes to improved quality of life, health and well-being of the community.
5. Development is to be in accordance with the ecologically sustainable strategies and targets outlined in the AECOM Kellyville/Bella Vista Precinct ESD Report and Landcom's Sustainable Places Policy.
6. The design, construction and operation of development minimises adverse impacts on the natural environment.

Controls

1. *The report prepared by AECOM titled "Kellyville/ Bella Vista Station Precinct Ecologically Sustainable Development Report' dated August 2019 is to guide the precinct sustainability targets.*
2. *Development to achieve a minimum 5 Star Green Star- Design and As-Built for medium to high density residential development.*
3. *Development other than residential should achieve a minimum 5-star Green Star Design and as Built rating, respectively.*
4. *The ecological value of the site is to be close to or exceed the existing conditions, including retention of Cumberland Plains Woodland where possible*
5. *Mitigation strategies of potential urban heat island effect are to be instituted including but not limited to extensive public domain landscaping, light coloured roof materials, green roofs and solar PV.*
6. *Use of a 'cool' material of high diffuse solar reflectivity and high emissivity value for pavement and roofs that mitigate potential heat island effect.*
7. *The incorporation of green walls and roofs into the design of commercial and residential buildings is encouraged. Where suitable, building facades should incorporate vertical landscaping features to soften the visual bulk of buildings and to improve streetscape appeal.*

Figure 14: Built form and landscaping should provide residents with high levels of amenity and help address climate change through integrated planting and shade

8. *Building designs are to:*
   - *Maximise the use of natural light and cross ventilation;*
   - *Reduce the reliance on mechanical heating and cooling through the use of eaves, awnings, good insulation and landscaping;*
   - *Include energy efficient light fittings and water fittings; and*
   - *Allow for separate metering of water and energy usage for commercial and multi-unit tenancies.*
9. *The provision of onsite energy generation is to be maximised where possible, i.e. solar PV or wind turbines on roofs,*
10. *Develop and demonstrate site specific climate resilience strategies*
11. *Encourage walking, biking and use of public transport throughout the precinct and between the precinct and adjacent areas through convenient location of bicycle facilities and location of private laneways and through site links to build on the public connectivity network.*
12. *Ensure a public domain that encourages social interaction, is pedestrian oriented, has activated street frontage that are adaptable and comfortable, providing a sense of safety for all that reside in, work in or visit the area.*

4.1.3 Affordable Housing

Objectives

1. To ensure that the development promotes social and economic integration whilst providing households on lower incomes access to housing opportunities
2. To enable the provision of diverse and innovative housing typologies in response to local needs
3. To ensure a consistency in the material treatment of affordable and market dwellings to avoid a visual differentiation between the income groups of residents

Controls

1. *Ensure a minimum of 5% of the number of dwellings delivered are affordable housing throughout the Kellyville & Bella Vista precincts. The location(s) and configuration of affordable housing within the Kellyville and Bella Vista precincts is flexible as long as the 5% minimum is met, and may occur on any or all of the associated development lots*
2. *Affordable housing must be integrated into the overall development with no discernible difference in quality from market rate units*
3. *The provision of Affordable Housing must conform with the Affordable Rental Housing SEPP, 2009 (ARHSEPP)*

4.2 Public Open Space Guidelines

The following high level objectives are overarching and provide direction for each of the specific public open space control areas and themes that follow.

Objectives

1. Enhance Elizabeth Macarthur Creek as an ecological corridor and passive recreational amenity fostering healthy and sustainable natural systems and encourage interaction with Elizabeth Macarthur Creek
2. Ensure that the landscapes and spaces that are created recognise and celebrate indigenous culture and the historic use of the site by aboriginal communities
3. Ensure Kellyville Station Precinct develops a green character and identity
4. Ensure the continuity and integration within the open space and walking and cycle network and provide the local application of Sydney's Blue, Green and Ochre Grid strategy
5. Promote good landscape design that is supportive of associated land uses
6. Ensure good access to open space and recreational amenities for residents
7. The public domain should be designed to support the needs of the local community, support a wide variety of passive and informal active uses that can be enjoyed by a diverse range of residents from all ages, backgrounds and interests
8. Provide diversity of recreation and leisure opportunities through a range of open space settings
9. Create amenity, improved micro climate and thermal comfort for residents
10. To create and maintain a landscape quality that is contextual to the district's landscape character
11. Street planting and landscape to reduce the impacts of urban heat in the public domain and help meet Urban Tree Canopy Targets of 40% set by the Greater Sydney Commission
12. Ensure adequate solar access to key open spaces at the winter solstice to create environments that:
    - are supportive of active uses,
    - have comfortable micro-climates
    - have suitable growing conditions for a range of plants, trees and grasses

Figure 15: Conceptual landscape plan

4.2.1 Open Space Distribution, Provisions and Connections

1. *Establish an accessible local open space network that is integrated with and connected into the green infrastructure of the district through connected paths, bridges and natural corridors.*
2. *The following spaces indicated in Figure 16 must be provided in accordance with the detailed guidelines provided in the section that follows:*
   - *Station Plaza (1,600m²)*
   - *Two Riparian Break-away spaces (Total 5,781m²)*
   - *Local Urban Park (6,678m²)*
   - *Viaduct Park (10,462m²)*
3. *Create an overall scheme of managed lawns for passive recreational uses between the riparian corridor and the main street to provide additional open space for nature based recreation.*
4. *Provide regular unsignalised crossings along Decora Drive to facilitate pedestrian and cyclist movement throughout the precinct.*

4.2.2 Integrated Green Infrastructure and Elizabeth Macarthur Creek

Elizabeth Macarthur Creek Corridor Controls

1. *Establish native plantings along the creek boundary interface with the precinct to reinforce its ecological function*
2. *Define the boundary between the natural / ecological riparian corridor and active and managed landscape with a physical element (footpath / edging)*
3. *Ensure the shared path along the western side of Elizabeth Macarthur Creek becomes part of the open space element to connect both the Kellyville and Bella Vista Precincts*
4. *Establish an accessible local open space network that is integrated with and connected into the green infrastructure of the district through connected paths, bridges and natural corridors*
5. *The public space design must be designed to support the needs of the local community and complement the existing open space networks in surrounding areas*
6. *Create an overall scheme of managed lawns for passive recreational uses between the riparian corridor and Decora Drive to provide additional open space for nature based recreation*
7. *Provide regular unsignalised crossings along Decora Drive to facilitate pedestrian and cyclist movement throughout the precinct*

Figure 16: Open space strategy

1:4,000 @ A3

4.2.3 Minimum Public Open Space

Riparian Breakaway Space Controls

1. *Two riparian break away spaces (of 2,375m^2 and 3,405m^2) are to be provided as an extension to the riparian corridor and serve as more passive recreational spaces. Their design should promote engagement with and experience of Elizabeth Macarthur Creek*
2. *Recognise and celebrate the areas along the creek as spaces of significance for Aboriginal communities and engage with representative bodies in the design of the open spaces*
3. *Create an overall scheme of managed lawns for passive recreational uses adjacent to the riparian corridor of Elizabeth Macarthur Creek to provide additional open space for nature based recreation*
4. *Define the boundary between the natural / ecological riparian corridor and active and managed landscape with a physical element (footpath / edging)*

Figure 17: The design of the riparian corridor to encourage interaction

Figure 20: Clearly defined ecological and managed spaces

Station Plaza Design Controls

1. *A Station Plaza is to be provided to the east of the Metro Station on Lot B and should be a minimum of 1,600m2*
2. *The Station Plaza is envisaged as a contained urban space activated by retail uses on ground floor. The design of the plaza must be considered together with the adjacent buildings to optimise the relationship between the retail uses and open space*
3. *The Station Plaza must include consolidated area of deep soil no less than 800m2 in extent and no narrower than 6m in width*
4. *The design of the open space should facilitate outdoor eating and activation opportunities*
5. *The design of the Station Plaza should integrate and be complementary to the Metro station infrastructure and public domain upgrades undertaken by Sydney Metro*
6. *The design of the Station Plaza must extend to include the pedestrian through-site link between the Station Plaza and Decora Drive and ensure a clear line of sight from the Metro Station to Elizabeth Macarthur Creek*
7. *A shared path along Darani Avenue to be provided to ensure an attractive link between the station and the proposed footbridge over Elizabeth Macarthur Creek*
8. *Material selections across the plaza should ensure consistency in finishes and consideration should be given to tactile variation along Darani Avenue to create a more pedestrian oriented space*
9. *The design of the Station Plaza should ensure a clear line of sight from the station entrance to the entrances to major retail destinations or anchors*
10. *In the design of the Station Plaza clear areas should be designated for outdoor dining / trading allowing adequate space for pedestrian foot traffic, informal gathering and shop front retail*
11. *The design and delivery of the Station Plaza should include an element of public art. Public art is to be procured in accordance with the SMNWP Public Art Guidelines prepared by Landcom*
12. *Whilst the Station Plaza will be owned, delivered managed by the developers / owners of these lots they should be publicly accessible at all times. The design of the space should create the sense that this is a public, not private open space*

Figure 18: The Station Plaza to include both hard and soft landscaping

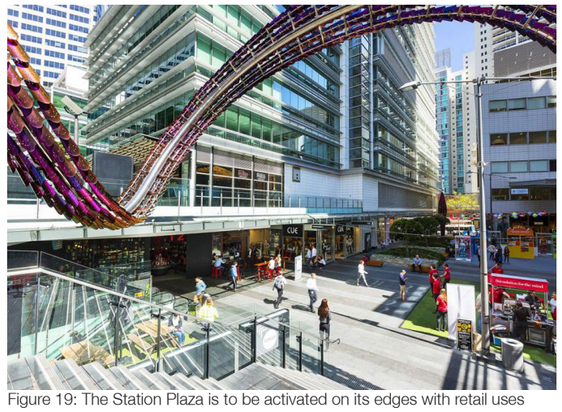


Figure 19: The Station Plaza is to be activated on its edges with retail uses

Local Urban Park Controls

1. *The central Local Urban Park is the main recreational focus of the precinct and should be at least 6,600m2 in extent*
2. *The Local Urban Park is contiguous with the riparian corridor and needs to be seen as an extension of this open space corridor*
3. *The Local Urban Park will be designed to accommodate all age groups with equipped areas of play and passive multi functional lawns*
4. *Trees, shade structures, seating and barbecues should be provided strategically to provide comfort and amenity*
5. *Connections to the riparian corridor and through to Lewis Jones Reserve through pedestrian bridges should be explored*
6. *A shared path should be provided through the park connecting the shared path along the riparian corridor, and potential future footbridge to the Lewis Jones Drive Reserve, to the viaduct park*

Viaduct Park Controls

1. *The design of the Viaduct Park should be a collaborative exercise between THSC, Landom and the proponent where applicable*
2. *The design of this space should support active recreation and become a local destination of residents of the precinct as well as for visitors from further afield*
3. *The design should consider skate parks, hard playing courts and outdoor gym equipment.*
4. *A shared path will weave through this space activating it throughout the day*
5. *Heavy planting and berming should be introduced along Old Windsor Road to mitigate the impacts of noise and traffic*
6. *The arrangement of soft landscaping and trees must ensure visual connections between the park and the residential units fronting onto the Main Street*
7. *The design and delivery of the Viaduct Park should include an element of public art. Public art is to be procured in accordance with the SMNWP Public Art Guidelines prepared by Landcom*

Figure 21: Activated and flexible lawn space

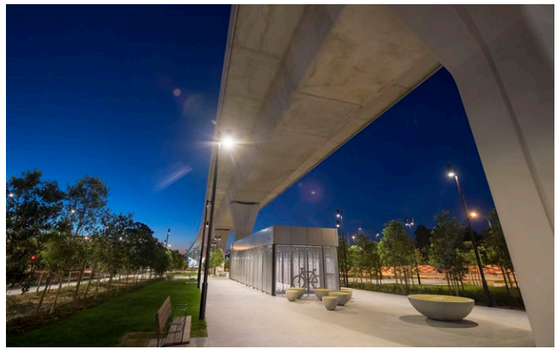


Figure 22: Aspirations for the Viaduct Park - a mix of hard and soft landscaping with active play

4.2.4 Solar Access Controls to Public Open Space

Objectives

1. Maximise solar access to open spaces and improve amenity for residents and businesses

Controls

1. *Built form on Lots A and B combined should be designed to ensure no less than 70% of a consolidated portion of the Station Plaza land receives more than 4 hours of direct sunlight between 9am and 3pm during winter solstice (21June). (Figure 23)*
2. *Built form on Superlot C should be designed to ensure no less than 80% of a consolidated portion of the local urban park receives more than 4 hours of direct sunlight between 9am and 3pm during winter solstice (21June) (Figure 24)*

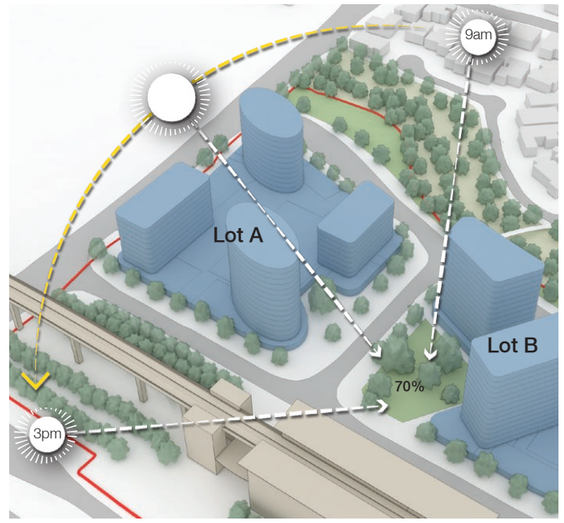


Figure 23: The built form for Lot A must maximise solar access into the Station Plaza during the winter solstice

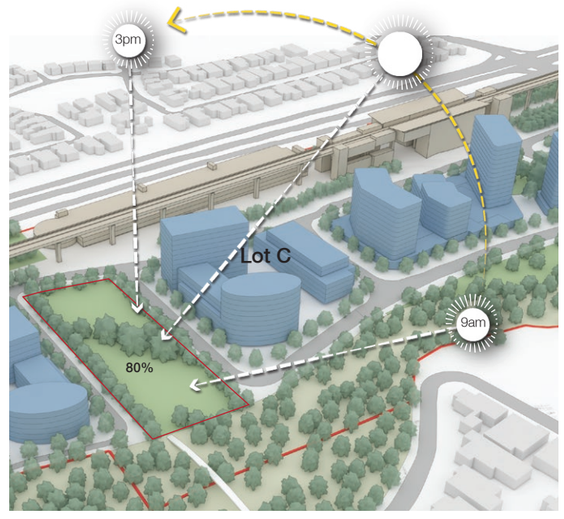


Figure 24: Built form on Superlot C should be designed to maximise solar access to the Local Urban Park at winder soltice

4.2.5 Street Planting and Landscape

Controls

1. *Establish a wayfinding strategy to assist residents and visitors with orientation and navigation within the precinct*
2. *Existing significant trees and remnants of the Cumberland Plain Woodland should be retained and integrated into the development proposals and public domain projects where possible*
3. *The public domain should be designed with street furniture (seating opportunities and activation spaces) to facilitate social interaction*
4. *Design street planting to extend the green corridor of the open space network, to provide shade, create local distinctiveness, seasonal variety and habitat opportunities*
5. *The design of the streetscape should achieve a minimum of 40% mature tree canopy coverage*
6. *Street trees should be provided at spacings that ensure fully mature canopy still retains unobstructed street lighting*
7. *A structural soil system should be provided for street tree planting comprised of a rigid, open grid structure placed in the proposed tree root zone with the soil backfilled as the structure is placed in layers. This system should ensure that:*
   - *The soil retains its open structure, permitting the movement of air and free drainage of water through the soil:*
   - *Provides for a suitable soil volume for the nominated species that will promote healthy tree root growth and enhancing tree stability in storms or in windy environments;*
   - *Vehicles can pass over this soil profile without compacting the soil or causing depressions in the surface; hence road and pedestrian pavement surfaces can be applied over these soils;*
   - *Soil volumes can be extended beyond the immediate conventional tree pit volume, ensuring healthier tree growth; and*
   - *The placement of underground services (local utility ducts) within the structural soil system should be avoided wherever feasible, though encroachment may be permitted with suitable coordination.*
8. *Root barriers (or similar) should be installed to prevent growth of roots beyond the 'tree pit' zone and the area underneath carbays (ie to prevent growth into road carriageway pavement or into utility areas).*
9. *The soil volume required for street trees is to be determined by the following formula:*

   Mature Canopy Spread (m^2) X 0.6m = Required Soil Volume

10. *The following table illustrates indicative soil requirement for different size of trees:*

Tree Type	Indicative Soil Volume (m^3)
Large Tree Canopy spread 17m and greater, (Canopy coverage approx. 110m2)	50-80
Medium Tree Canopy spread 11 - 16m, (Canopy coverage approx. 50m2)	20-40
Small Tree Canopy spread 10m and less, (Canopy coverage approx. 15m2)	5-15

Table 02: Tree Spacing Requirement

11. *Tree selection should be based on the following for Main Streets as identified on Figure 32 later in this document:*
    - *Large size tree*
    - *Australian native*
    - *Evergreen*
    - *Mature height of at least 15-20m*
    - *At least 12m mature canopy spread*
    - *Provide a unique character and promote diversity in streetspace*

    The following species are recommended for Main Street in Kellyville Precinct to provide a unique character and promote diversity in streetscape:
    - *Eucalyptus amplifolia (Cabbage Gum)*
    - *Eucalyptus crebra (Narrow-leaved Ironbark)*
    - *Eucalyptus moluccana (Grey Box)*
    - *Eucalyptus tereticornis (Forest Red Gum)*
12. *Tree selection should be based on the following for Local Streets as identified on Figure 37 later in this document:*
    - *Medium size tree*
    - *Australian native or exotic*
    - *Evergreen or deciduous*
    - *Mature height of approximately 10-12m*
    - *Mature canopy spread of approximately 6-8m*

    The following species are recommended for Local Street in Kellyville Precinct:
    - *Fraxinus oxycarpa 'Raywoodii' (Claret Ash)*
    - *Pyrus calleryana (Callery Pear)*
    - *Sapium Sebiferum (Chinese Tallowood)*
13. *Tree selection should be based on the following for perimeter road for the riparian laneway as identified on Figure 42 later in this document:*
    - *Small size tree with narrow form*
    - *Exotic*
    - *Evergreen or deciduous*
    - *Mature height of approximately 4-6m*
    - *Mature canopy spread of approximately 3-4m*

    The following species are recommended for Laneway in Kellyville Precinct:
    - *Prunus cerasifera 'Nigra' (Black Cherry Plum)*
    - *Ulmus parvifolia (Chinese Elm)*
14. *Trees shall be planted in the road corridor (rather than pedestrian pavement corridor) and spaced along streets in accordance with the following:*

Street type	Tree Spacing	Sides of street with trees
Main Street	15m	2
Local Street	8.5m	2
Laneway	6m	1

Table 03: Tree Spacing Requirement

15. *Shrub planting to be limited in height to maintain sight lines and passive surveillance to streets*
16. *Bollards, street kerbing and wayfinding markers should reference the form, materials and finish of the heritage sandstone 'boundary stones'*
17. *Plant species appropriate to the context and the specific microclimate within the development are to be selected to maximise use of endemic and native species and opportunities for urban biodiversity*
18. *Drought tolerant plant species, and species that enhance habitat and ecology, are to be prioritised*

Figure 26: The design of the public domain to be robust and easy to maintain

Figure 25: Public domain designs should reference the materials and quality of the station precinct

Figure 27: Robust and simple hard landscape palette

4.2.6 Street Hierarchy

Objectives

1. Ensure that the design of the streets reinforces the character of the precinct as a whole and the individual identities of each sub-precinct
2. Create a clear hierarchy of streets that facilitates appropriate levels of movement and access
3. Prioritise pedestrian movement and create a walk-able and cycle-able public domain
4. Facilitate access to and from the Metro Station and public transport services
5. Improve real and perceived levels of safety
6. Ensure street design supports active uses in key locations at ground floor level
7. Create a climate resilient public domain and help meet tree canopy coverage targets
8. To discourage unnecessary through traffic and rat-running

Controls

1. *Ensure that the design of streets reinforces the character of each precinct as outlined in the urban design report and is consistent with the hierarchy of streets illustrated in Figure 28*
2. *The detailed design of streets should be generally in accordance with the sections and street guidelines set out in this section of the guidelines*
3. *Ensure that those streets that are likely to carry road based public transport (buses) are of a sufficient width and structurally designed to accommodate these vehicles*
4. *Encourage movement through and adjacent to the open space network to provide passive surveillance and enrich the experience of living adjacent to public open space assets*
5. *Manage the potential negative impacts of external car trips into the precinct by providing easy and convenient access to car parking and use street calming devices to discourage through traffic*
6. *Consider speed table pedestrian crossings where high levels of pedestrian movement is anticipated*
7. *Street tree planting to be generally in alignment with that which is outlined in the street tree section 4.2.5 above*

Figure 28: Street hierarchy plan

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4.2.6.1 Main Street (Darani Avenue)

Desired street character

An urban street with active ground floor uses that complements the Station Plaza and provides an attractive arrival experience to those arriving to the precinct by public transport. Note this street has already been constructed but changes to the street design should be contemplated whilst the design of buildings on Lots A and B are progressed.

Objectives

1. Ensure the street design supports a vibrant station precinct with active (retail) ground floor uses
2. Encourage outdoor seating and the activation of the ground plain around the station
3. Ensure Darani Avenue is a pedestrian and cycle friendly environment that focuses on these movements and retains desire lines between the station and the creek

Controls

1. *Materials used in the extension of the sidewalk and within the building setback to be consistent with that used in the Metro Station precinct*
2. *Consider material changes of the carriageway to create a more pedestrian oriented street and improve amenity*
3. *Ensure that the location of tree planting, soft landscaping and street lights allow for the proposed awning*
4. *Level changes between the kerb and interior shop levels to ensure universal access and create opportunities for informal seating in the street*
5. *The intersection design of Darani Avenue and Decora Drive to be reviewed as part of the design process for the adjacent development lots to ensure safe pedestrian crossing towards the footbridge over the creek*
6. *A min 4m wide shared path should be provided on Darani Avenue to facilitate connections between the proposed pedestrian footbridge over Elizabeth Macarthur Creek and the Metro Station*
7. *The design of the intersection of Darani Avenue and Guragura Street to be reviewed as part of the design process for the adjacent development lots to ensure safe pedestrian access from the Station Plaza to the Metro Station*
8. *Street lighting to ensure high levels of illumination along key routes to the metro station*

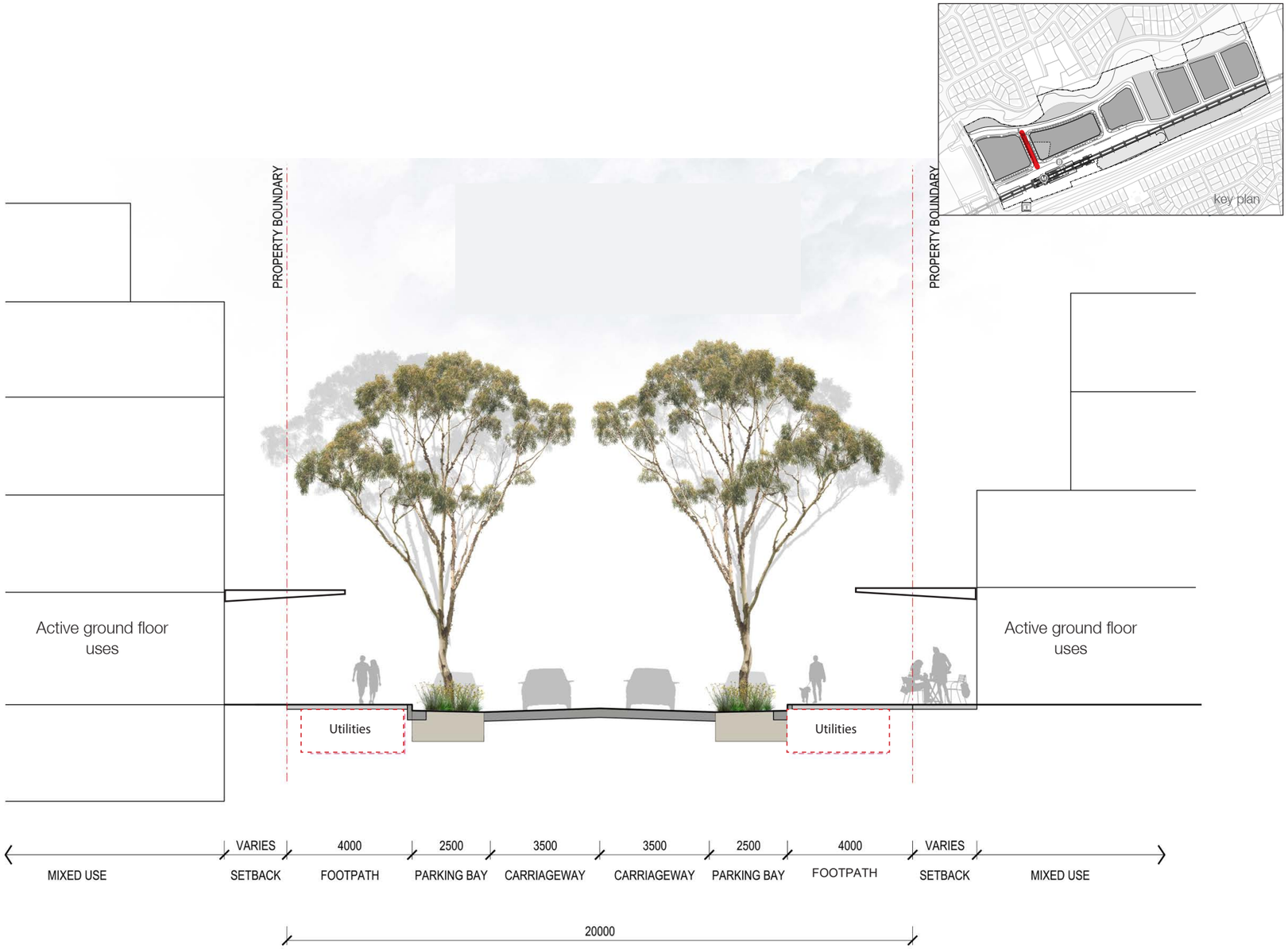
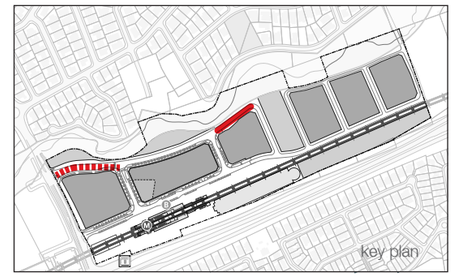


Figure 29: Darani Avenue Cross section

4.2.6.2Main Street (Decora Drive)



Desired street character

A welcoming green street through the precinct that initially skirts the Station Precinct and then runs along Elizabeth Macarthur Creek taking visitors on a varied journey through the heart of the precinct and past the key structuring open spaces.

Note: A significant portion of Decora Drive has already been constructed, but may need to be widened as part of the development of Lots A and B. These guidelines provide direction in terms of the extension of Decora Drive southwards and the principles of how the street may be widened in future.

Objectives

1. Ensure a welcome gateway to the precinct from Samantha Riley Drive
2. Ensure ease of access for pedestrians moving between the station and Elizabeth Macarthur Creek
3. To improve the pedestrian experience within the precinct and encourage passive movement long Elizabeth Macarthur Creek
4. Minimise the impact of any potential road widening on the riparian corridor

Controls

1. *When considering the design for the upgrading and widening of Decora Drive at its intersection with Samantha Riley Street consider options such as reducing lane widths and optimising the existing road cross section before moving the kerb towards Elizabeth Macarthur Creek*
2. *The intersection design of Darani Avenue and Decora Drive to be reviewed as part of the design process for the adjacent development lots to ensure safe pedestrian crossing towards the footbridge over the creek*
3. *Vary the location of the shared path along the riparian corridor and consider the introduction of green verge between the path and the road carriageway to create a more natural character*
4. *Omit parallel street parking along the riparian edge to improve views from the development and from the street of Elizabeth Macarthur Creek*
5. *Ensure that tree planting and soft landscaping allow views of and to the creek*
6. *Ensure that tree planting is appropriate for the riparian context*

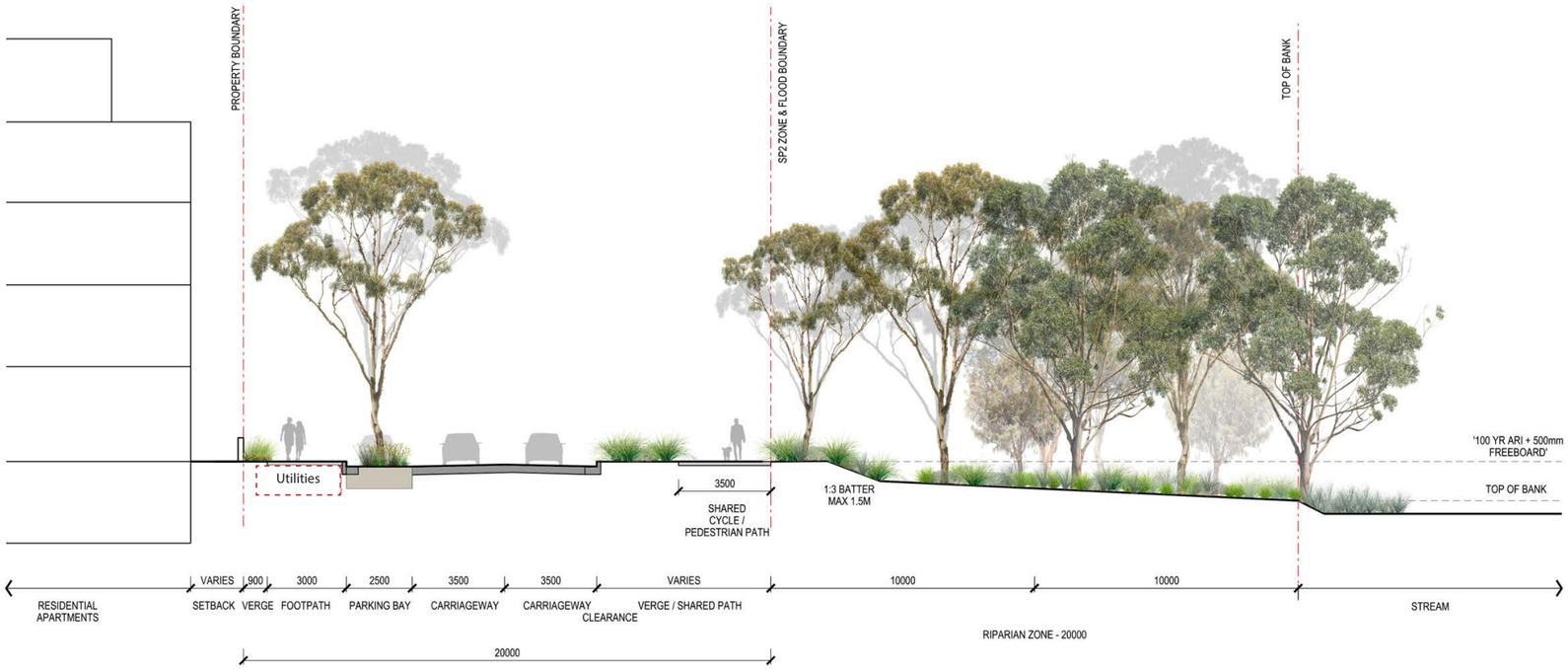
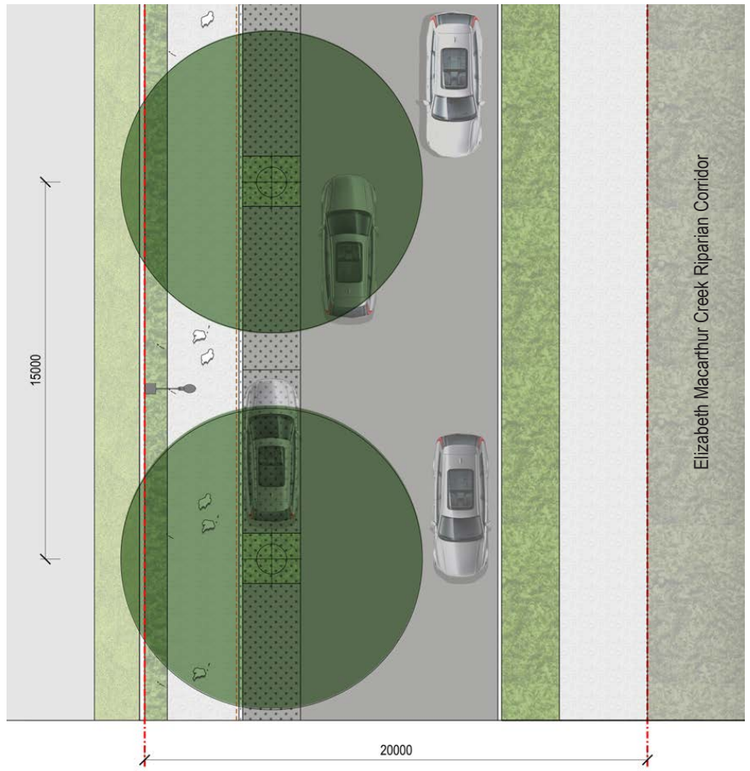


Figure 30: Main street cross section along the riparian corridor



MAIN STREET (DECORA DRIVE)
Kellyville - Riparian

Tree Spacing: 15m (Two carparks between trees)
Road corridor width: 20m from setback to setback
Side of road with trees: 1

Legend
- Structural soil system
- Root barrier
- Setback boundary
- Street light pole

Figure 31: Plan of the proposed extension of Main street (Decora Drive) along the riparian corridor

4.2.6.3Main Street (Adjacent to the Local Urban Park)

Desired street character

The continuation of Decora Drive as a green street taking visitors past the central Local Urban Park, the green heart of the precinct.

Objectives

1. Ensure that the street design complements the design of the Local Urban Park
2. Reduce vehicle speeds around the park
3. Ensure that the park is accessible to the wider community

Controls

1. *Ensure that the design of the street and the design of the Central Local Urban park are considered together*
2. *Ensure that safe pedestrian crossings are provided along anticipated pedestrian desire lines to provide safe access to the park*
3. *Consider the location of on-street parking to both help slow traffic speed and provide convenient parking for those visiting the park*
4. *Ensure that the selection of tree species on the streets abutting the park complements the design and functionality of the park*
5. *Ensure tree planting and landscaping does not unnecessarily obscure views of the park and open spaces from the streets and residential development*
6. *Ensure vehicle access to the park is provided to facilitate maintenance and activation activities*

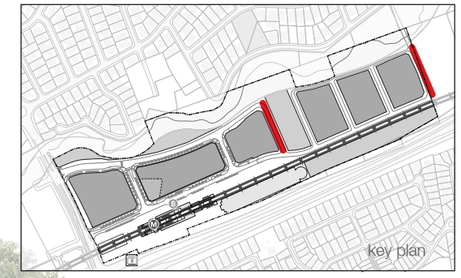
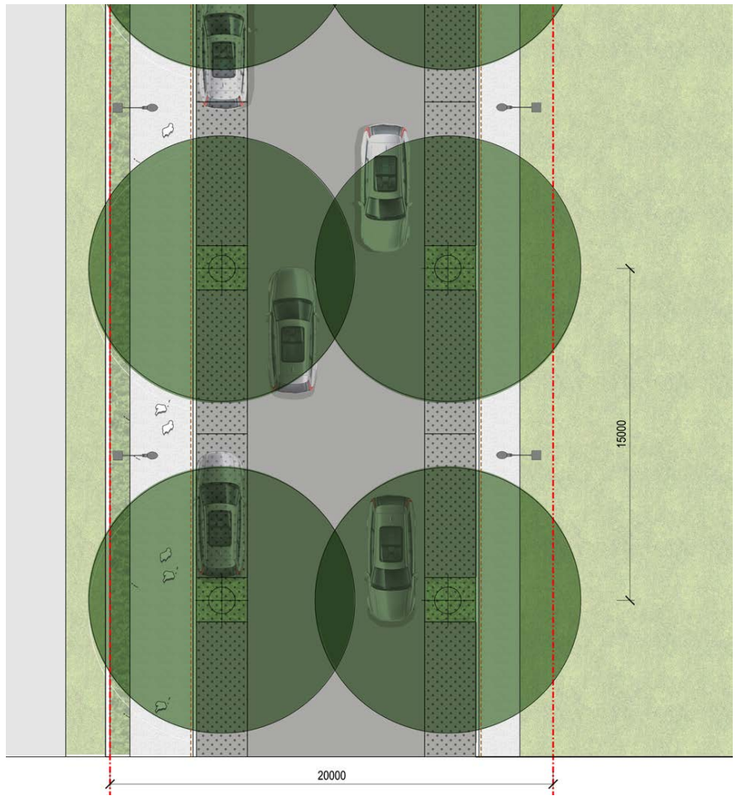


Figure 32: Main street cross section adjacent to open space



MAIN STREET (ADJACENT TO OPEN SPACE)
Kellyville - Residential and Park

Tree Spacing: 15m (Two carparks between trees)
Road corridor width: 20m from setback to setback
Side of road with trees: 2

Legend
- Structural soil system
- Root barrier
- Setback boundary
- Street light pole

Figure 33: Plan of the main street section along the Local Urban Park

4.2.6.4 Main Street (Along the viaduct)

Desired street character

An active mobility corridor that runs along the side of the viaduct offering views into the viaduct park.

Objectives

1. Ensure that the spaces under and along the viaduct are safe and attractive
2. Encourage fast active mobility movement along the viaduct
3. Ensure safe pedestrian access to the viaduct park

Controls

1. *Ensure the location and specification of elements of the street section within the viaduct reserves meet Sydney Metro's requirements*
2. *Select tree and soft landscaping to ensure visual connections from the street and from inside residential apartments to the area underneath and to the west of the viaduct*
3. *Locate and specify street lighting to ensure that the area under the viaduct is well lit after dark*
4. *Consider weaving the shared path between and close to the viaduct to optimise the shade and shelter provided by the viaduct structure*
5. *Ensure that pedestrian crossings are provided at key locations to facilitate access to the viaduct park from the residential core*
6. *Use on-street car parking as a mechanism to create friction and slow vehicle speeds*
7. *Vehicular access to lots from the main street is discouraged*

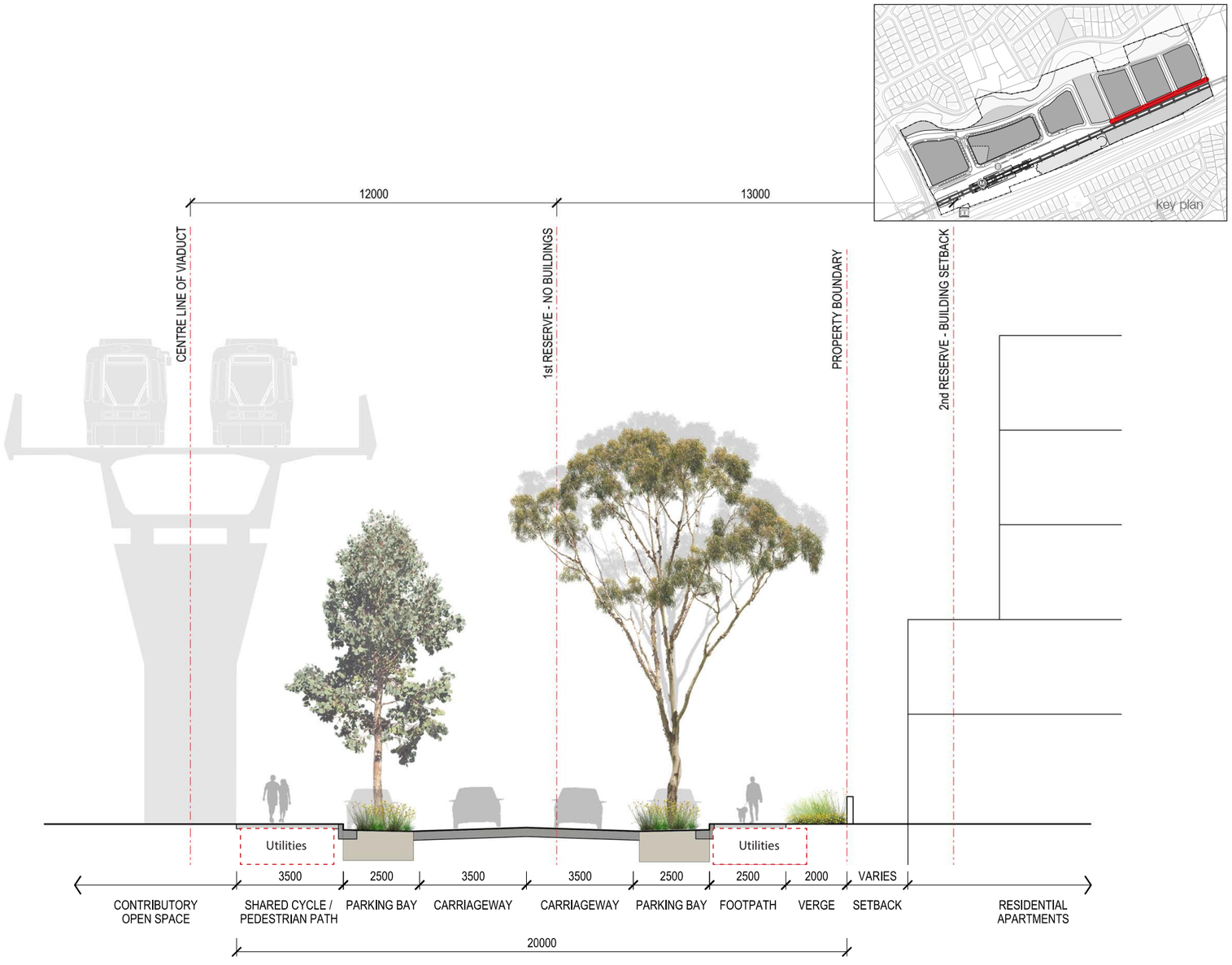
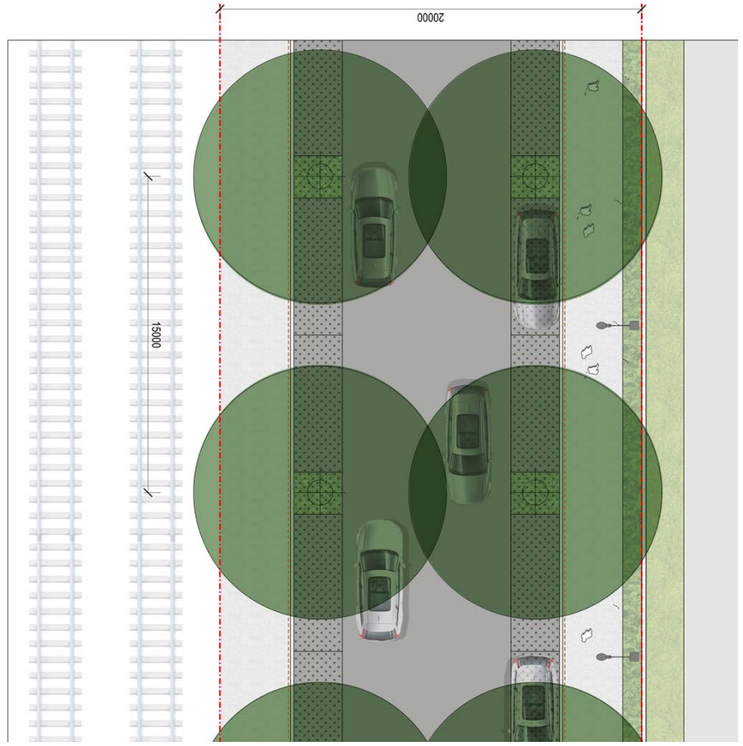


Figure 34: Main Street cross section -Viaduct section



MAIN STREET (ALONG THE VIADUCT)
Kellyville - Viaduct

Tree Spacing: 15m (Two carparks between trees)
Road corridor width: 20m from setback to setback
Side of road with trees: 2

Legend
- Structural soil system
- Root barrier
- Setback boundary
- Street light pole

Figure 36: Main street adjacent to the viaduct plan

Figure 35: Sketch of the envisaged streetscape of the Main Street along the viaduct

4.2.6.5Local Streets

Desired street character

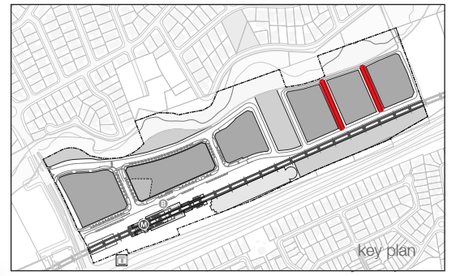
Intimate local streets with a strong green character t**hat extend the ecological qualities of the riparian corridor into the precinct and** frame views eastwards towards Elizabeth Macarthur Creek.

Objectives

1. Create intimate, green and community oriented streets
2. Ensure clear east-west connectivity between the viaduct park and the riparian corridor

Controls

1. *Carefully locate entrances to basement / undercroft car parking so as not to impact negatively on the streetscape*
2. *Locate trees at the level of the carriageway, within the parking zone and consider soft landscaping to improve the quality of stormwater run off*
3. *Use on-street visitor car parking as a mechanism to create friction and slow vehicle speeds*
4. *Provide a soft green verge along the lot boundary and ensure that this is planted with suitable species to achieve greater consistency across the precinct*
5. *Establish a clear pallet of material for stepping stones / pathways between the pedestrian entrances to the ground floor apartments and the sidewalk*
6. *Street trees should be provided at spacings that ensure fully mature canopy still retains unobstructed street lighting*



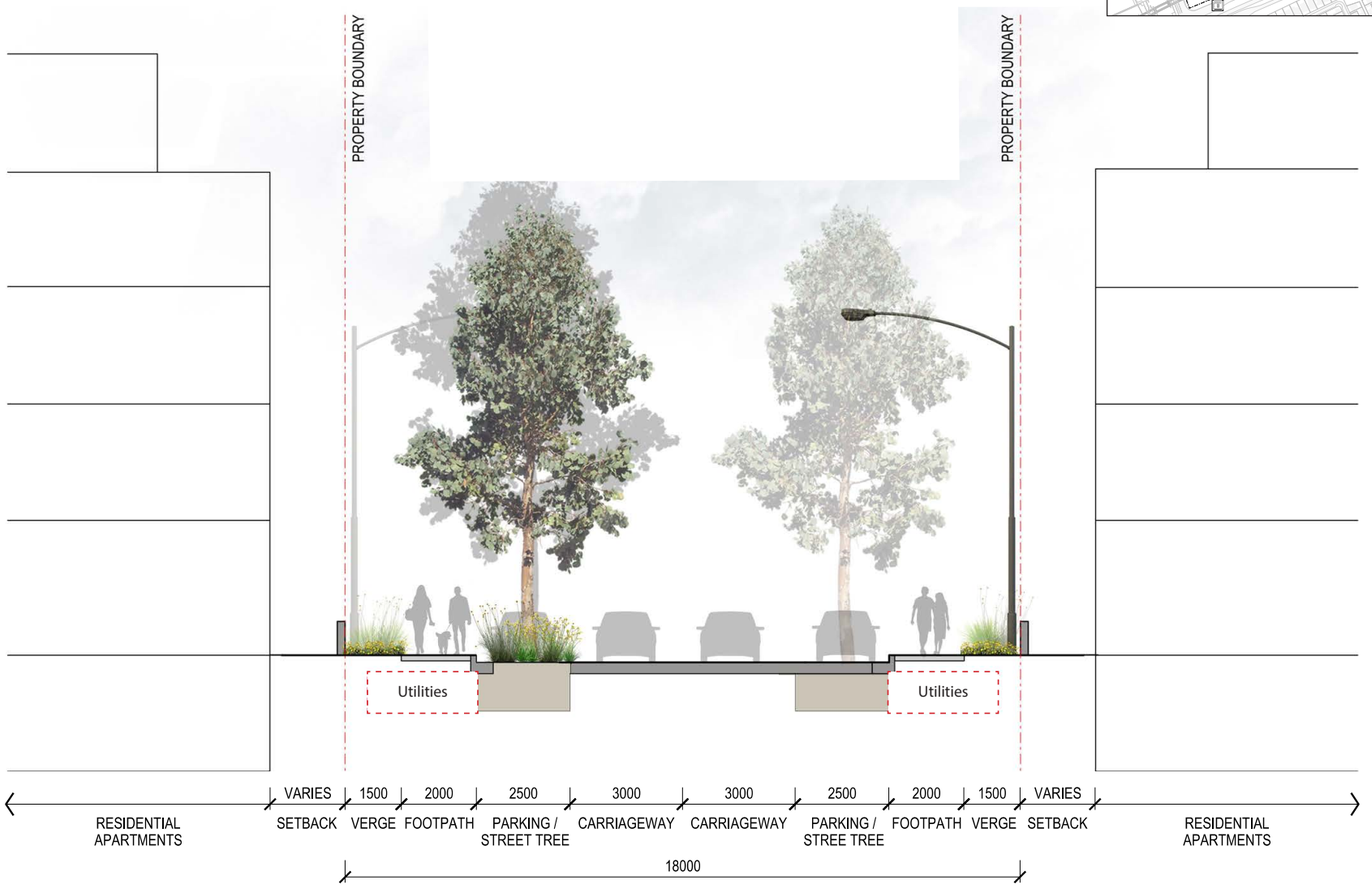
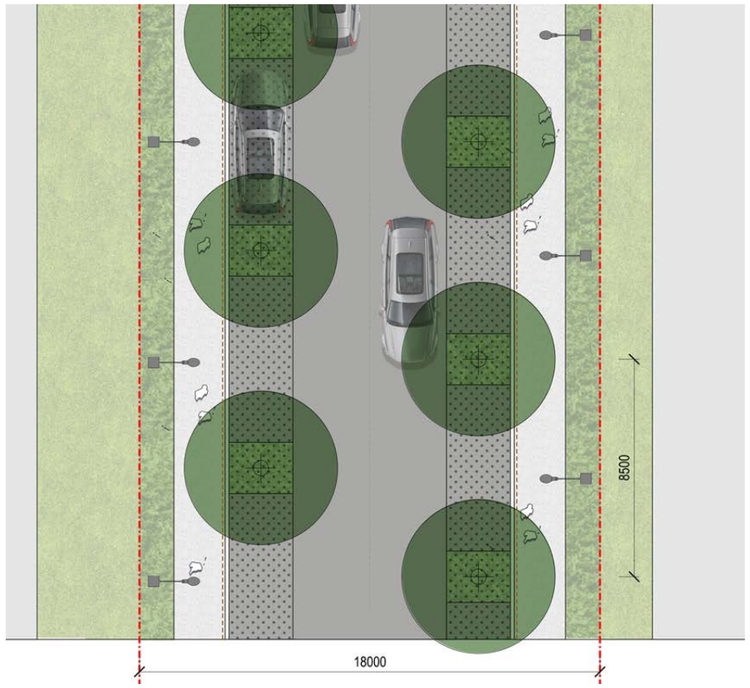


Figure 37: Local street cross section



LOCAL STREET (RESIDENTIAL)
Kellyville - Residential

Tree Spacing: 8.5m (One carpark between trees)
Road corridor width: 18m from setback to setback
Side of road with trees: 2

Legend
- Structural soil system
- Root barrier
- Setback boundary
- Street light pole

Figure 39: Local street plan

Figure 38: Illustration of proposed character of the Local Streets

4.2.6.6 Local Street (Adjacent to the Local Urban Park)

Desired Street Character

A pedestrian oriented street along the southern edge of the central Local Urban Park that extend the ecological qualities of the riparian corridor into the precinct.

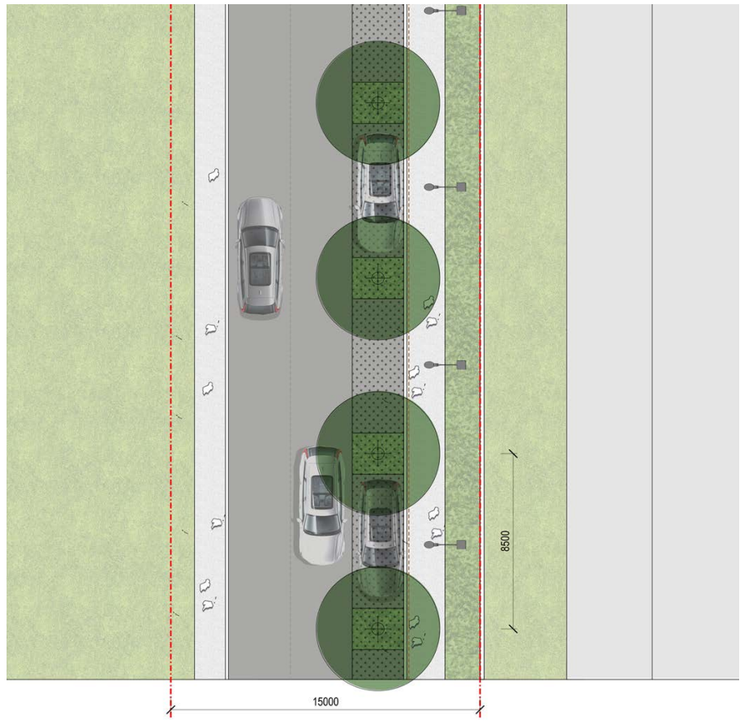
Objectives

1. Improve the relationship between residential development and the central Local Urban Park and create a more pedestrian oriented street
2. Encourage passive movement along the edge of the park to improve levels of passive surveillance and safety
3. Optimise the solar amenity afforded to this particular street and minimise the impact of car parking on the quality of open space

Controls

1. *Consider a material change to the carriageway (e.g. paving) to make the street feel more part of the park and reinforce the feeling that this is a pedestrian oriented space*
2. *Avoid parallel street parking along the park edge to improve views of the park*
3. *Ensure that tree planting and selection ensure visual connections between the park and adjacent residential development*
4. *Ensure integration with the Local Urban Park with a shared cycle / pedestrian path along the southern edge of the park linking the riparian corridor to the Viaduct Park*

Figure 40: Local street cross section - adjacent to the Local Urban Park



LOCAL STREET (ADJACENT TO LOCAL URBAN PARK)
Kellyville - Park and Residential - 15m

Tree Spacing: 8.5m (One carpark between trees)
Road corridor width: 15m from setback to setback
Side of road with trees: 1

Legend

- Structural soil system
- Root barrier
- Setback boundary
- Street light pole

Figure 41: Local Street adjacent to open space plan

4.2.6.7 Perimeter Road along the Riparian Corridor

Desired street character

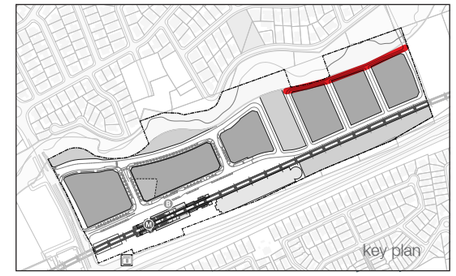
A shared street along Elizabeth Macarthur Creek that encourages passive movement along the riparian corridor and invites the natural and ecological qualities of the creek into the precinct.

Objectives

1. To draw the natural qualities of Elizabeth Macarthur Creek into the development
2. To ensure that the riparian corridor is perceived and experienced as a public space
3. To encourage “slow” pedestrian movement and passive recreation (cycling) along the riparian corridor
4. To encourage passive movement along the edge of the park to improve levels of passive surveillance and safety

Controls

1. *Design the perimeter road as a pedestrian oriented, shared street that invites the qualities of the riparian corridor into the precinct*
2. *Vehicular access along the perimeter road should be one-way south bound*
3. *Consideration should be given using more tactile paving or surface treatments on the carriageway to create a more pedestrian oriented space*
4. *Ensure that the relative width and design of the shared surface allows for an emergency vehicle to pass a stationary vehicle*
5. *Ensure that the pavement design is able to accommodate heavy loading of emergency vehicles*
6. *Direct vehicular access from this street to the adjacent development lots is prohibited*
7. *Tree selections to ensure views into the riparian corridor from the residential development are maintained*
8. *The shared street should link into the proposed shared path along the riparian corridor and should not be located within SP2 zoned land*
9. *The road cross section is to be designed to direct and manage overland stormwater flows towards the creek*
10. *Street lighting should be carefully selected to minimise light pollution that could impact on ecology, whilst ensure that the pathways are safe and attractive for people at night*
11. *Kerbs, planters, bollards and edging to be explored to define the built edge of the street along the riparian corridor and prevent vehicular access*
12. *Access to the riparian corridor for maintenance vehicles should be considered*



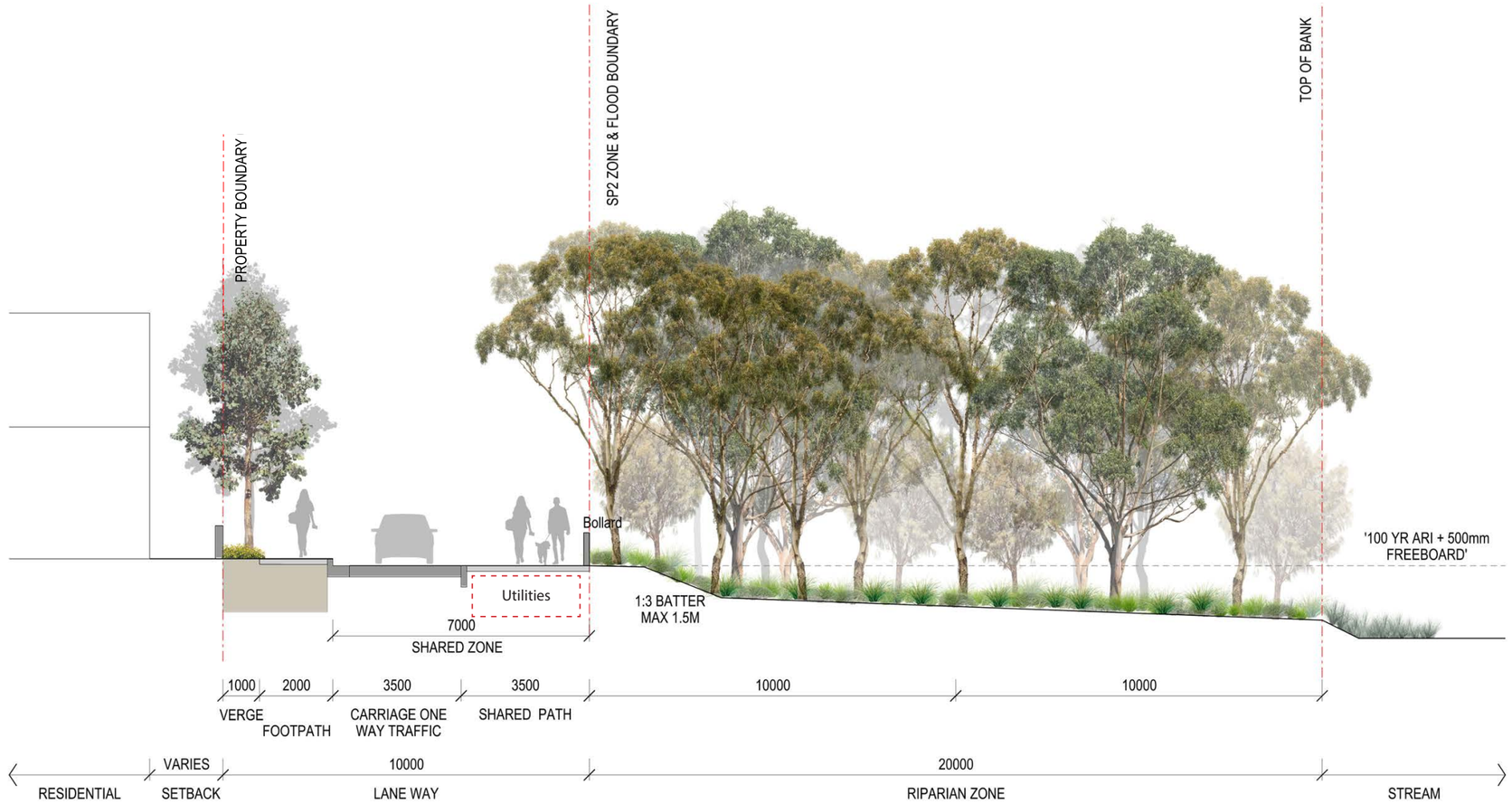
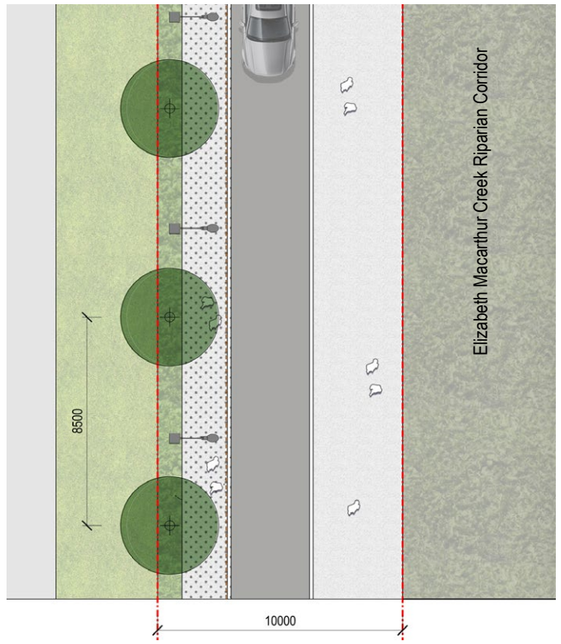


Figure 42: Proposed section through the Perimeter Road along the riparian corridor



PERIMETER ROAD ALONG RIPARIAN
Kellyville - Riparian

Tree Spacing: 8.5m (No carpark)
Road corridor width: 10m from setback to setback
Side of road with trees: 1

Figure 44: Riparian perimeter road plan

Figure 43: Sketch of the riparian perimeter road showing a pedestrian oriented space with a direct connections with the creek

4.3 Movement and Access

4.3.1 Active mobility network

Objectives

1. To promote walking and cycling as the primary means of moving through the precinct
2. Improve health and well-being of residents and introduce mobility as a natural part of every day life
3. To ensure that open spaces and amenities are accessible
4. Ensure appropriate facilities are provided for different users
5. Bicycle facilities and infrastructure is provided at key destinations to encourage more sustainable transport choices

Controls

1. *A shared cycle / pedestrian path, at least 3.5m wide, must be provided along the riparian corridor. This path should be within the zoned land or alternatively may weave through the riparian buffer zone to Sydney Waters specifications*
2. *A dedicated cycle path / shared path, at least 3.5m wide, must be provided along the viaduct to accommodate fast moving pedestrian and cycle movement*
3. *A shared pedestrian / cycle bridge, at least 3.5m wide, must be provided over Elizabeth Macarthur Creek in the approximate alignment of Wendon Avenue. This path should continue westwards along Darani Avenue, past the Station Plaza and connect to the station*
4. *Pedestrian prioritisation is to be provided at the intersection of Decora Drive and Darani Avenue*
5. *The new vehicular bridge over Elizabeth Macarthur creek should accommodate a generous shared crossing facility for pedestrians and cyclists on one side of the bridge and continue westwards towards the viaduct*
6. *A potential future pedestrian / cycle bridge is provided over Memorial Avenue providing continuous movement along the riparian corridor between Bella Visa and Kellyville*
7. *A signalised pedestrian crossing with a phase is proposed at the TWay intersection with Memorial Avenue to improve connections between Kellyville and Bella Vista*
8. *Public cycle parking must be located at key destinations (shops, parks and station precinct) and integrated into public space design*
9. *Secure staff cycle parking and end of trip facilities must be provided within all retail developments*
10. *Secure cycle parking and washing and serving areas are to be provided within all residential development for residents*
11. *Pedestrian through-site links should be considered through larger urban blocks to improve permeability. Where these are provided, the privacy of ground floor units and functionality of communal open spaces need to be considered*

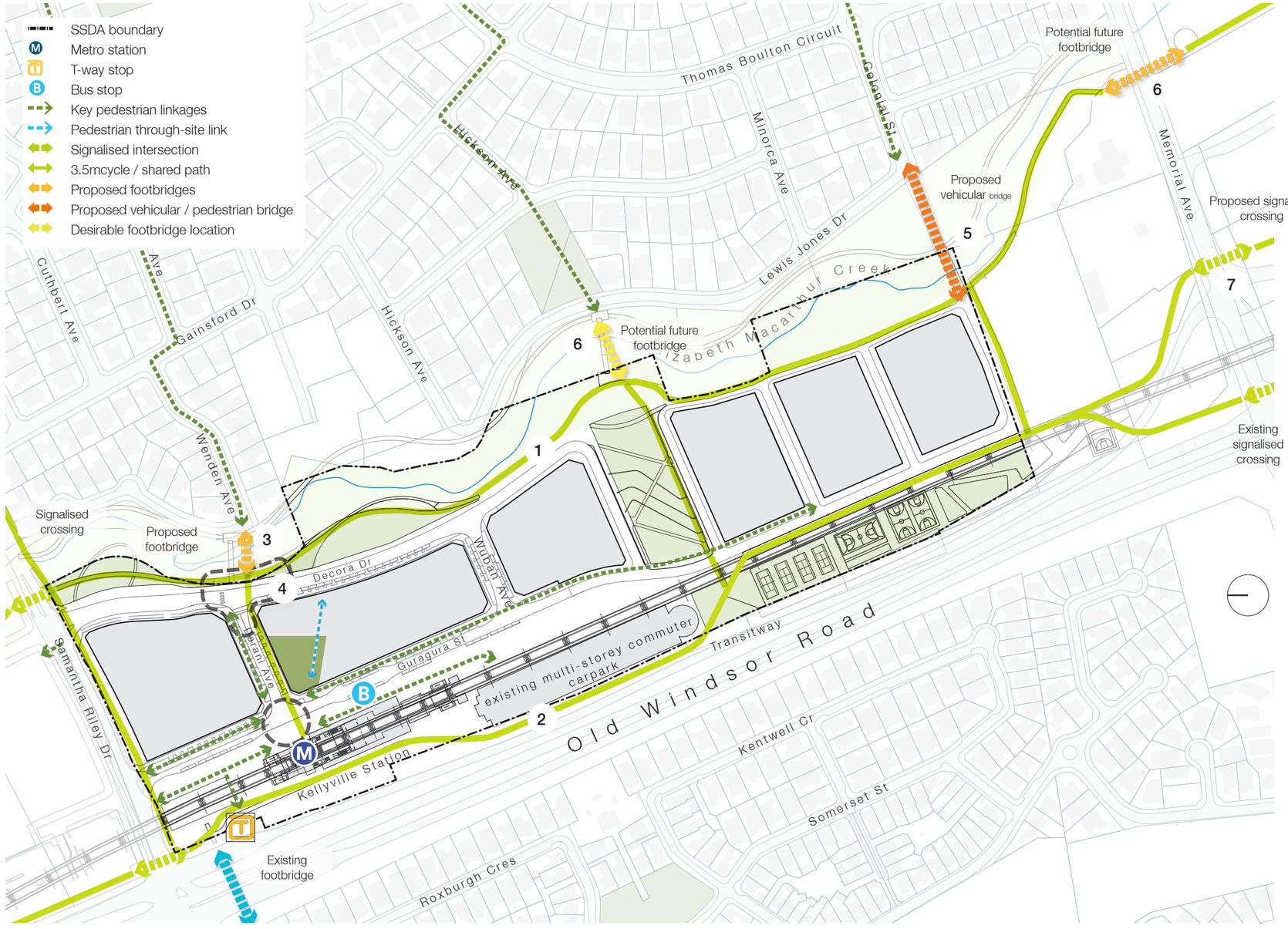


Figure 45: Active mobility framework

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4.3.2 Vehicular Access

Objectives

1. To encourage attractive and active street frontages along primary frontages and onto the riparian corridor
2. To improve levels of safety and avoid conflict between different road users
3. To minimise the impact of cars and parking on the quality of the public domain
4. To support the desired land uses and provide covenant access to destinations whilst minimising through traffic
5. To protect the mobility function of particular streets

Controls

1. *The location of entrances to basement / structured car parking should discourage unnecessary through traffic and avoid creating conflict between pedestrian and vehicles*
2. *The location of entrances to basement / structured car parking should seek to avoid creating additional conflict with other vehicular movements (bus routes, commuter car park and key routes to retail destinations)*
3. *Vehicular access to development lots are discouraged form block edges fronting onto open spaces and the riparian corridor*
4. *Direct vehicular access off the main street is discouraged*
5. *Provision for on-site waste collection should either be at grade or via a basement. Waste collection vehicles must be able to enter and exit the site in a forward direction*
6. *Internal loading docks should be shared wherever possible to limit the number of carriageway crossings, provide public amenity and improve the streetscape*
7. *Loading docks should be used for both refuse collection and move ins / move outs wherever possible*

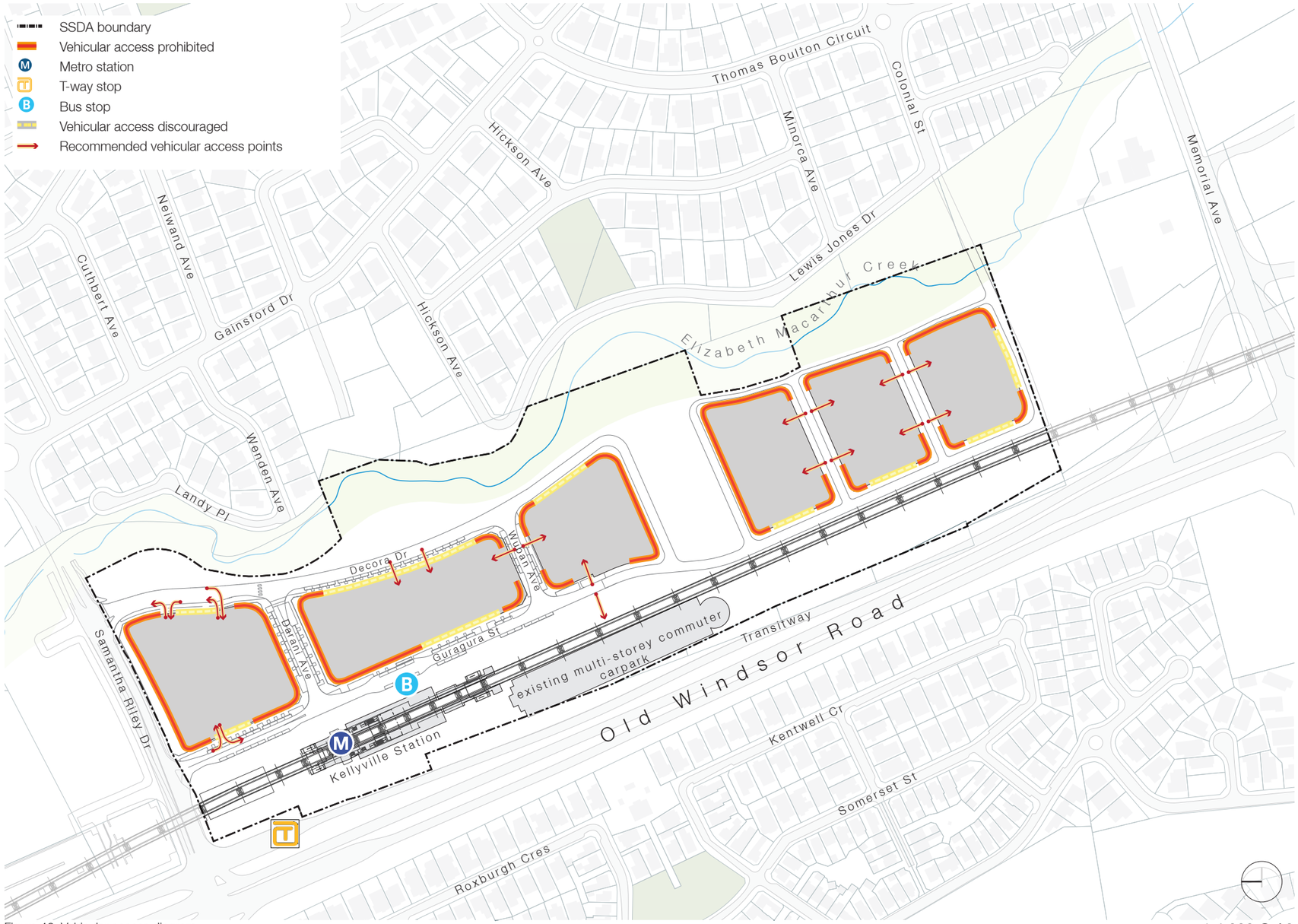

Figure 46: Vehicular access diagram

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4.4 Built Form, Land Use, Subdivision and Typologies

4.4.1 Land Use and Subdivision

Objectives

1. To ensure that future land uses are consistent with the development vision for the Kellyville Precinct
2. To maximise the development potential of those sites close to public transport facilities
3. To promote variety in built form
4. To allow for a range of different development models
5. To promote a mix of residential typologies that caters for a broad range of community needs from the missing middle, young professionals, downsizers, retirement living and young families

Controls

1. *In order to accommodate a range of different development scenarios and land release strategies the proposed superlots may be further subdivided provided that:*
   - *emergency access to each lot / building is clear*
   - *developments are structurally independent and serviced individually with utility services*
   - *communal open spaces and amenities are delivered in a coordinated manner*
   - *management arrangements and responsibilities for aspects such as security, access, shared parking, through-site-links and shared amenities are clear*
2. *All development must be within the range specified with the maximum and minimum GFA requirement as set out in Table 04 and Figure 47*

Figure 47: Land use plan

1:4,000 @ A3

3. *In any future development proposal proponents are to demonstrate a diversity of residential typologies including units of different sizes, units over multiple levels and varied unit layouts*
4. *Any community oriented services (child care etc.) should be located within the station precinct and integrated into the retail footprint*
5. *The mix of residential accommodation should be broad and could consider integrated terraced apartments, multilevel units and apartments of various sizes*
6. *Medium rise apartment type buildings are recommended on the northern edge of Lot D fronting onto the local urban park to ensure high levels of containment and overlooking of the park*
7. *Integrated terraced typologies within residential flat buildings should be provided at ground floor level*

		Maximum permitted development per lot						Minimum required development per lot					
Lot	Lot Area	Res FSR	Res GFA	Units	Retail FSR	Retail GFA	Total FSR	Res FSR	Res GFA	Units	Retail FSR	Retail GFA	Total FSR
A	11,722	2.50	29,305	366	0.60	7,033	3.10	2.30	26,961	337	0.30	3,517	2.60
B	12,344	3.00	37,032	463	0.30	3,703	3.30	2.50	30,860	386	0.15	1,852	2.65
C	7,905	2.80	22,134	277		-	2.80	2.30	18,182	227		0	2.30
D	8,208	2.90	23,803	298		0	2.90	2.00	16,416	205		0	2.00
E	7,443	2.70	20,096	251		0	2.70	1.80	13,397	167		0	1.80
F	7,556	2.70	20,401	255		0	2.70	1.80	13,601	170		0	1.80
	55,178		**152,771**	**1,910**		**10,736**			**119,417**	**1,492**		**5,369**	

Table 04: Maximum and minimum yield requirements per lot

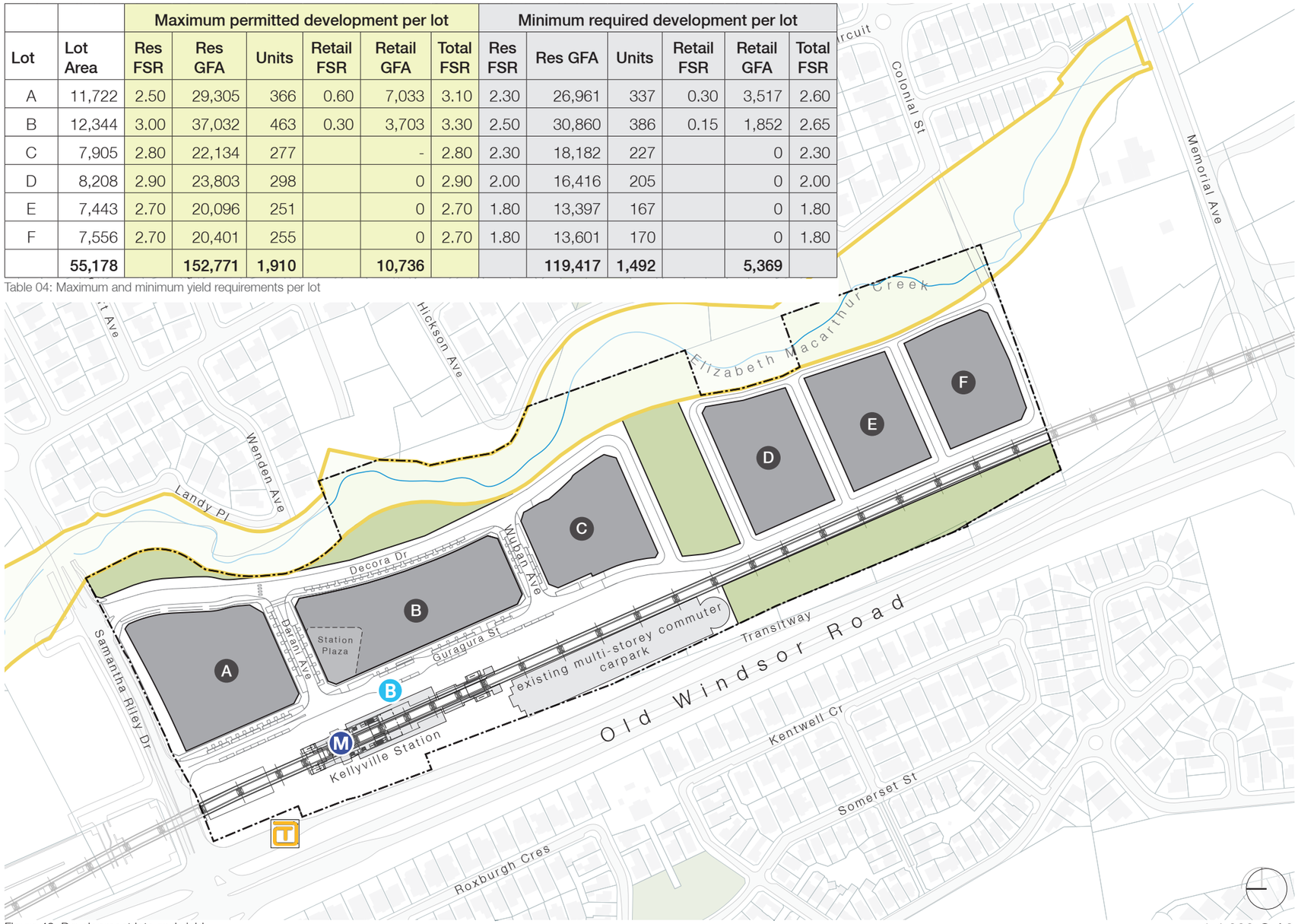

Figure 48: Development lots and yield

1:4,000 @ A3

4.4.2 Activation and Street Frontage

Objectives

1. To provide a clear and consistent definition of the public domain whilst reinforcing the green character of the precinct
2. To provide a transition of street edges from the urban town centre to the more green and open character of the residential precincts
3. To establish the desired spatial proportions of the street
4. To create liveable spaces with a clear transition between public and private space and ensure visual privacy to dwellings from the street
5. To encourage an outlook to and surveillance of the street
6. To allow for landscaping within the development lot to reinforce the character and identity of the precinct
7. To maintain solar access to the public domain
8. To provide adequate space for tree planting and growth
9. To ensure that buildings are located outside of the Bushfire Asset Protection Zone (Bushfire APZ) associated with the riparian corridor

Controls

1. *The external façade of buildings at ground / podium level are to be generally aligned with the streets that they front. Above podium level towers may be oriented differently to the lower floor levels to maximise views, achieve solar access requirements and deliver architectural diversity*
2. *An open-to-sky through-site link, at least 12m wide is to be provided within Lot B connecting the Station Plaza to Decora Drive / the riparian corridor*
3. *The following minimum street boundary setbacks are proposed to reinforce the street typologies (See Figure 49 and Table 05):*
   - *Min 0m building setback within the Station Precinct, where non-residential uses are at ground floor*
   - *Min 2m within the Station Precinct where there are residential uses at ground floor*
   - *Min 3m street setbacks within the Residential Core character area*
   - *5m for buildings between 6 and 8 storeys, unless located on a key corner or potential feature corner as indicated on Figure 56*
4. *A minimum of 150m of retail frontage to be provided within the Station Precinct, around the Station Plaza, along Darani and Gugagura Street*
5. *A minimum building separation of 12m is required in the Residential Core between taller buildings located along the main street / viaduct and lower rise buildings adjacent to the riparian corridor*
6. *No basements are permitted within the 3m street boundary setback*
7. *All setbacks to be landscaped with a minimum of 60% of the setback area being pervious or soft landscaping*
8. *Building setbacks on Lots A and B must ensure a direct visual connection between the entrance to the Metro Station and the entrances to major retail destinations*
9. *Projections into front building line boundary for sun shading devices, entry awnings and cornices are supported*

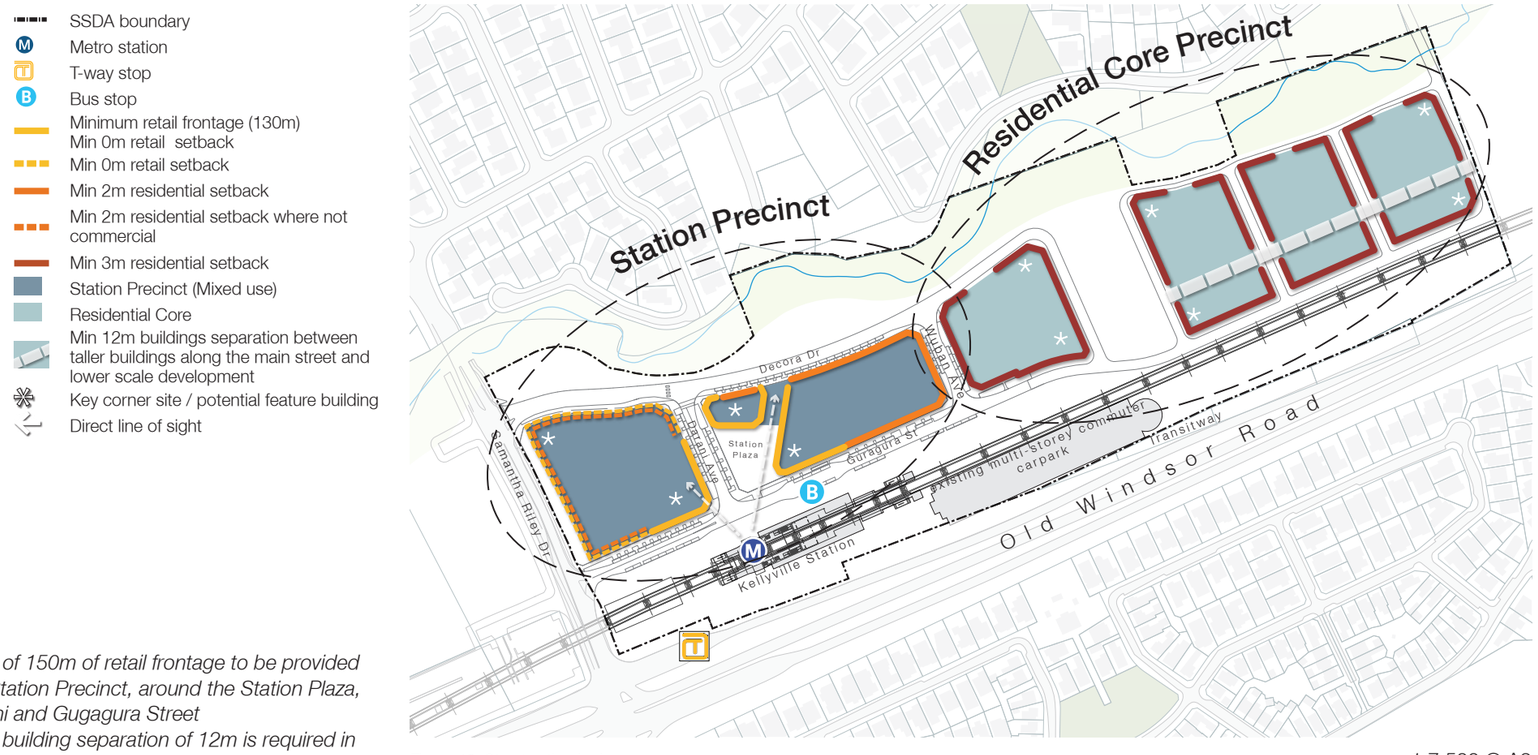

Figure 49: Street setback plan

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	Building height	Minimum Street Setback	Street Wall Height	Street Wall Setback	Street Wall setback along EMC
Station Precinct					
Retail ground floor		0m			
Residential ground floor		2m			
Min Street Wall			1 storey / 5m	3m	3m
Max Street wall			15m / 4 storeys	3m	3m
Residential Core					
	4-6 storeys	3m	4 storeys	3m	6m
	7-8 storeys	5m	None	-	-
	> 8 storeys	3m	4 storeys	3m	6m

Table 05: Proposed setback and street wall controls

4.4.3 Public Domain Interface

Objectives

1. To enhance the experience of the precinct at ground floor level
2. To encourage active street frontages onto the proposed green public open spaces
3. To provide pedestrians shelter from adverse weather conditions
4. To reduce the perceived scale and massing of proposed new buildings from ground floor level
5. To create welcoming and attractive entry spaces to lobbies and foyers
6. To provide adequate transition between the public and private domain

Controls

1. *Primary retail frontages within the station precinct are to be activated with shop fronts with regular entrances and doorways at 10-20m intervals*
2. *Retail units should open out onto the street*
3. *Awnings are to be provided along all retail shop fronts (minimum 3m above ground and a minimum of 3m in width) (See Figure 50)*
4. *Where a shop front is wider than 10m, there must be visual connection from the interior of the retail unit to the public domain every 15m*
5. *All residential buildings to have their main entry lobby off the street*
6. *Ground floor residential units within the Station Precinct should consider recessed balconies and level changes to ensure privacy (See Figure 51).*
7. *Solid up-stand balustrades and planters are encouraged. Solid and slatted privacy screens should be avoided.*
8. *The entry lobbies to a residential building should be at street level or no higher than 600mm above the verge level at the location of the lobby*
9. *Ground floor residential units within RFB / mixed use developments to have direct pedestrian access from the street / public realm*
10. *Ground floor apartments / units fronting onto Elizabeth Macarthur Creek are to have pedestrian access off the riparian corridor / perimeter road*
11. *The interior floor level of ground floor units are to be a maximum 1m above verge level*
12. *Boundary fences / walls along all streets and public spaces should not be higher than 1.2m when measured from the local verge level*

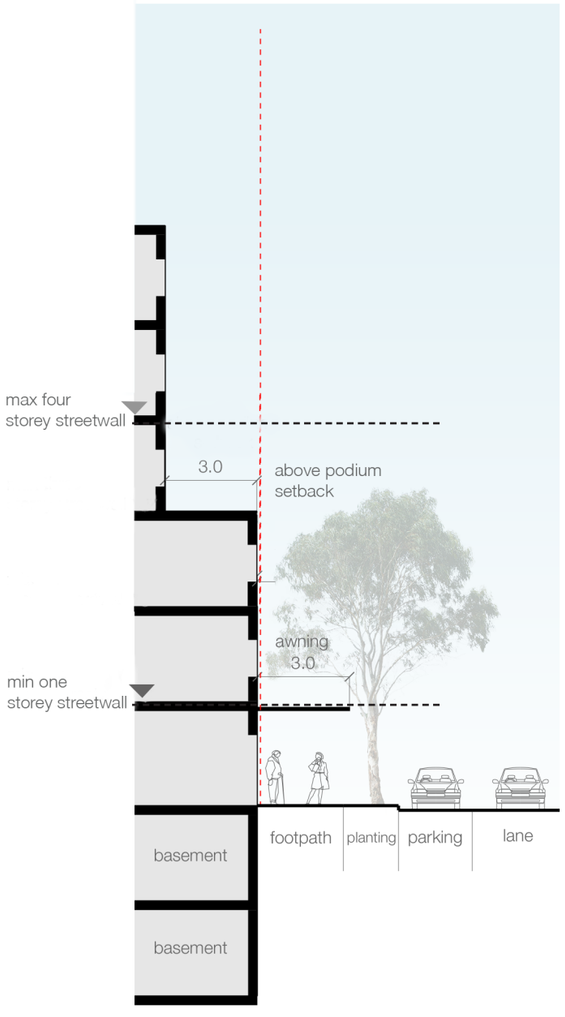

Figure 50: Proposed town centre building interface condition with retail uses at ground floor

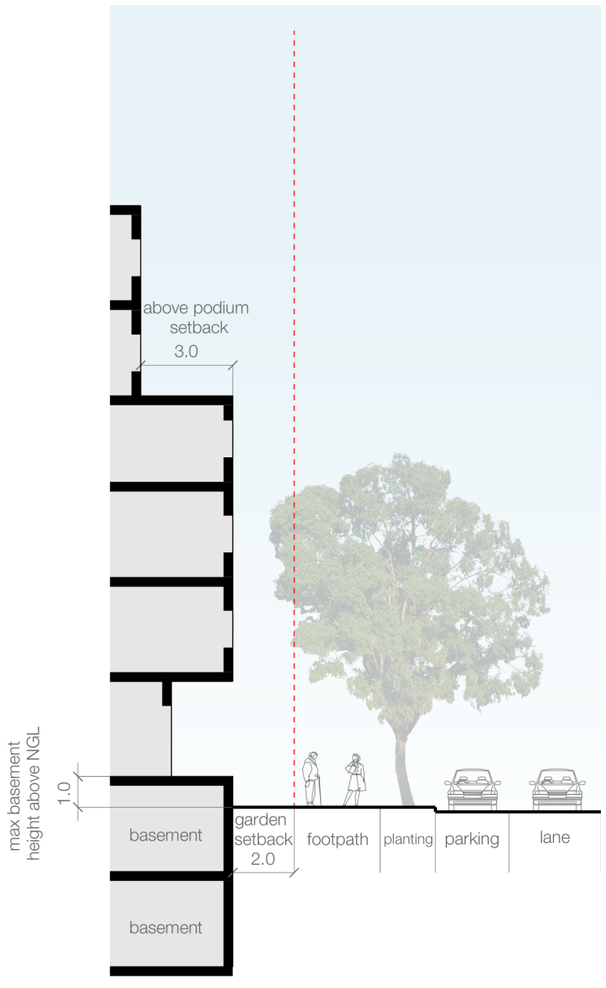

Figure 51: Proposed street interface in the residential precincts using level change and recessed balconies to ensure privacy for ground floor units

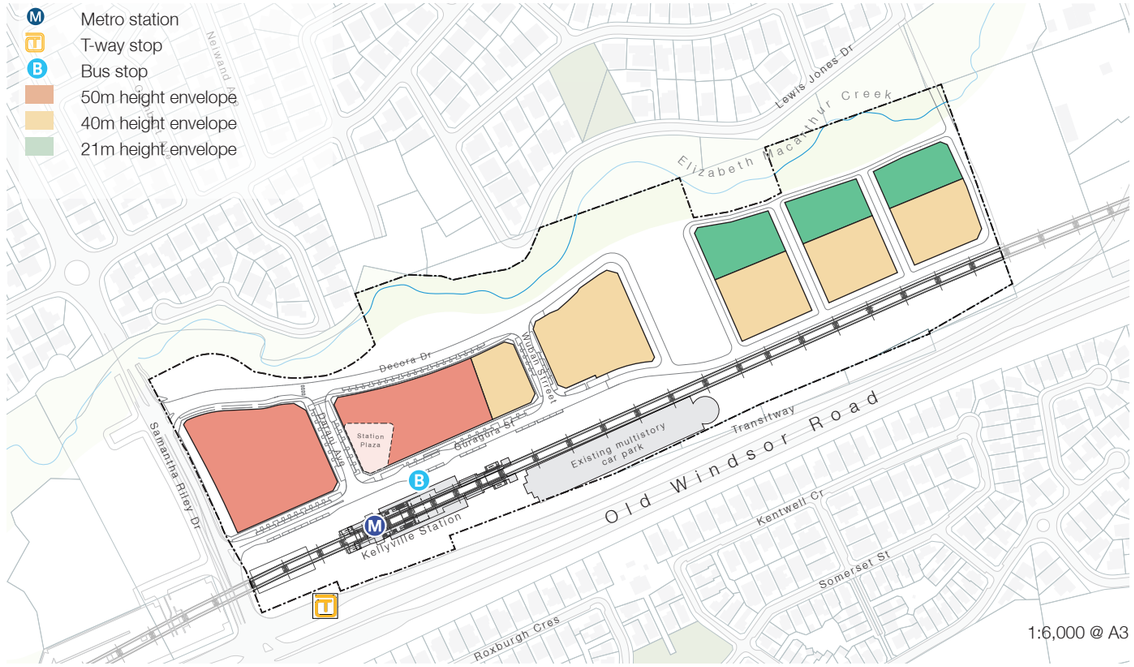

Figure 52: Proposed buildings heights plan

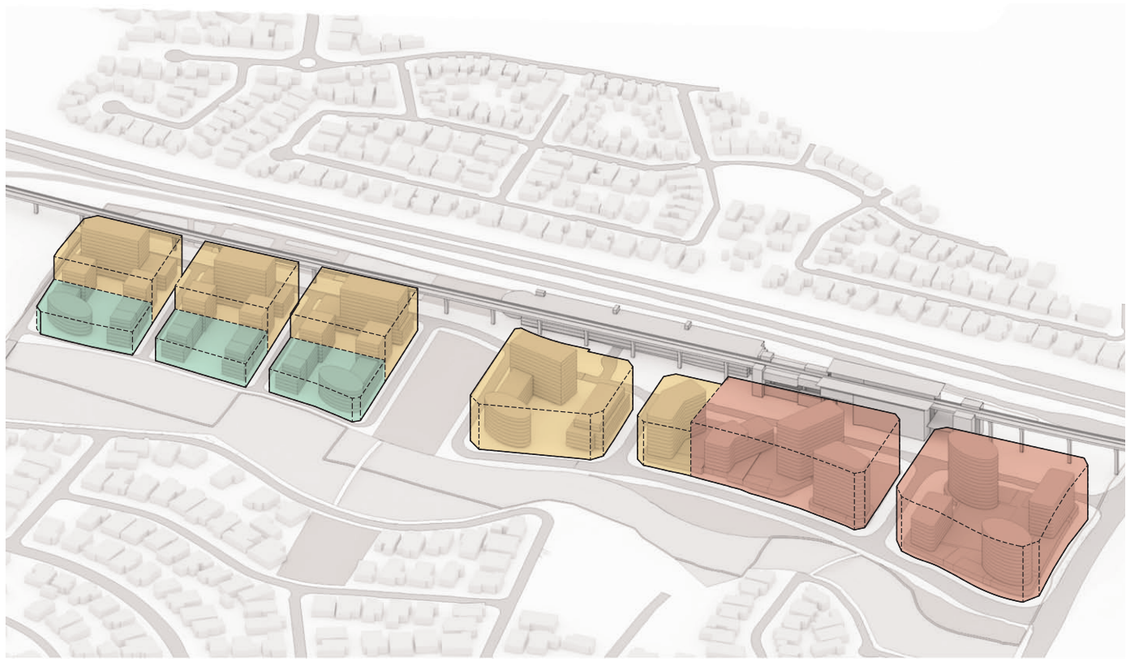

Figure 53: Volumetric illustration of building heights from the east

4.4.4 Building Heights

Objectives

1. To ensure a transition in building heights that align with the desired future character of the precinct
2. To provide enclosure to Elizabeth Macarthur Creek and encourage passive surveillance of the riparian corridor
3. To ensure a visual connection between units in the taller developments and the riparian corridor
4. To ensure good solar access to public and private domain areas
5. To ensure good solar access to communal courtyards
6. To protect the amenity and maintain solar access to adjacent buildings
7. To ensure that buildings that are located in highly visible locations within the precinct are designed as distinctive elements / local landmarks to heighten the gateway experience, improve legibility and assist in orientation

Controls

1. *Building heights should generally increase towards the Metro station (Figure 54)*
2. *The accentuation of building height at key corners is encouraged*
3. *Building heights to be varied with lower heights along the Elizabeth Macarthur Creek and taller buildings towards the viaduct to achieve a visual connection between units and the riparian corridor*
4. *The minimum building height for buildings adjacent to the central Local Urban Park is 12.5m (4 storeys)*

Note: All building heights are to measured relative to the finished verge level of public roads adjacent to the building.

General Controls

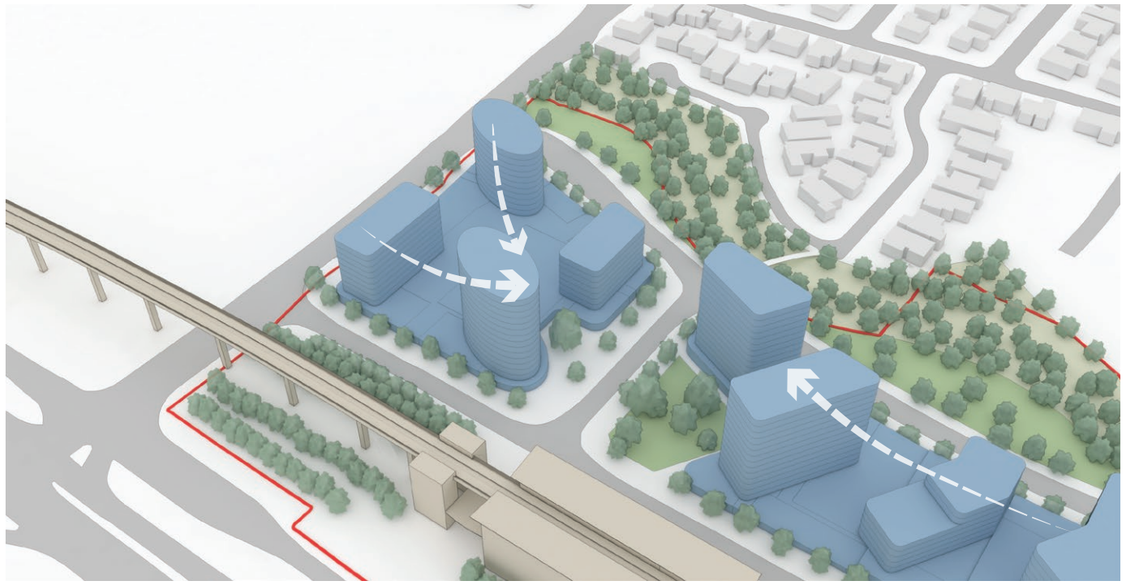

Figure 54: Building heights stepping up towards the station

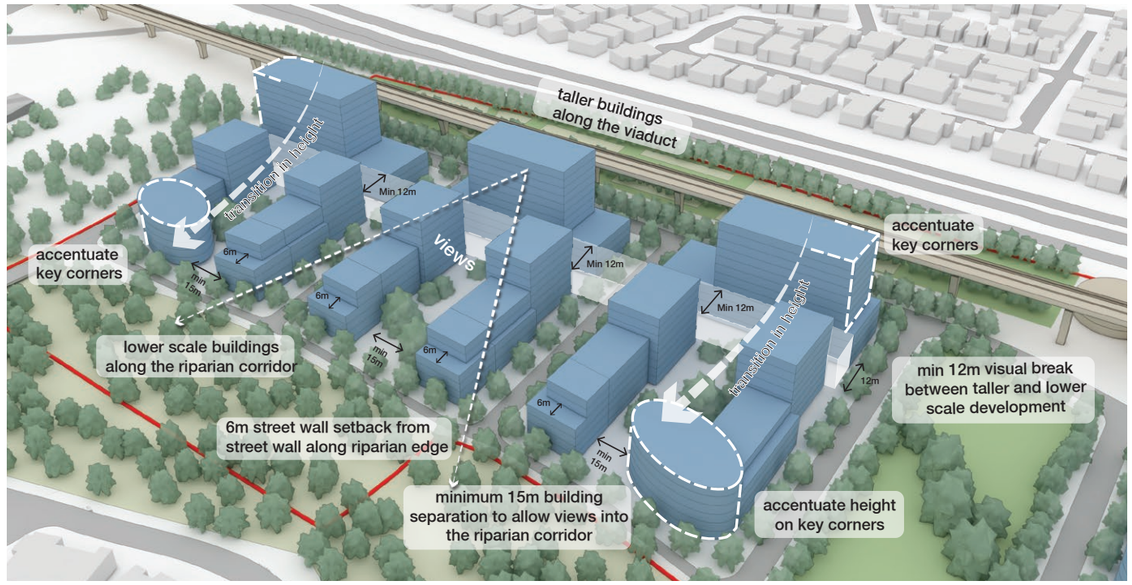

Figure 55: Building height principles for the residential core

4.4.5 Street Walls and Street Wall Setbacks

Objectives

1. To use built form at the lower levels of development to help contribute to the character and identity of the precinct / character area
2. To reduce the perceived scale and massing of proposed new buildings from ground floor level
3. To achieve comfortable micro-climates at street level by preventing down draughts
4. To ensure good solar access to the streets and public spaces
5. To create healthy environments for street trees and natural vegetation
6. To ensure flexibility and support site specific design solutions

Controls

Station Precinct

1. *The minimum street wall height in the station precinct is 2 storeys (min 6.5m)*
2. *The maximum street wall height in the station precinct is* 4 storeys (15m)

Residential Core Precinct

3. *A 4 storey street wall is required for all residential flat buildings under 7 storeys and over 8 storeys within the residential core to reduce the visual impact of taller buildings from the street create a more open street environment and prevent wind down draft*
4. *The parts of any building above street wall height should be set back from the outer edge of the street wall facade by a minimum of 3m*
5. *Street wall setbacks for buildings fronting onto the riparian corridor shall be at least 6m*
6. *To accommodate different design solutions and encourage variation in the streetscape where a street wall setback is specified, an articulation zone is proposed where a building element (facade, circulation core or balcony) may project beyond the street wall setback, provided that the width of this element is less than 20m or of a length that is less than 1/3rd of the street wall facade*

Note: All building heights are to measured relative to the finished verge level of public roads adjacent to the building

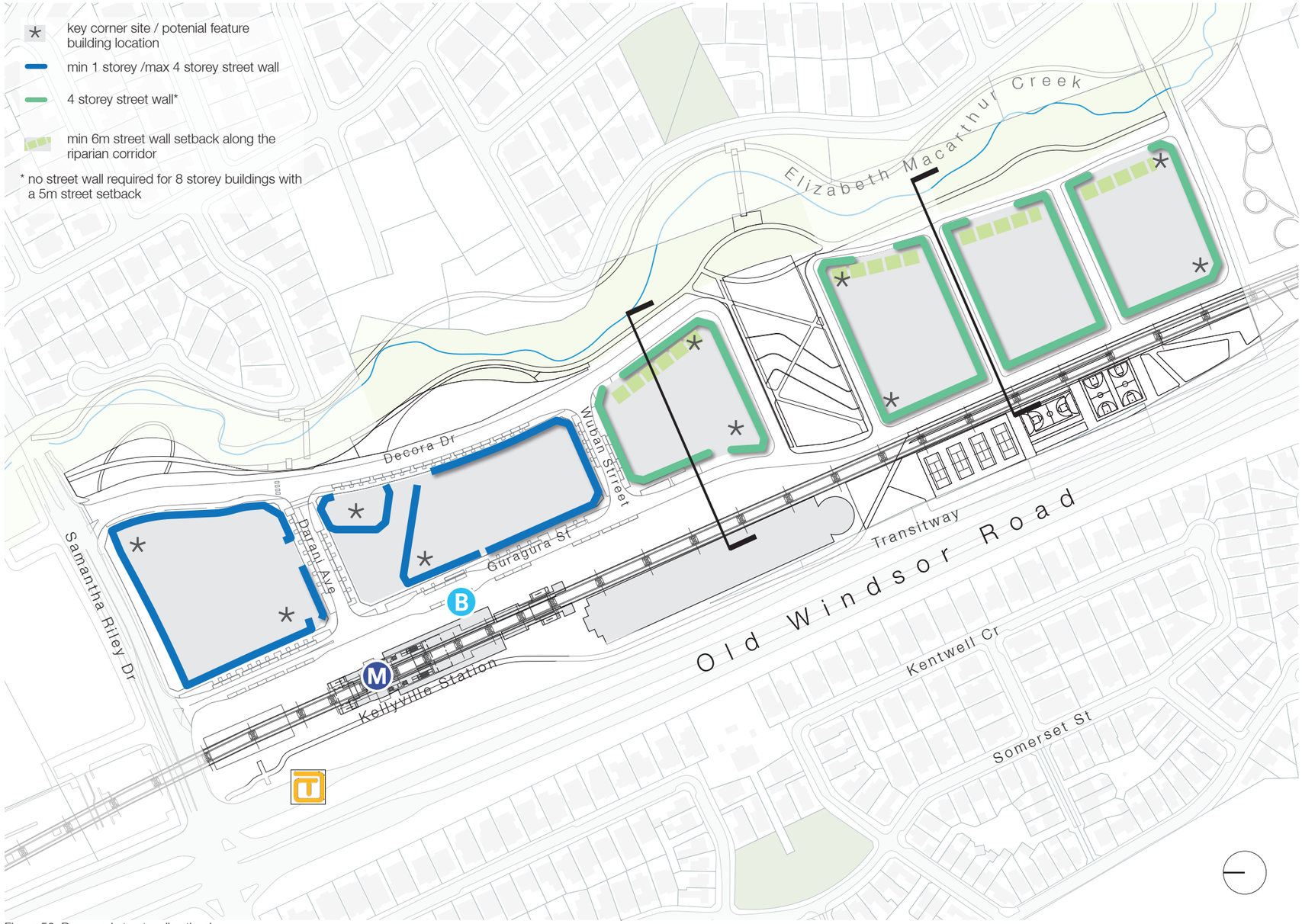

Figure 56: Proposed street wall setbacks

General Controls

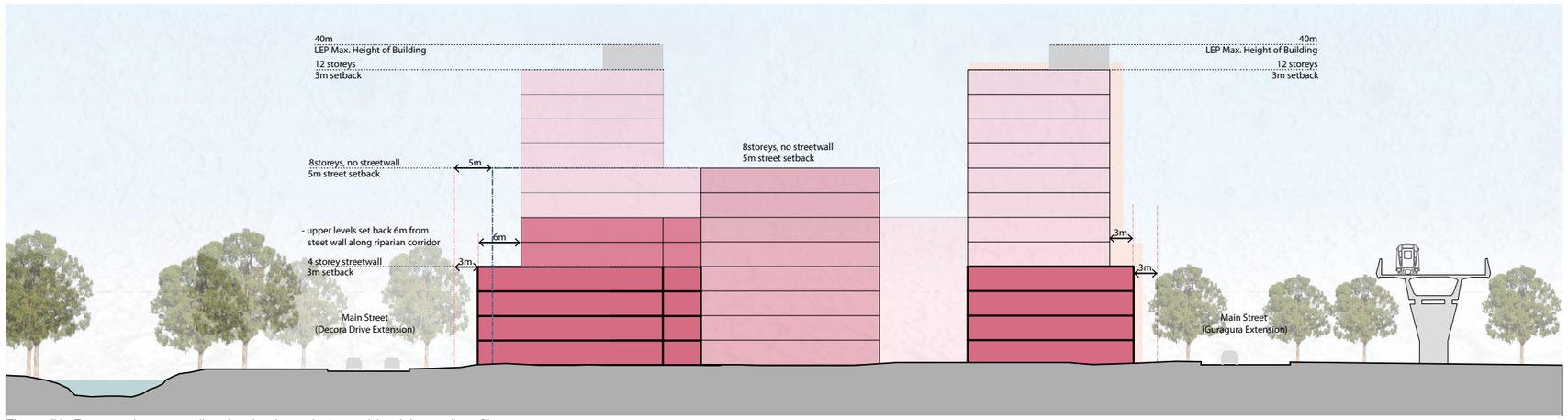

Figure 58: Proposed street wall setbacks through the residential core (Lot C)

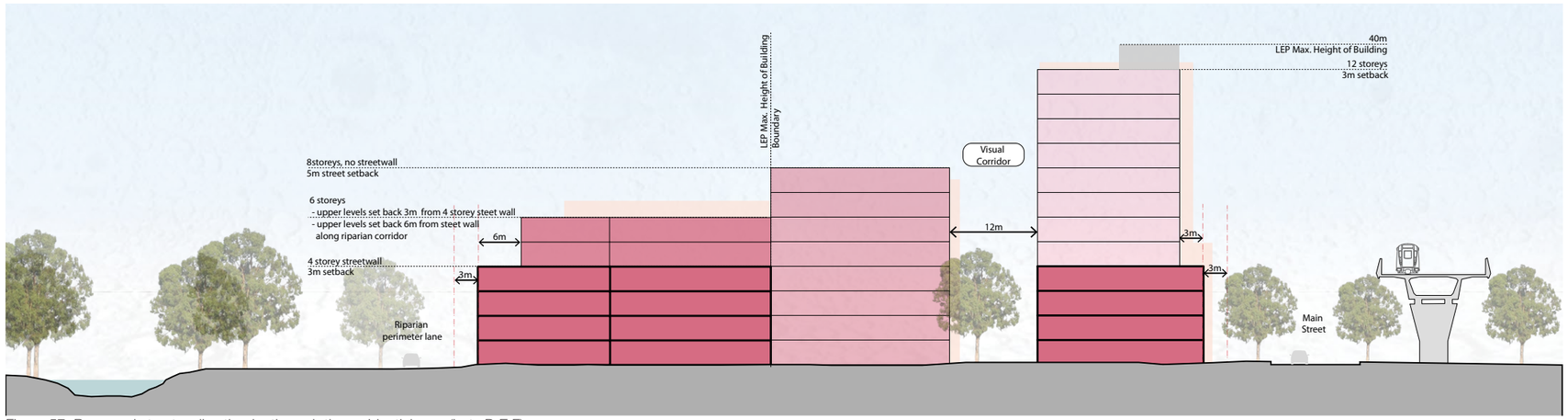

Figure 57: Proposed street wall setbacks through the residential core (Lots D,E,F)

4.4.6 Built Form Articulation

Objectives

1. To promote sustainable buildings based on environmental first principles to mitigate the need for heating, cooling, lighting and energy use
2. To ensure that living and working environments have good internal amenity, are naturally cross ventilated and receive high levels of daylight
3. To reduce the apparent bulk and scale of proposed buildings from street level
4. To encourage buildings that are flexible and adaptable and are able to change in use with minimal structural change

Controls

1. *Optimise built form and orientation so to reduce solar heat gain*
2. *Solid, impermeable buildings should be avoided in areas where high levels of permeability are desired and along future pedestrian desire lines*
3. *Through-site connections through longer blocks are encouraged where these do not compromise levels of privacy and safety for residents*
4. *The maximum building depth for a residential buildings above podium level is 25m*
5. *The maximum building length for residential buildings above podium level is 50m*
6. *The maximum building floor plate for residential buildings above street wall height is 900m² GFA*
7. *Long building façades should be articulated vertically with recesses, balconies and facade treatments to break up the apparent scale and mass of the building*
8. *Buildings / street walls longer than 50m (such as in the station precinct) must be articulated with a significant recess (at least 3m deep and 6m wide) every 50m*
9. *The maximum length of residential flat buildings in the Residential Core Precinct is 70m in length, noting that the recesses required in 8 above must be provided in the massing to reduce the apparent scale and massing of the building*
10. *The minimum building separation distance between buildings over 4 storeys in the Station Precinct is 24m*

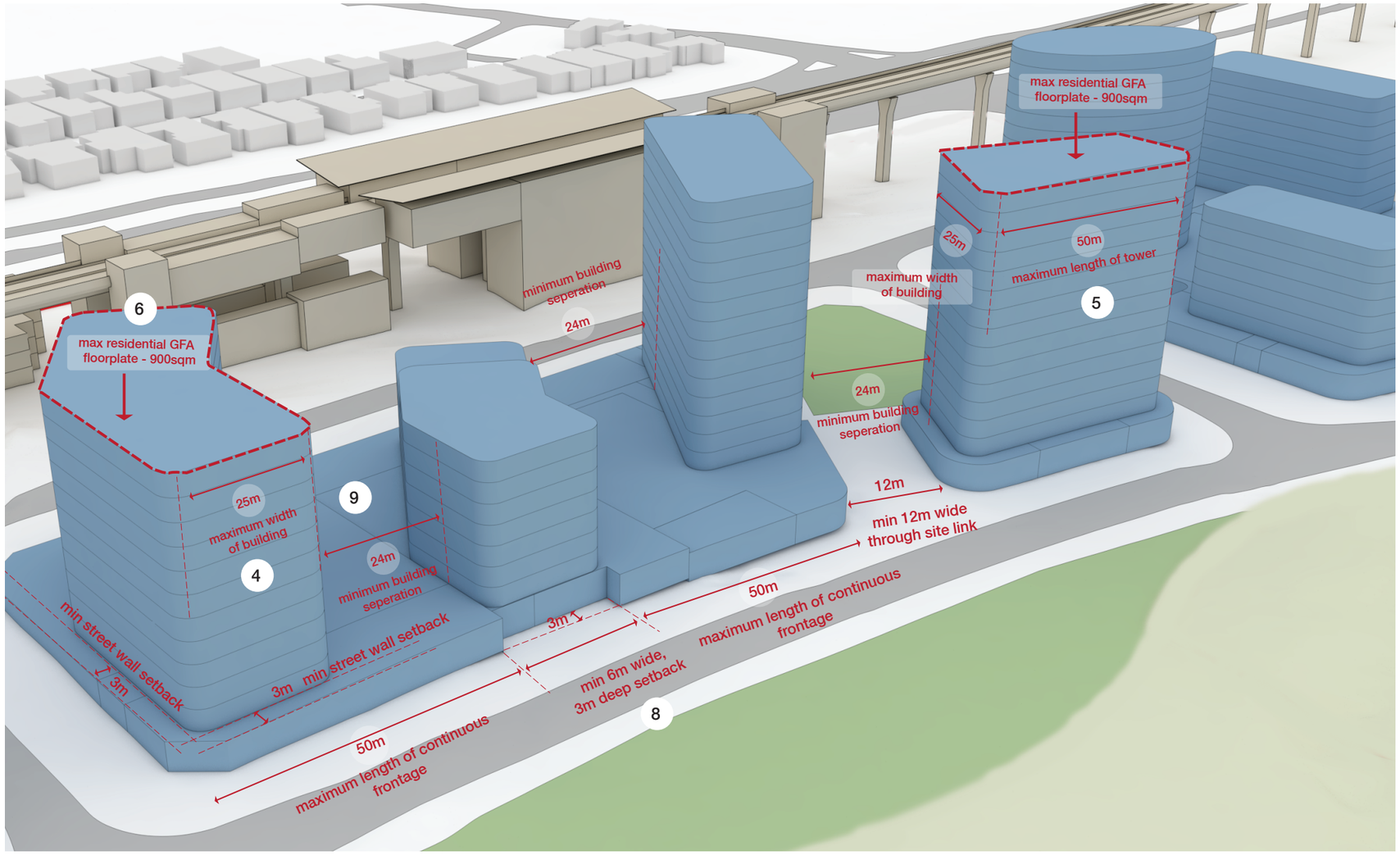

Figure 59: Proposed built form articulation controls

4.4.7 Building Materials and Detailing

Objectives

1. To promote sustainable design and reduce the urban heat island effect
2. To create a level of consistency in the type of building materials used within the precinct
3. To reduce the regularity and cost of building maintenance
4. To mitigate negative environment impacts (noise)
5. Maximise the use of Solar PV and renewable technologies on available roof space

Controls

1. *Building materials should be of a neutral / natural tone to reinforce the natural green character of the precinct*
2. *The architectural language should consider contemporary interpretations of historically popular Federation style and Arts and Crafts features which are common in the area*
3. *Bright, bold or contrasting colours should be used sparingly and should be used to improve legibility highlight entry lobys and celebrate feature buildings / elements*
4. *Full glass façades are to be avoided*
5. *Glass balustrades are to be selectively used to reduce glare and reflection*
6. *Material finishing and detailing should be robust, durable and minimise the need for maintenance*
7. *Low embodied energy, locally procured and sustainable materials to be prioritised in construction*
8. *'Cool' materials of high diffuse solar reflectivity and high emissivity value should be used for pavement and roof surfaces*
9. *Shading elements and screens should be deployed strategically to achieve passive solar control*
10. *The provisions of State Environmental Planning Policy (Infrastructure) 2007 and Development near Rail Corridors and Busy Roads Interim Guideline must be taken into consideration for all proposals within 30m of the Metro viaduct. These development are to undergo a Noise Impact Assessment prepared by a suitably qualified consultant with measures implemented accordingly to ensure interior noise levels meet current requirements*
11. *A minimum of 25% of the roof area should be used for Solar PV or renewable technologies to assist in providing a minimum 5% of the development's total energy demands*

Figure 60: Natural, self-coloured material palette

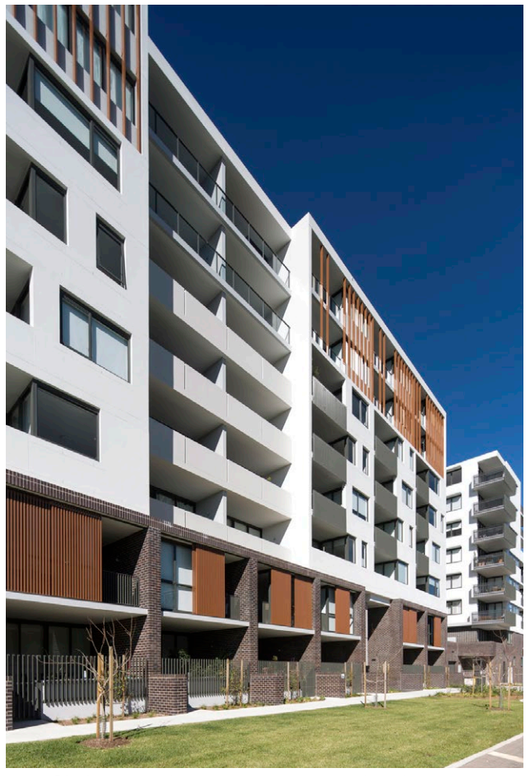
Figure 61: Buildings materials should generally be of a natural hue / colour pallet with natural material integrated into the facade design

4.4.8 Communal Open Space and Deep Soil

Objectives

1. Ensure good access to open space and recreational amenities for residents
2. To support a variety of passive and informal active uses that can be enjoyed by a diverse range of residents from all ages, backgrounds and interests
3. To deliver an improved micro climate and thermal comfort for residents

Controls

4. *Deep soil zones greater than or equal in area to 25% of the total lot area is to be provided in the Residential Core Precinct*
5. *A minimum of 10m^2 per dwelling shall be provided as communal open space, either as rooftop terraces, open space at ground floor level and within indoor / enclosed common areas*
6. *Within the Residential Core, a minimum of 50% of the required communal open space must be located at ground level and be co-located with deep soil zones*
7. *Communal open spaces are to be capable of accommodating substantial vegetation and are to be designed to incorporate active and passive recreation facilities (such as seating, shade structures, BBQs and children's play equipment).*
8. *Communal courtyards at ground floor level should be naturally draining towards the street / Elizabeth Macarthur creek*
9. *Communal courtyards within the Residential Core must be located and designed to:*
   - *have a visual connection between the communal courtyard and Elizabeth Macarthur creek that is at least 15m wide*
   - *Provide for active and passive recreation needs of all residents*
10. *Contain at least 1 large (1000L) tree for every 200m2 of open space on completion. These must be located in the deep soil zone*
   - *Include passive surveillance from adjacent internal living areas and/or pathways*
   - *Ensure adequate privacy for ground floor units and private open space abutting any communal open space*


Figure 62: Internal communal areas should accommodate a range of uses


Figure 63: Internal communal in the residential core could open onto the riparian corridor

11. *Internal open space areas are to provide opportunities for larger communal gathering and/or active recreation (i.e. kitchen facilities, tables and chairs, small-scale gymnasium or health studio).*
12. *Plant species appropriate to the context and the specific microclimate within the development are to be selected to maximise use of endemic and native species and opportunities for urban biodiversity*
13. *Drought tolerant plant species, and species that enhance habitat and ecology, are to be prioritised*

4.4.9 Roof Gardens and Vertical Planting

Objectives

1. Create amenity, improve micro climate and thermal comfort for residents
2. To improve water quality
3. To harvest, store and recycle rainwater within the precinct and reduce urban heat

Controls

1. *Roofs that are overlooked by other buildings should provide either communal space, green roof or landscape planting*
2. *Roof gardens, both communal and private must be adequately protected from environmental factors (wind and sun)*
3. *Roof gardens should take advantage of easterly aspects and panoramic views where available of the surrounding area, Blue Mountains and Elizabeth Macarthur Creek green corridor*
4. *Green roofs must form part of each development and cover a minimum of 20% of the total roof area not being used for solar generation or on site renewable technologies. The green roof is to have a minimum soil substrate depth of 150mm*
5. *Rooftop gardens may utilise raised planters to define smaller spaces for sitting and gathering and be located to create privacy by preventing the overlooking from adjacent units*
6. *Planting selection should vary from the shade tolerant species located on ground floor communal open space to drier, strappy or grassy species for rooftops that will cope with the greater exposure and varied environment*
7. *Vertical gardens and integrated planters on balconies are encouraged. These should be fitted with automatic irrigation systems and linked to recycled or reused water where possible*

Figure 65: Green roofs encouraged where the roofspace is overlooked

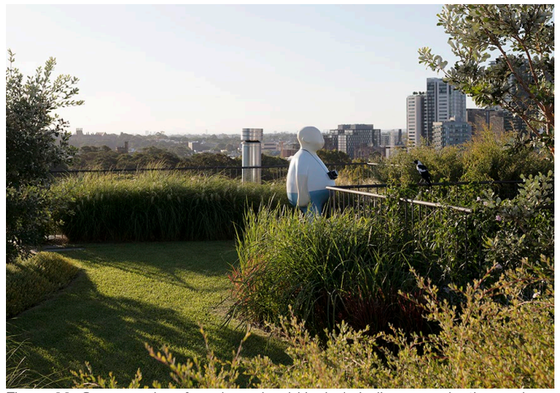

Figure 66: Communal roof gardens should include indigenous planting and harness views of the Blue Mountains

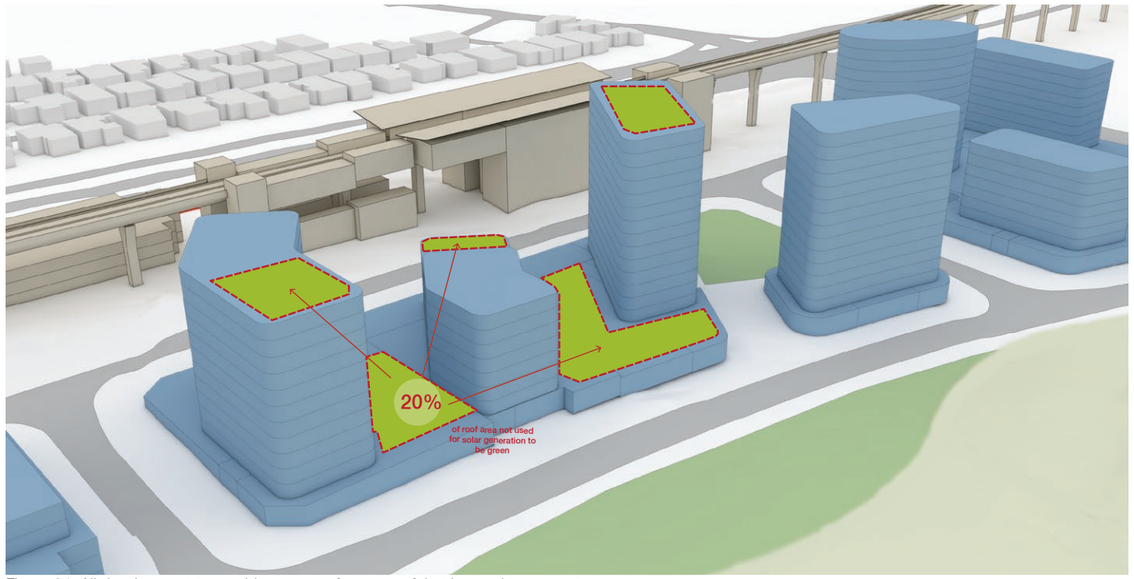

Figure 64: All development to provide an area of green roof that is equal to or greater than 20% of the roof area not used for site renewable technologies

4.4.10 Wind

Objectives

1. To improve micro climate and thermal comfort for residents

Controls

1. *Buildings over 8 storeys are to undergo wind modelling by an independent registered wind specialist. The recommendations of this wind study is to be considered and measures implemented to minimise wind impacts and maximise comfort and amenity at ground level and on communal open spaces*

4.5 Parking

4.5.1 Car Parking

Objectives

1. To minimise the impact of car parking and vehicle movements on the overall experience of the precinct
2. To provide attractive alternatives to car ownership and discourage private car use for trips that can be made using a more sustainable modes of transport

Controls

1. No basements or basement connections are permitted under public streets
2. *Above ground structured car parking is prohibited outside of the station precinct (Figure 67- Lots C,D,E,F) to facilitate at grade pedestrian through-site links through the centre of development lots and ensure the continuity of open space and landscaping at ground level*
3. *Basement car parking must not protrude above verge level by more than 1m*
4. *Spaces within each building must be set aside for car share as indicated in the table below*
5. *Car parking facilities should be designed to accommodate* electric vehicle charging points
6. *On-site parking provision should be in accordance with Table 06 below:*

Residential	Min	Max
1 Bed	0.4 bays per unit	0.6 bay per unit
2 Bed	0.7 bays per unit	0.9 bay per unit
3 Bed	1.2 bays per unit	1.4 bays per unit
Visitor	0.1 bays per unit	0.1 bays per unit
Car share spaces	1 bay per 150 parking spaces	
Retail	1/130sqm	1/60sqm

Table 06: On site parking provision requirements

7. *For every car share space provided, 3 parking spaces should be deducted from the minimum and maximum requirement as indicated above*

Figure 67: Structured above-ground parking limitations

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4.5.2 Cycle Facilities and Parking

Objectives

1. To promote the use of cycling within the precinct and along the corridor
2. To ensure safe and convenient cycle parking for residents in residential development

Controls

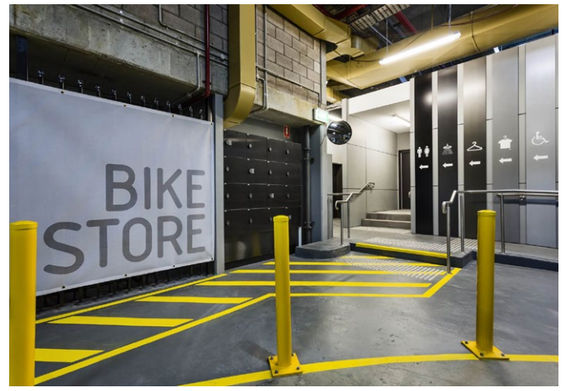
1. *All shared cycle/pedestrian facilities to be generous (wider than 2.5m) to accommodate both cycles and pedestrians*
2. *All footbridges across the creek corridor to be designed to accommodate cycles*
3. *All non residential development to provide end of trip facilities and secure bike parking for staff*
4. *Public cycle parking, and bike stand to be provided close to major retail destinations and integrated into the public space / street design*
5. *Bicycle parking in the public domain should be clustered in lots not exceeding 16 spaces*
6. *Residential development to include a mix of communal and private bicycle parking facilities. 20% of cycle parking should be provided within secure storage, in addition to ADG requirements*
7. *Residential development to provide a communal dedicated area for bicycle maintenance and cleaning*
8. *Cycle parking to be provided as per Table 07:*

Residential	Min
Minimum	1 space per 3 units
Visitor	1 bay per 12 units
Retail	
Supermarket (Staff)	1 bay per 750m^2 Retail GFA
Supermarket (Visitors)	1 bay per 1,000m^2 Retail GFA
Specialty Shops	1 bay per 300m^2 Retail GFA
Neighbourhood Shops	8 spaces minimum
Community Facility	6 spaces minimum
Open Space/Parks	
	16 spaces

Table 07: On site cycle parking requirements

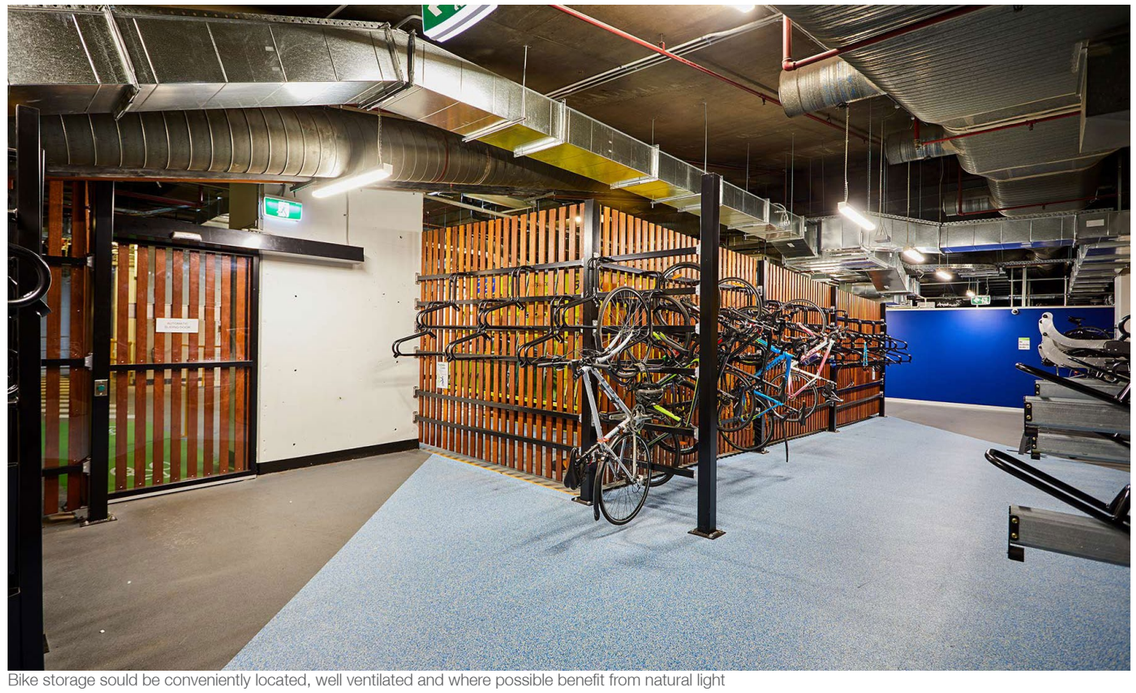
Cycle parking integrated into public domain design and conveniently located


Generous cycle ways to accommodate all levels of cycling



End of trip facilities to be provided within mixed use development for staff


Secure communal bike storage to be delivered as part of mixed use and residential developments


Bike storage sould be conveniently located, well ventilated and where possible benefit from natural light

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