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## **KELLYVILLE AND BELLA VISTA STATION PRECINCT**

### **Landscape Master Plan and Open Space Strategy - Response to Submissions**

**S18-0057**

Issue H • 17/06/2020





Cover Image:  
Looking at Elizabeth Macarthur Creek

Inside Cover:  
Lewis Jones Dr Reserve on the eastern side of Elizabeth Macarthur Creek



**CLOUSTON** associates  
KELLYVILLE AND BELLA VISTA  
STATION PRECINCT  
RESPONSE TO SUBMISSIONS

Client:  
Landcom



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S18-0057 R02	B	02/04/2020	DRAFT	CC	CL	-
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S18-0057 R02	G	05/06/2020	FINAL	CC	CC	CL
S18-0057 R02	H	17/06/2020	FINAL	CC	CC	CL



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APP P/L  
By Email

Attention: Peter Alevizos/Georgia Welsh

[S18\\_0057 KELLYVILLE BELLA VISTA RfS Covering Letter\\_V2.docx](#)  
02.06.20

Dear Peter and Georgia,

**S18\_0057 KELLYVILLE AND BELLA VISTA PUBLIC DOMAIN AND LANDSCAPE STRATEGY: RESPONSE TO SUBMISSIONS**

Please find attached our response to submissions received on this project.

A summary table of responses is contained within the attached document, identifying the details of the comments received, our responses in answer to those comments and the reference within the document where the details of those updates can be found.

In summary, the comments to which we have responded fall within the following areas of consideration and generally apply to both the Kellyville and Bella Vista precincts:

- Enhanced integration of the precincts with Elizabeth Macarthur Creek
- Confirmation that the proposed urban canopy meets the Greater Sydney Commission's (GSC) 40% coverage goal
- Further details on the increased diversity of street types and the identification of the primary pedestrian network
- Further details on the nature of each open space and where these are linked to other destinations within the precincts, particularly to the creek corridor
- Additional details on the street tree planting strategy and design.
- The open space network recognises and celebrates Aboriginal and European cultural and environmental heritage.

In the Kellyville Precinct, the station plaza that was previously split across Lots A and B has also been consolidated onto Lot B.

Please note that all responses that relate to open space and landscape design guidelines can be found in the reports prepared by SJB and Hassell.

Please do not hesitate to contact me or Chak Chan if you have any queries.

Yours faithfully  
**CLOUSTON Associates**

**CROSBIE LORIMER**  
Managing Director  
Registered Landscape Architect No 891

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KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

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COVER LETTER

17/06/2020



KELLYVILLE AND BELLA VISTA – RESPONSE TO SUBMISSIONS

VERSION 3 - 3.6.20

NO	AUTHORITY	TOPIC/COMMENT	RESPONSE	DOC'T REF
		<b>KELLYVILLE</b>		
		<b>Open Space on Lots A and B</b>		
6	SDRP	Further investigation of the public space within Lots A and B to rationalise the primary public space (in the form of a square) to respond to the station and retail uses in this part of the commercial core.	The open space on Lots A and B has been reconfigured to relocate the station plaza entirely on lot B with an amended minimum size of 0.16ha. A through site link is proposed on Lot B which will link the Kellyville Metro Station and the creek corridor. The rationalisation of these public spaces into a consolidated station plaza meets the requirements of Local Open Space (0.1-0.5ha) for High Density areas as outlined in the GANSW Greener Places - Draft Open Space for Recreation Guide, and meets the performance indicators typical of a plaza setting. These include a balance of hardscape and softscape to provide opportunities for retail uses (e.g. outdoor dining), informal gathering and social interaction, and an accessible pedestrian link to the wider open space network of the site.	Page 4
		<b>Landscape and Green Infrastructure</b>		
9	SDRP	The green infrastructure opportunities available in the precinct are strong, and the role of the Elizabeth Macarthur Creek corridor is significant. The following recommendations are made. Provide tree canopy targets consistent with State government targets and priorities	The Greater Sydney Commission has set a canopy target of 40% coverage across metropolitan Sydney (GSC Priority 16, Objective 30). The Design Guidelines have been amended to prescribe a minimum tree canopy target of 40% across both precincts. For the purposes of this project, the target of 40% canopy coverage applies to the public realm inclusive of public open space and streets. This is of particular importance in the reduction of the urban heat island effect. The document has been updated to provide details of how street tree coverage will be maximised and best practice to optimise healthy tree growth within hard-surfaced spaces. Trees of varying sizes have been selected to compliment the differing street hierarchies and in total the canopy coverage for street corridors amounts to 55.1% in Kellyville of the total area of street corridors. Minor variations in coverage is due to differing street sizes.	Page 10-15
10	SDRP	Explore further opportunities to strengthen the design intent for Elizabeth Macarthur Creek as a key public open space for the neighbourhood and a strong green infrastructure element. This requires greater consideration of the corridor as central open space located between neighbourhoods, rather than the eastern edge of Kellyville.	A plan has been prepared which demonstrates the relationship between the creek with adjacent public domain and the built form interface clearly identifying proposed land ownership by Landcom/Sydney Metro, Sydney Water, THSC and private landowners. It is annotated to demonstrate how land within the SSDA boundary integrates with the creek and a suggested approach to the Eastern side of the creek. The nature of future development scenarios on the eastern side of the creek is subject to private landowners and is outside the scope of this SSDA and annotated to demonstrate : a) how the Kellyville side integrates with the creek and b) the suggested approach to the eastern side for other landowners, with the caveat that the nature of future development scenarios on the eastern side of the creek is unknown at this juncture. Note that the eastern side of the creek is beyond the SSDA boundary for which approval is being sought.	Page 8-9
15	THSC	References to KV2 'Neighbourhood Park' should be amended to 'Local Urban Park (High Density Areas)' to reflect Council's hierarchy within the recently adopted Recreation Strategy.	'Neighbourhood Park' has been amended to 'Local Urban Park (High Density Areas)' as per The Hills Shire Council's Recreational Strategy.	Page 4-5
33	THSC	The provision of street trees is not considered sufficient (e.g. spacing of 15 metres). Trees should be spaced a maximum of 10 metres apart with large canopy species to support the 'Garden Shire' character and minimise environmental heat impacts.	The Greater Sydney Commission has set a canopy target of 40% coverage across metropolitan Sydney (GSC Priority 16, Objective 30). The Design Guidelines have been amended to prescribe a minimum tree canopy target of 40% across both precincts. For the purposes of this project, the target of 40% canopy coverage applies to the public realm inclusive of public open space and streets. This is of particular importance in the reduction of the urban heat island effect. The document has been updated to provide details of how street tree coverage will be maximised and best practice to optimise healthy tree growth within hard-surfaced spaces. Trees of varying sizes have been selected to compliment the differing street hierarchies and in total	Page 10-21



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KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

Page 3

RESPONSE TO SUBMISSIONS

17/06/2020



NO	AUTHORITY	TOPIC/COMMENT	RESPONSE	DOC'T REF
			the canopy coverage for street corridors amounts to 49.8% in Bella Vista of the total area of street corridors. Minor variations in coverage is due to differing street sizes.  Large tree canopy species have been proposed to meet the character of the 'Garden Shire' and ensure canopy coverage.	
		<b>Streets/Interfaces</b>		
2dii	RMS	Page 69, Section 9.5.1.1 - Figure 9.7 has identified Wuban Ave as a "local street" as per the categorisations in Section 9.5.1.1. Wuban Street will continue to be used for bus circulation and accordingly should not be categorised as a local street.	The classification of Wuban Avenue has been amended from Local Street to Main Street in the design documents.	Page 12, 22
13	SDRP	Rationalise pedestrian and vehicle movements to a). create a clearer circulation hierarchy responding to different character areas of the precinct and the way in which people will move. Identify the different street types – such as collector and other street types, and what characteristics define them and the way in which they respond to their location and function. Provide street sections to describe. b). improve utilisation of the streets. For example, whilst some streets have already been delivered, there are opportunities to the way in which the street trees, parking, footpaths might be designed to respond to associated uses.	The street hierarchy has been further refined and documented to achieve a greater diversity of urban character. A plan has been added identifying the footpath network associated with this street hierarchy, also identifying proposed and potential future locations for footbridge crossings of the creek corridor.	Page 22-25
NO	AUTHORITY	TOPIC/COMMENT	RESPONSE	DOC'T REF
		<b>BELLA VISTA</b>		
		<b>Public Domain</b>		
7	SDRP	Further clarification is required on the hierarchy of spaces and anticipated movement of people from the station to the surrounding areas to ensure an appropriate balance is achieved between movement spaces and those for dwellings.	The document has been updated to provide more details on the nature of each open space, how the spaces complement each other and the day-to-day destinations that the pathways connect to. A particular emphasis has been placed on the pedestrian and visual links to the creek corridor.	Page 8-9 Page 24-25
		<b>Landscape and Green Infrastructure</b>		
9	SDRP	The green infrastructure opportunities available in the precinct are strong, and the role of the Elizabeth Macarthur Creek corridor is significant. The following recommendations are made: Provide tree canopy targets consistent with State government targets and priorities.	The Greater Sydney Commission has set a canopy target of 40% coverage across metropolitan Sydney (GSC Priority 16, Objective 30). The Design Guidelines have been amended to prescribe a minimum tree canopy target of 40% across both precincts. For the purposes of this project, the target of 40% canopy coverage applies to the public realm inclusive of public open space and streets. This is of particular importance in the reduction of the urban heat island effect. The document has been updated to provide details of how street tree coverage will be maximised and best practice to optimise healthy tree growth within hard-surfaced spaces. Trees of varying sizes have been selected to compliment the differing street hierarchies and in total the canopy coverage for street corridors amounts to 49.8% in Bella Vista of the total area of street corridors. Minor variations in coverage is due to differing street sizes.	Page 10-12 Page 16-21
10	SDRP	Explore further opportunities to strengthen the design intent for Elizabeth Macarthur Creek as a key public open space for the neighbourhood and a strong green infrastructure element. This requires greater consideration of the corridor as central open space located between neighbourhoods, rather than the eastern edge of Bella Vista.	A plan has been prepared which demonstrates the relationship between the creek with adjacent public domain and the built form interface clearly identifying proposed land ownership by Landcom/Sydney Metro, Sydney Water, THSC and private landowners. It is annotated to demonstrate how land within the SSDA boundary integrates with the creek and a suggested approach to the Eastern side of the creek. The nature of future development scenarios on the eastern side of the creek is subject to private landowners and is outside the scope of this SSDA.	Page 8-9
11	SDRP	Provide further clarification of ongoing management of the creek	A plan has been prepared which demonstrates the relationship between the creek with	Page 8-9



NO	AUTHORITY	TOPIC/COMMENT	RESPONSE	DOC'T REF
		corridor and public open space, including confirmation on who will have responsibility.	adjacent public domain and the built form interface clearly identifying proposed land ownership by Landcom/Sydney Metro, Sydney Water, THSC and private landowners. It is annotated to demonstrate how land within the SSDA boundary integrates with the creek and a suggested approach to the Eastern side of the creek. The nature of future development scenarios on the eastern side of the creek is subject to private landowners and is outside the scope of this SSDA.	
		<b>Streets/Interfaces/Access/Connections</b>		
12.	SDRP	<p>GANSW acknowledges that some streets have already been delivered. Notwithstanding this, there is an opportunity to ensure that landscape and interfaces with ground floor uses create a hierarchy of movement through the precinct, and clear definition of public and private space. Streets are to remain in public ownership, ensuring that there is no basement carparking under the road reservation. Vehicular access locations require careful consideration to ensure they do not obstruct areas of public domain. The following recommendations are made:</p> <p>Rationalise pedestrian and vehicle movements to:</p> <p>a). create a clearer circulation hierarchy responding to different character areas of the precinct and the way in which people will move. Identify the different street types – such as collector and other street types, and what characteristics define them and the way in which they respond to their location and function. Provide street sections to describe.</p> <p>b). improve utilisation of the streets. For example, whilst some streets have already been delivered, there are opportunities to the way in which the street trees, parking, footpaths might be designed to respond to associated uses.</p>	<p>The street hierarchy has been further refined and documented to achieve a greater diversity of urban character. A plan has been added identifying the cycle and footpath network associated with this street hierarchy, also identifying proposed and potential locations for footbridge crossings of the creek corridor.</p> <p>Laneways in Bella Vista Precinct are proposed to be privately owned but public accessible. No underground parking is proposed under public streets/roads.</p>	Page 22-25
33	THSC	The provision of street trees is not considered sufficient (e.g. spacing of 15 metres). Trees should be spaced a maximum of 10 metres apart with large canopy species to support the 'Garden Shire' character and minimise environmental heat impacts.	<p>The Greater Sydney Commission has set a canopy target of 40% coverage across metropolitan Sydney (GSC Priority 16, Objective 30). The Design Guidelines have been amended to prescribe a minimum tree canopy target of 40% across both precincts. For the purposes of this project, the target of 40% canopy coverage applies to the public realm inclusive of public open space and streets. This is of particular importance in the reduction of the urban heat island effect. The document has been updated to provide details of how street tree coverage will be maximised and best practice to optimise healthy tree growth within hard-surfaced spaces. Trees of varying sizes have been selected to compliment the differing street hierarchies and in total the canopy coverage for street corridors amounts to 49.8% in Bella Vista of the total area of street corridors. Minor variations in coverage is due to differing street sizes.</p> <p>Large tree canopy species have been proposed to meet the character of the 'Garden Shire' and ensure canopy coverage.</p>	Page 10-21





# LANDSCAPE MASTER PLAN AMENDMENT

The following amendments have been made:

## KV1 Station Plaza

The concept masterplan has been revised to consolidate the proposed privately owned public assessable station plaza (Kellyville Station Plaza) entirely on lot B. The design guidelines have been revised to prescribe that a minimum of 1600m2 of open space must be provided on lot B. (Refer revised Landscape Plan, changes are marked in yellow.)

A through site link is provided to the southeast to connect the path to both the Kellyville Station and the Elizabeth Macarthur Creek.

## Local Urban Park

Neighbourhood parks have been renamed to Local Urban Park in line with The Hills Shire Council Recreation Strategy.

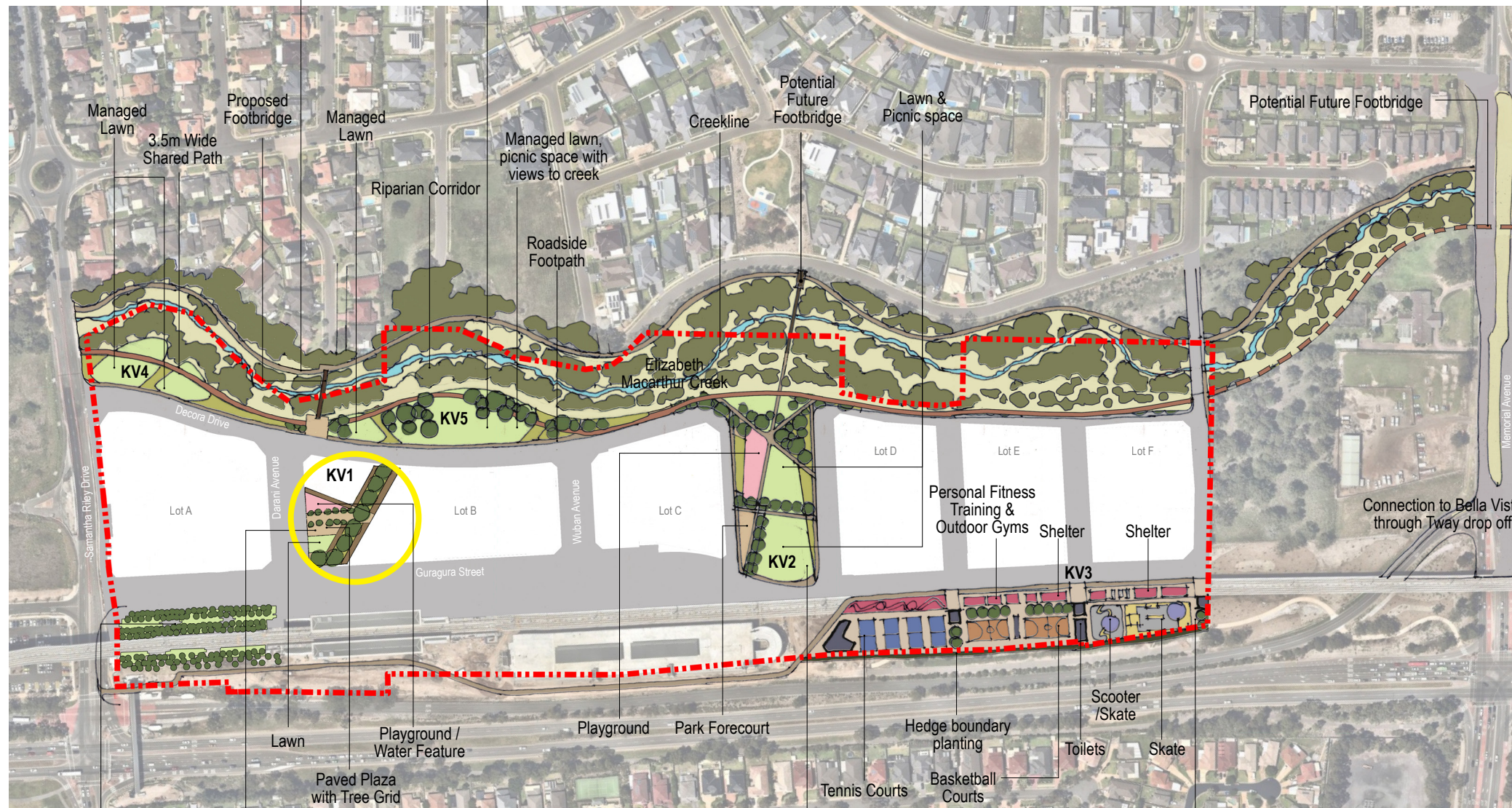


Figure 6.3 Kellyville Concept Master Plan

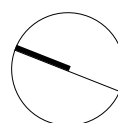


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KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

KELLYVILLE CONCEPT MASTER PLAN

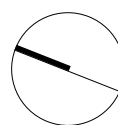
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Figure 6.4 Bella Vista Concept Master Plan





INTEGRATION WITH ELIZABETH MACARTHUR CREEK

Sydney’s Blue Green Grid Strategy (GSC/DPIE/GANSW) places the city’s river and creek systems at the heart of an integrated network of green corridors, providing enhanced recreational, ecological and visual connectivity and amenity.

This necessarily requires a co-ordinated approach across all landowners concerned. On this basis, the integration of the creek network at Kellyville and Bella Vista into its urban context will be characterised by:

- Continuous public paths on either side of the creek, along or close to the urban development boundary and also acting as a maintenance edge to protect riparian plantings
- Pedestrian creek crossings at strategic locations that connect principal destinations
- Small passive recreation spaces (typically including trees, shrubs, seating and lawn) adjoining the riparian corridor
- Rain gardens or similar to manage stormwater quality entering the creek
- Native riparian plantings within the designated riparian corridor
- View corridors along streets towards the creek
- Visual access to the creek corridor from urban development, especially high rise residential

All of these elements have been masterplanned using CPTED principles to ensure that the creek corridor is a safe and active space that will offer high amenity and enhance passive surveillance.



Foot bridge to connect both sides of the riparian corridor in The Ponds



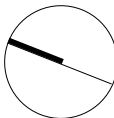
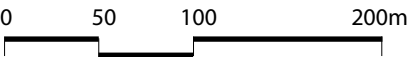
Interface between developments and the riparian corridor in The Ponds



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ELIZABETH MACARTHUR CREEK INTEGRATION

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Precedent Imagery



Riparian planting within the creek corridor to reinforce the riparian ecology and biodiversity.



Continuous shared paths along the creek corridor to ensure connection and interaction between both sides of the creek. Suggested footbridge crossings placed strategically at critical locations along the corridor.



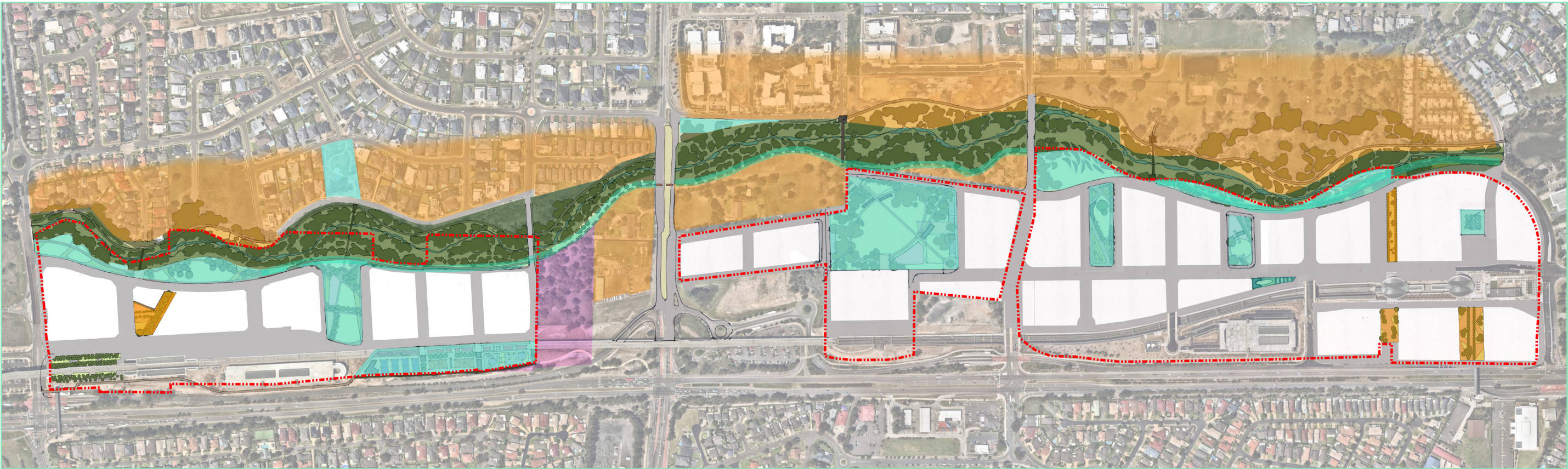
Managed lawn open space defined by footpath with facility and amenities such as shelter and picnic setting.



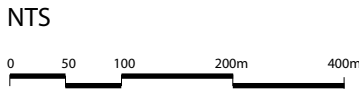
Visual connection between development and the creek corridor. Maximise the opportunities for interaction with the creek.

Proposed Future Ownership Plan

This plan below depicts the proposed future ownership of the land adjacent to Elizabeth Macarthur Creek.



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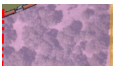








ELIZABETH MACARTHUR CREEK INTEGRATION - OVERALL PLAN

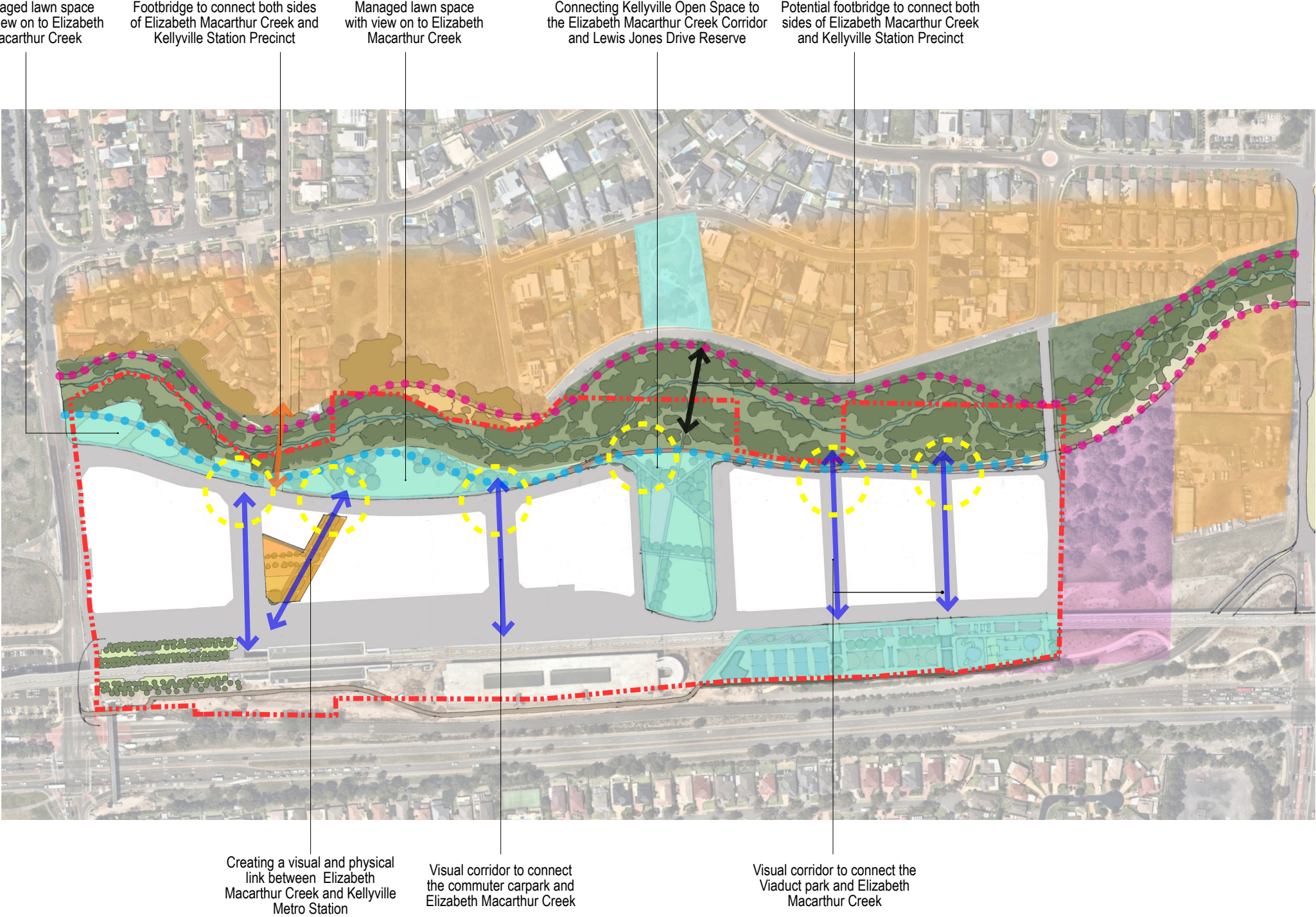
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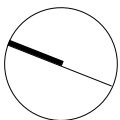
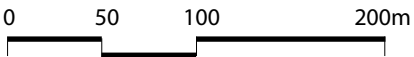
Legend

-  Proposed Sydney Water Ownership
-  Private Ownership
-  RMS
-  The Hills Shire Council Proposed Ownership
-  SSDA Boundary
-  Pedestrian Connection to Elizabeth Macarthur Creek
-  Proposed Shared Path along Elizabeth Macarthur Creek within SSDA boundary
-  Suggested Shared Path along western side of Elizabeth Macarthur Creek outside of SSDA boundary
-  Visual Corridor to ensure a clear line of sight between the precincts and Elizabeth Macarthur Creek
-  Potential Future Footbridge to connect both sides of Elizabeth Macarthur Creek and Kellyville / Bella Vista Station Precinct
-  Proposed Footbridge to connect both sides of Elizabeth Macarthur Creek and Kellyville Station Precinct



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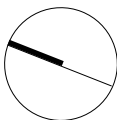
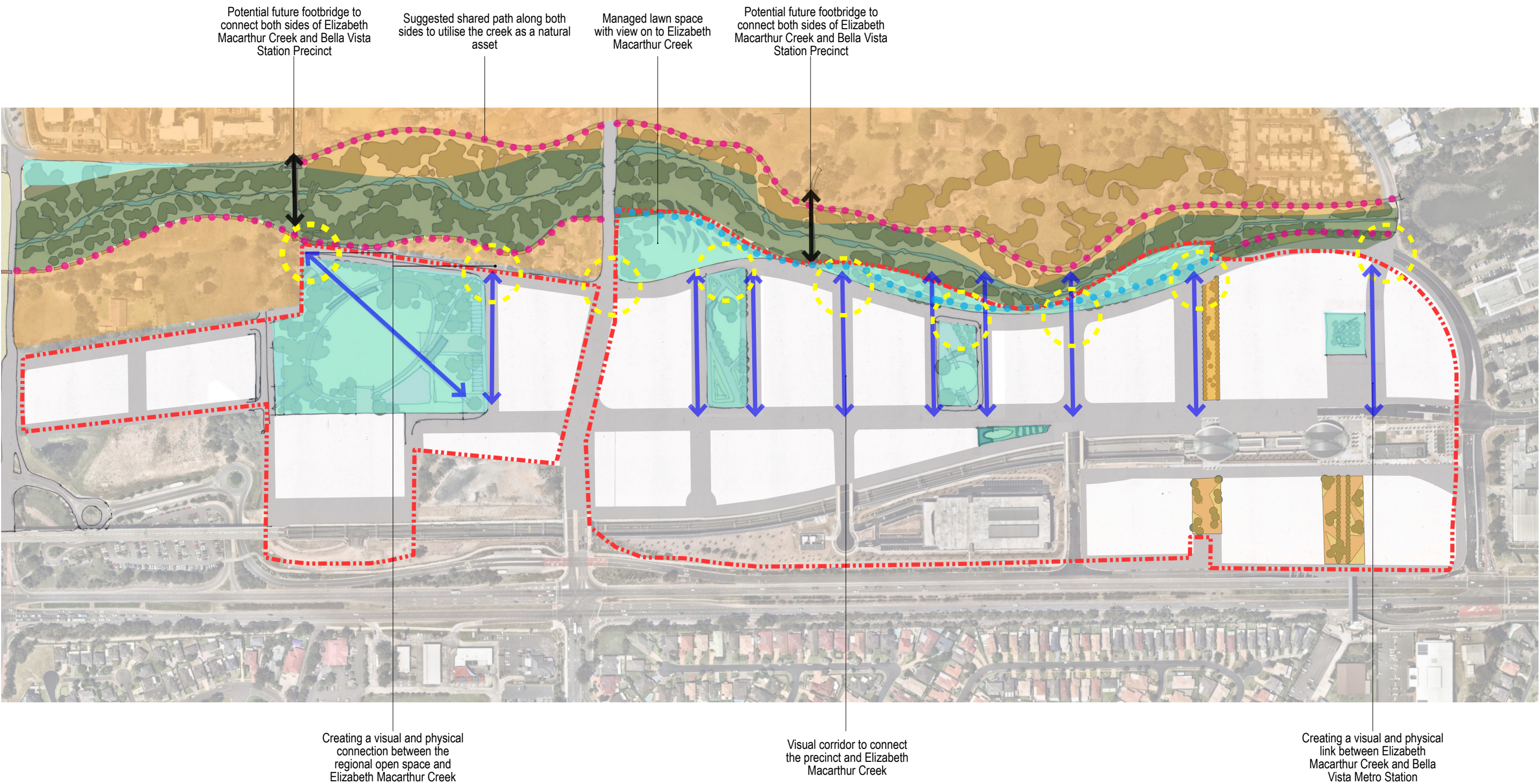
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

ELIZABETH MACARTHUR CREEK INTEGRATION STRATEGY - KELLYVILLE

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URBAN CANOPY

The Greater Sydney Commission has established an urban tree canopy coverage goal of 40% for Sydney (GSC Priority 16/Objective 30) to reduce heat island impacts and enhance ecological systems. Although urban heat island reduction can be complemented by other types of planting such as large shrubs, ground cover, grass and rain gardens, trees play the major role; in this regard street tree canopy coverage is particularly important in mitigating radiant heat from paved street and footpath surfaces.

In Street Tree Planting

Street tree planting in the road corridor (rather than in the pedestrian pavement corridor) is proposed for both the Kellyville and Bella Vista Precincts, using a structural soil system (Strata Vault is a commonly used system). This approach has the following typical benefits:

- Permits higher soil volumes including under trafficked areas, without entailing soil compaction
- Results in lesser impact on tree growth from in-ground services
- Detains higher volumes of urban stormwater after storm events
- Increases tree root access to more in-ground water
- Promotes increased mature canopy width and therefore increased shading of paths and parked cars
- Frees up more width for pedestrian movement on paths (and cycle movement if adjoining a shared path)
- Ensures that street lighting can be spaced to avoid being covered by tree canopy.

See the Urban Design Guidelines for further details on the structural soil system.

Tree Spacing

Street tree spacing has been integrated with on-street car park spacing so that on-street car park capacity will not be compromised. The varying spacing between trees reflects the different street widths and different tree sizes; this ensures a full canopy spread in each case. The following spacing has been proposed for the two precincts respectively:

Kellyville Precincts:

- Main Street - Tree spacing: 15m with two car parks between trees
- Local Street – Tree spacing: 8.5m with one car park between trees
- Perimeter Road along the Riparian Corridor – Tree spacing: 8.5m, no car park is proposed

Bella Vista Precincts:

- Main Street - Tree spacing: 15m with two car parks between trees
- Local Street – Tree spacing: 8.5m with one car park between trees
- One way Street – Tree spacing: 8.5m with one car park between trees
- Laneway – Tree spacing: 6m, no car park is proposed in laneway

Tree Canopy Coverage

Street tree species, tree canopy overlaps and tree canopy overhanging in to property lots have also been taken into consideration. The following street tree canopy coverage (as a percentage of the public domain streets and paths) can be achieved with the above-mentioned spacing:

- Kellyville: 55.1%
- Bella Vista: 49.8%

Refer to Table 2 - Amended Tree Spacing for a detailed breakdown of the tree canopy for Kellyville and Bella Vista.

STREET TREES (KELLYVILLE PRECINCT)

Tree selection should be based on the performance matrix below for Main Streets in the Kellyville Precinct:

- Large tree
- Australian native
- Evergreen
- Mature height at least 15-20m
- At least 12m mature canopy spread
- Provide a unique character and promote diversity in streetscape

The following species are recommended for Main Streets in the Kellyville Precinct:

- *Eucalyptus amplifolia* (Cabbage Gum)
- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus moluccana* (Grey Box)
- *Eucalyptus tereticornis* (Forest Red Gum)

Tree selection should be based on the performance matrix below for Local Streets in the Kellyville Precinct:

- Medium size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 10-12m
- Mature canopy spread approximately 6-8m

The following species are recommended for Local Streets in the Kellyville Precinct:

- *Fraxinus oxycarpa* ‘Raywoodii’ (Claret Ash)
- *Pyrus calleryana* (Callery Pear)
- *Sapium Sebiferum* (Chinese Tallowood)

Tree selection should be based on the performance matrix below for Perimeter Road along the Riparian Corridor in the Kellyville Precinct:

- Small size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 5-8m
- Mature canopy spread approximately 6-8m



Eucalyptus crebra



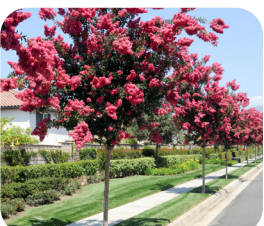
Eucalyptus tereticornis



Prunus cerasifera ‘Nigra’



Pyrus calleryana



Lagerstroemia indica

The following species are recommended for Perimeter Road along the Riparian Corridor in the Kellyville Precinct:

- *Prunus cerasifera* ‘Nigra’ (Black Cherry Plum)
- *Ulmus parvifolia* (Chinese Elm)

STREET TREES (BELLA VISTA PRECINCT)

Tree selection should be based on the performance matrix below for Main Streets in the Bella Vista Precinct:

- Large tree
- Australian native
- Evergreen
- Mature height at least 15-20m
- At least 12m mature canopy spread
- Provide a unique character and promote diversity in streetscape

The following species are recommended for Main Streets in the Bella Vista Precinct:

- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus tereticornis* (Forest Red Gum)
- *Melaleuca styphelioides* (Prickly-leaved Paperbark)
- *Tristaniopsis laurina* ‘Luscious’ (Kanooka Gum)

Tree selection should be based on the performance matrix below for Local Streets in the Bella Vista Precinct:

- Medium size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 10-12m
- Mature canopy spread approximately 6-8m

The following species are recommended for Local / One Way Streets in the Bella Vista Precinct:

- *Fraxinus griffithii* (Evergreen Ash)
- *Fraxinus oxycarpa* ‘Raywoodii’ (Claret Ash)
- *Pyrus calleryana* (Callery Pear)
- *Sapium Sebiferum* (Chinese Tallowood)
- *Pistacia chinensis* (Chinese Pistachio)

Tree selection should be based on the performance matrix below for Laneways in Bella Vista Precinct:

- Small size tree with narrow form
- Exotic
- Evergreen or deciduous
- Mature height approximately 4-6m
- Mature canopy spread approximately 3-4m

The following species are recommended for Laneway in Bella Vista Precinct:

- *Gordonia axillaris* (Fried Egg Plant)
- *Lagerstroemia indica* (Crepe Myrtle)





REVISED URBAN CANOPY COVERAGE

Table 1 - Original Tree Spacing, demonstrates the tree spacing lodged with the EIS and resulting canopy coverage. Table 2 - Amended Tree Spacing, shows the amended tree spacing and resulting canopy coverage for both precincts. In summary, the original canopy coverage percentages for Kellyville and Bella Vista were 36.99% and 42.40% respectively. Following amendments to the tree spacing across the site, canopy coverage increased to 55.10% and 49.80% for Kellyville and Bella Vista respectively - resulting in signifcant increase in coverage. Refer to the Urban Tree Canopy Plans overleaf a demonstration the tree spacing per street.

Table 1 - Original Tree Spacing - 15 m, 18m, 18.5 m and 19.65 m (Previous Calculations)

KELLYVILLE AND BELLA VISTA - ROAD CANOPY COVER											
ROAD TYPE	TREE SPACING	TREE SEGMENT CANOPY COVER (EXCLUDE CANOPY OUTSIDE ROAD CORRIDOR)	TREE SEGMENT AREA	TREE SEGMENT CANOPY %	ROAD CORRIDOR WIDTH (EXCLUDE SETBACK)	NUMBER OF TREES PER SEGMENT	NUMBER OF TREES ON ROAD	LENGTH OF ROAD	NUMBER OF TREE SEGMENTS	TOTAL TREE CANOPY AREA	TOTAL ROAD AREA
KELLYVILLE COLLECTOR ROAD	19.65	157	392	40.05%	20	2	130	1280	65.14	10226.97	25534.86
KELLYVILLE COLLECTOR ROAD - VIADUCT	19.65	98	392	25.00%	20	2	35	340	17.30	1695.67	6782.70
KELLYVILLE LOCAL STREET	18.5	153	333	45.95%	18	2	48	445	24.05	3680.27	8010.00
KELLYVILLE LANEWAY	15	18	150	12.00%	10	1	18	275	18.33	330.00	2750.00
KELLYVILLE TOTALS										15932.92	43077.56
KELLYVILLE CANOPY %										36.99%	
BELLA VISTA COLLECTOR ROAD	18	188	432	43.52%	24	4	308	1385	76.94	14465.56	33240.00
BELLA VISTA MAIN STREET	18.5	157	407	38.57%	22	2	108	995	53.78	8444.05	21890.00
BELLA VISTA LOCAL STREET	18.5	153	333	45.95%	18	2	208	1920	103.78	15878.92	34560.00
BELLA VISTA LANEWAY	15	56	180	31.11%	12	1	37	560	37.33	2090.67	6720.00
BELLA VISTA TOTAL										40879.20	96410.00
BELLA VISTA CANOPY %										42.40%	

Table 2 - Amended Tree Spacing - 6 m, 8.5m and 15 m

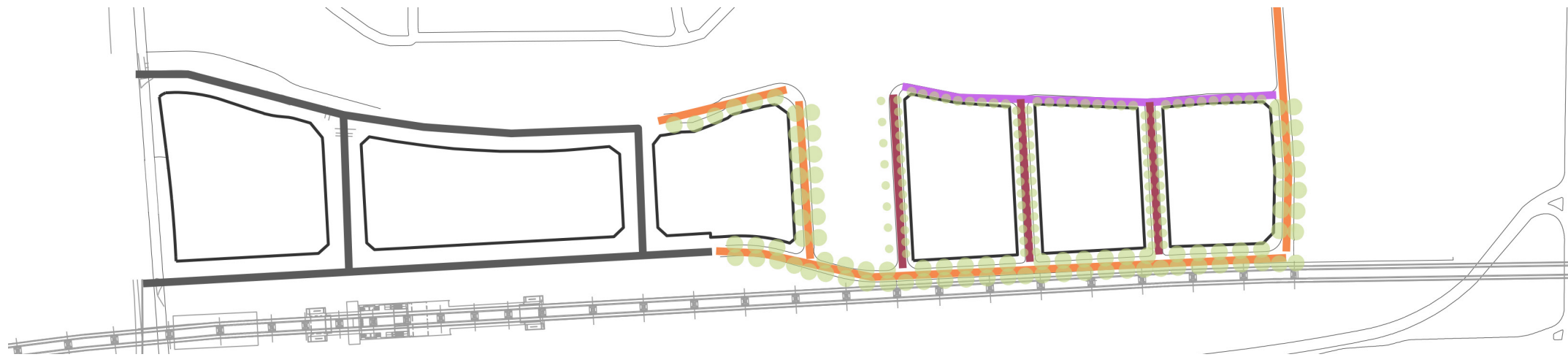
KELLYVILLE AND BELLA VISTA - ROAD CANOPY COVER										
ROAD TYPE	TREE SPACING (m)	CANOPY SIZE PER TREE (m2)	OUTSIDE CORRIDOR OR OVERLAP (m2)	AVERAGE CANOPY SIZE WITHIN ROAD CORRIDOR (m2)	ROAD CORRIDOR WIDTH (EXCLUDE SETBACK) (m)	LENGTH OF ROAD (m)	SIDES OF ROAD WITH TREES	NUMBER OF TREES	TOTAL TREE CANOPY AREA (m2)	TOTAL ROAD AREA (m2)
KELLYVILLE MAIN STREET - RESIDENTIAL AND PARK	15	115	12.00	103.00	20	229	2	30.53	3144.93	4580.00
KELLYVILLE MAIN STREET - RIPARIAN	15	115	5.00	110.00	20	100	1	6.67	733.33	2000.00
KELLYVILLE MAIN STREET - VIADUCT	15	115	6.50	108.50	20	470	2	62.67	6799.33	9400.00
KELLYVILLE LOCAL STREET - RESIDENTIAL	8.5	28	0.00	28.00	18	225	2	52.94	1482.35	4050.00
KELLYVILLE LOCAL STREET - PARK AND RESIDENTIAL 15M	8.5	28	0.00	28.00	15	125	1	14.71	411.76	1875.00
KELLYVILLE LANEWAY - RIPARIAN	8.5	40	9.00	31.00	10	270	1	31.76	984.71	2700.00
KELLYVILLE TOTALS									13556.42	24605.00
KELLYVILLE CANOPY %									55.10%	
BELLA VISTA MAIN STREET - RESIDENTIAL	15	104	4.50	99.50	20	390	2	52.00	5174.00	7800.00
BELLA VISTA MAIN STREET - OPEN SPACE AND RIPARIAN	15	104	15.00	89.00	20	390	3	78.00	6942.00	7800.00
BELLA VISTA MAIN STREET - RESIDENTIAL AND RIPARIAN	15	104	15.00	89.00	20	475	3	95.00	8455.00	9500.00
BELLA VISTA LOCAL STREET - RESIDENTIAL	8.5	24	0.00	24.00	18	610	2	143.53	3444.71	10980.00
BELLA VISTA LOCAL STREET - COMMERCIAL	8.5	24	0.00	24.00	22	500	2	117.65	2823.53	11000.00
BELLA VISTA LOCAL STREET - PARK AND RESIDENTIAL	8.5	24	0.00	24.00	18	140	2	32.94	790.59	2520.00
BELLA VISTA LOCAL STREET - METRO AND SCHOOL	8.5	24	0.00	24.00	18	130	2	30.59	734.12	2340.00
BELLA VISTA LOCAL STREET - RESIDENTIAL AND SCHOOL	8.5	24	0.00	24.00	18	170	2	40.00	960.00	3060.00
BELLA VISTA LOCAL STREET - RESIDENTIAL AND PARK 3.5m	8.5	24	0.00	24.00	18	90	2	21.18	508.24	1620.00
BELLA VISTA ONEWAY STREET - PARK AND RESIDENTIAL	8.5	24	0.00	24.00	9	460	1	54.12	1298.82	4140.00
BELLA VISTA LANEWAY - RESIDENTIAL	6	7	0.00	7.00	8	310	1	51.67	361.67	2480.00
BELLA VISTA TOTALS									31492.67	63240.00
BELLA VISTA CANOPY %									49.80%	



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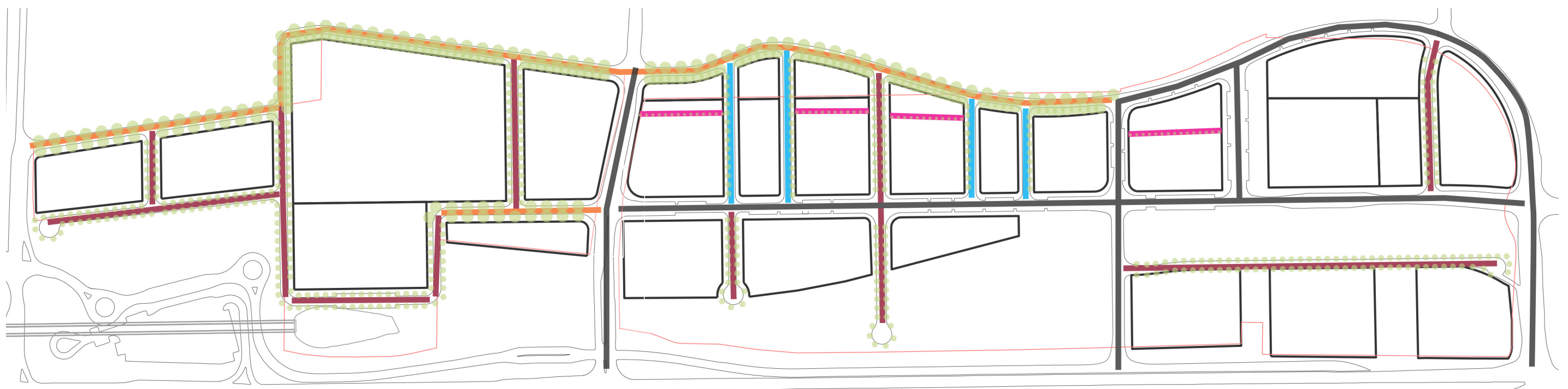






Kellyville Precinct Street Tree Canopy Coverage - Amended calculations with 8.5m and 15m spacing.

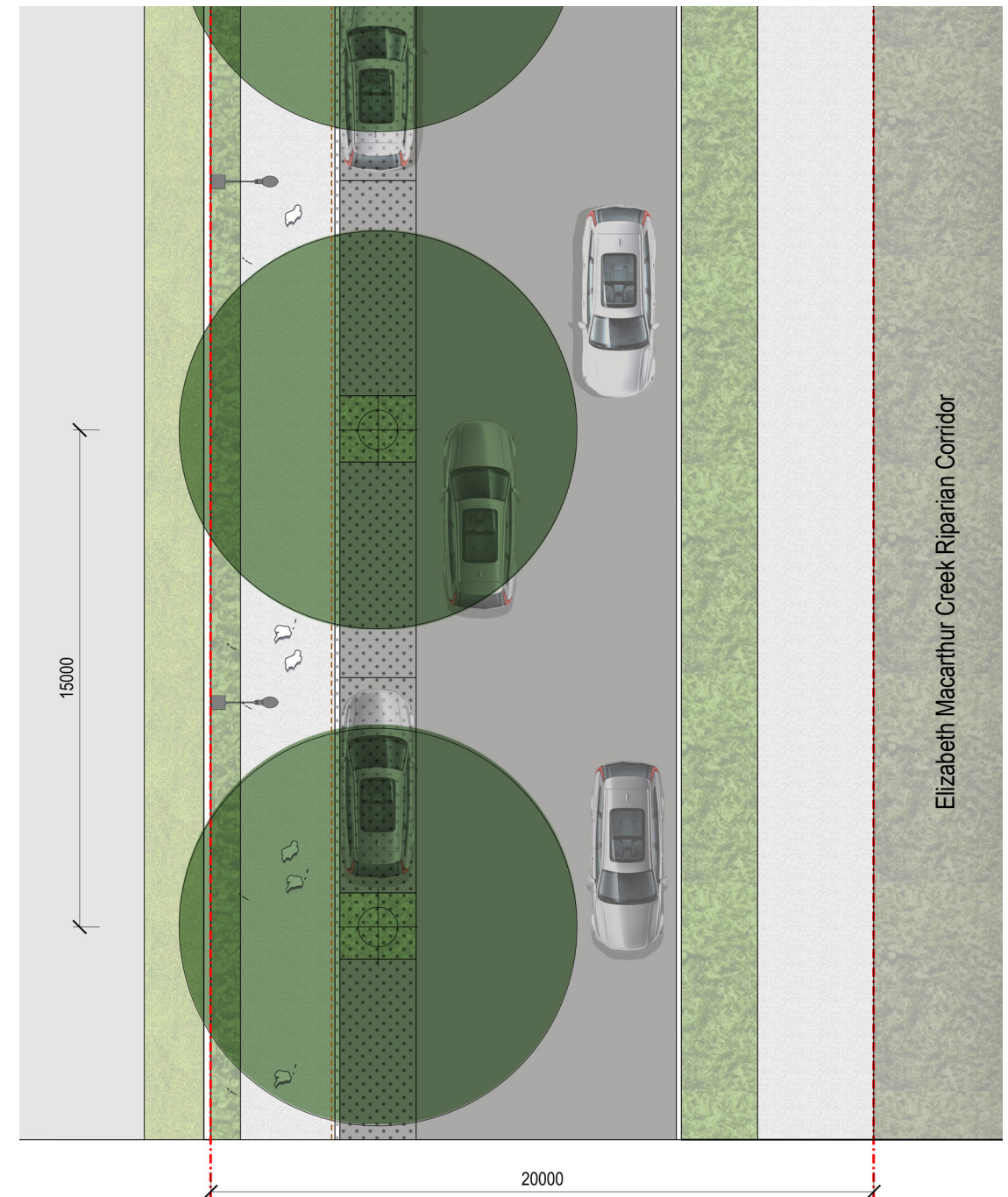
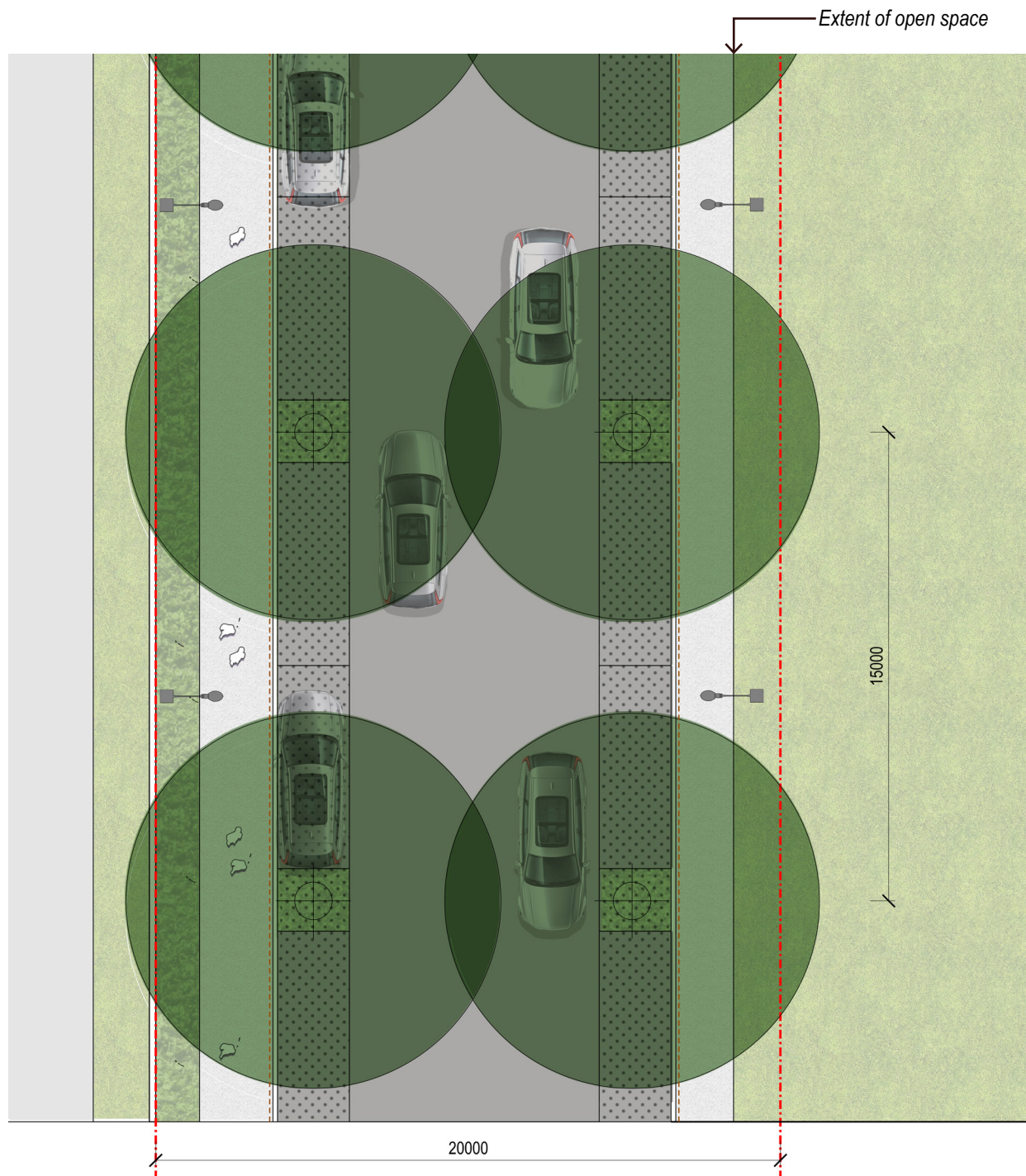
- Main Street  
Tree spacing: 15m
- Local Street  
Tree Spacing: 8.5m
- Perimeter Road along the Riparian Corridor  
Tree spacing: 8.5m
- Roads already constructed with street  
trees to facilitate access to Metro Station



Bella Vista Precinct Street Tree Canopy Coverage - Amended calculations with 6m, 8.5m and 15m spacing.

- Main Street  
Tree spacing: 15m
- Local Street  
Tree spacing: 8.5m
- One Way Street  
Tree spacing: 8.5m
- Laneway - Private  
Tree spacing: 6m
- Roads already constructed with street  
trees to facilitate access to Metro Station





**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

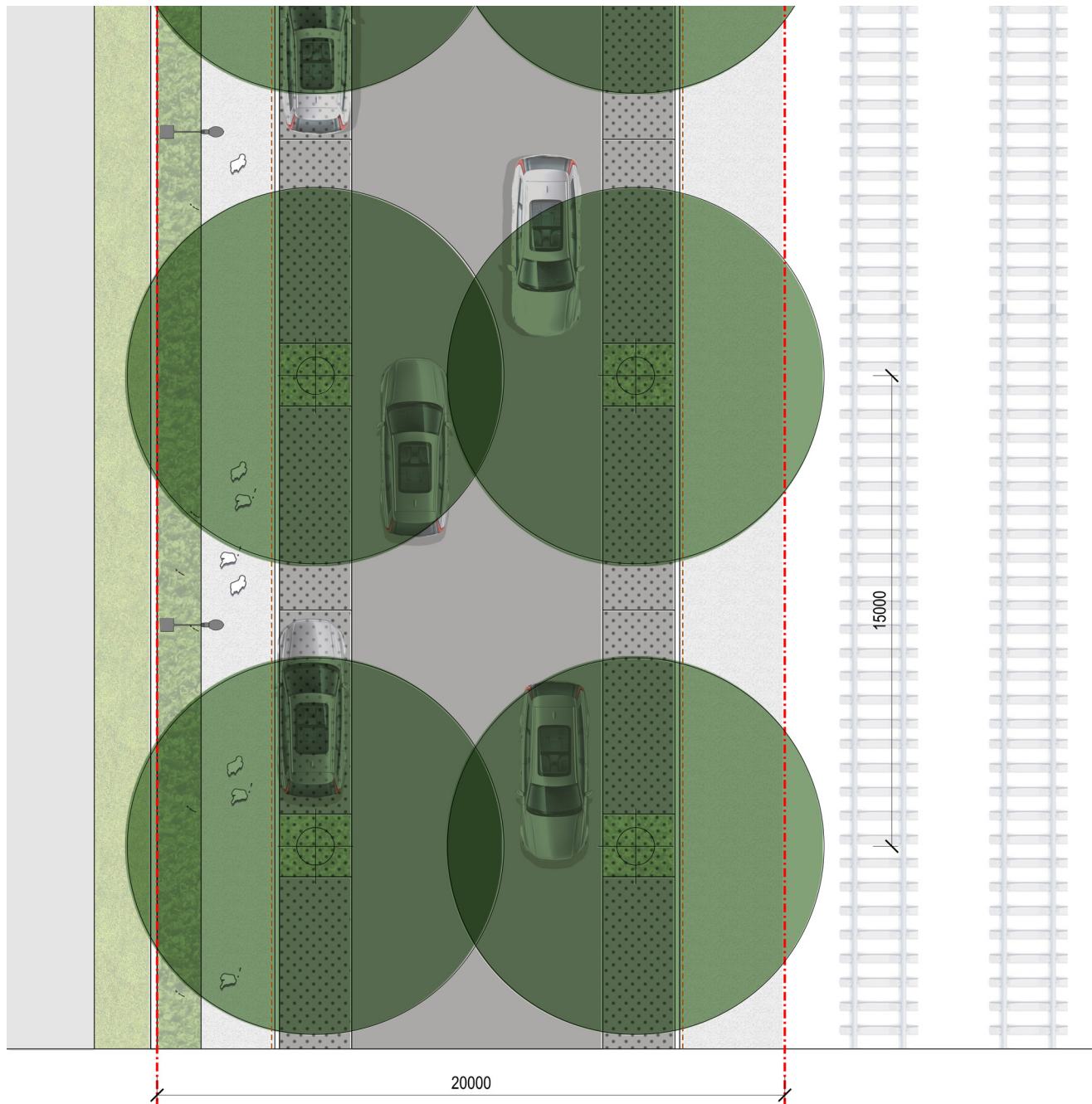
- Legend**
- Structural soil system
  - Root barrier
  - Setback boundary
  - Street light pole

**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





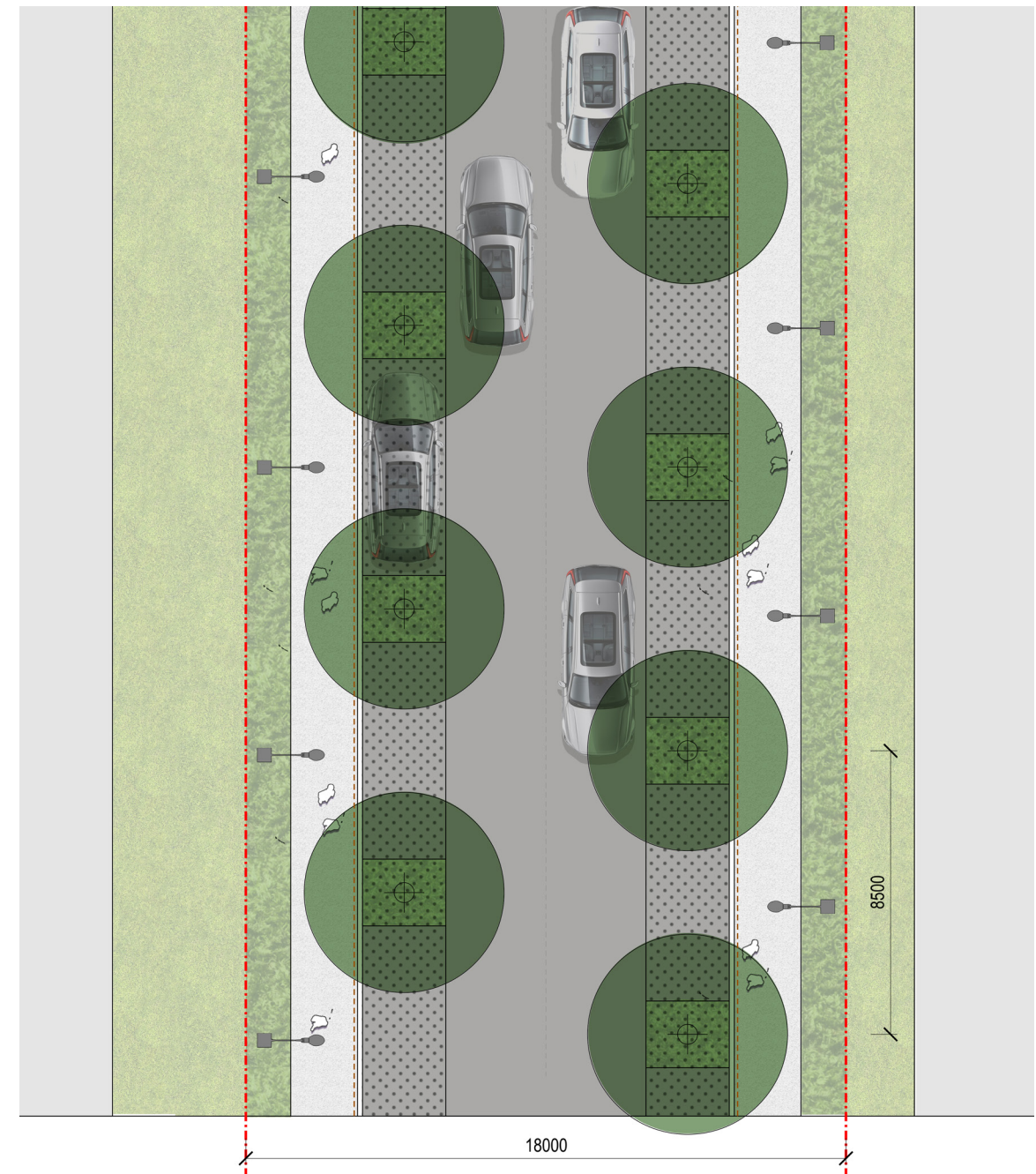
## MAIN STREET (ALONG THE VIADUCT)

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



## LOCAL STREET (RESIDENTIAL)

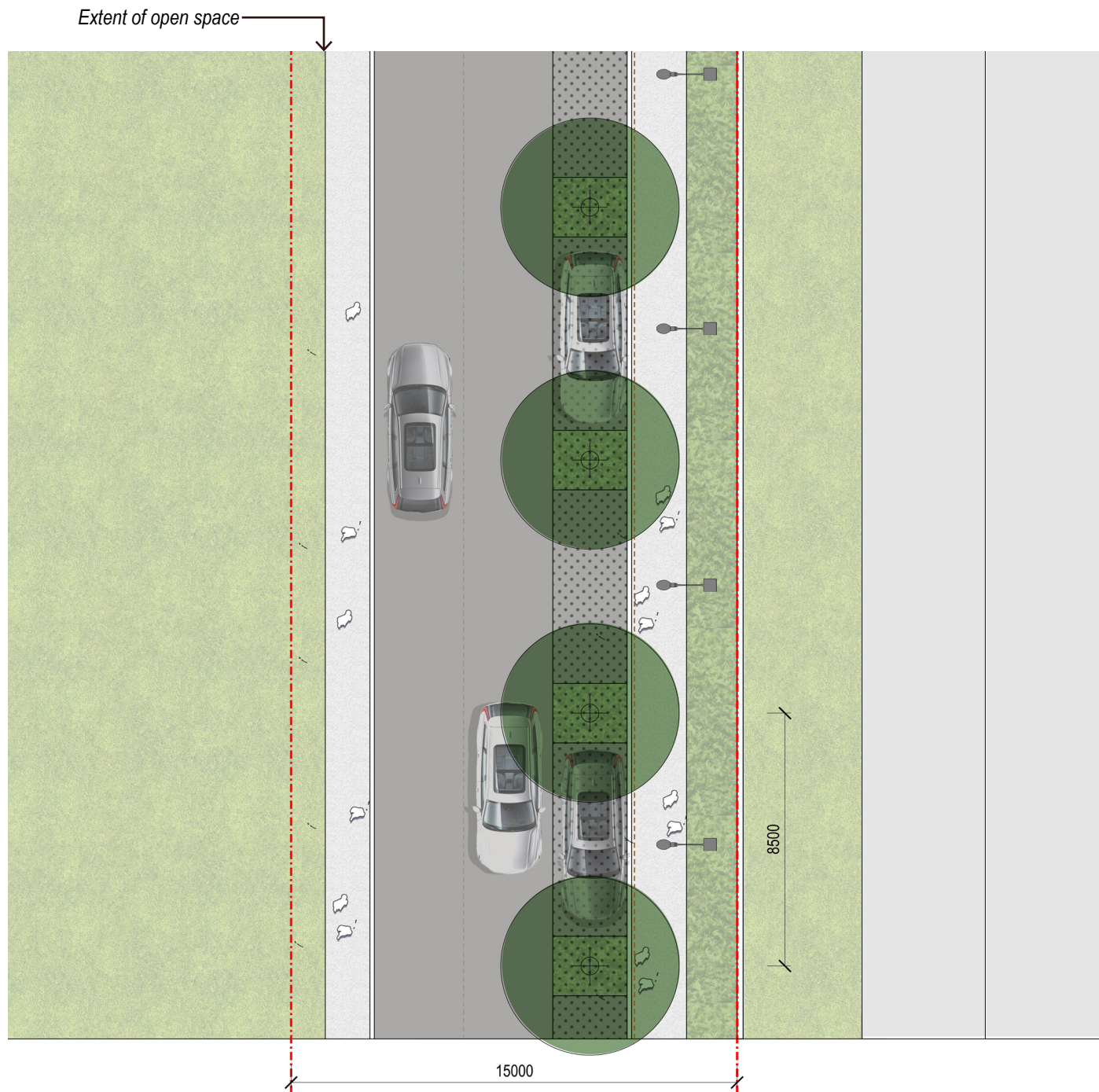
Kellyville - Residential

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



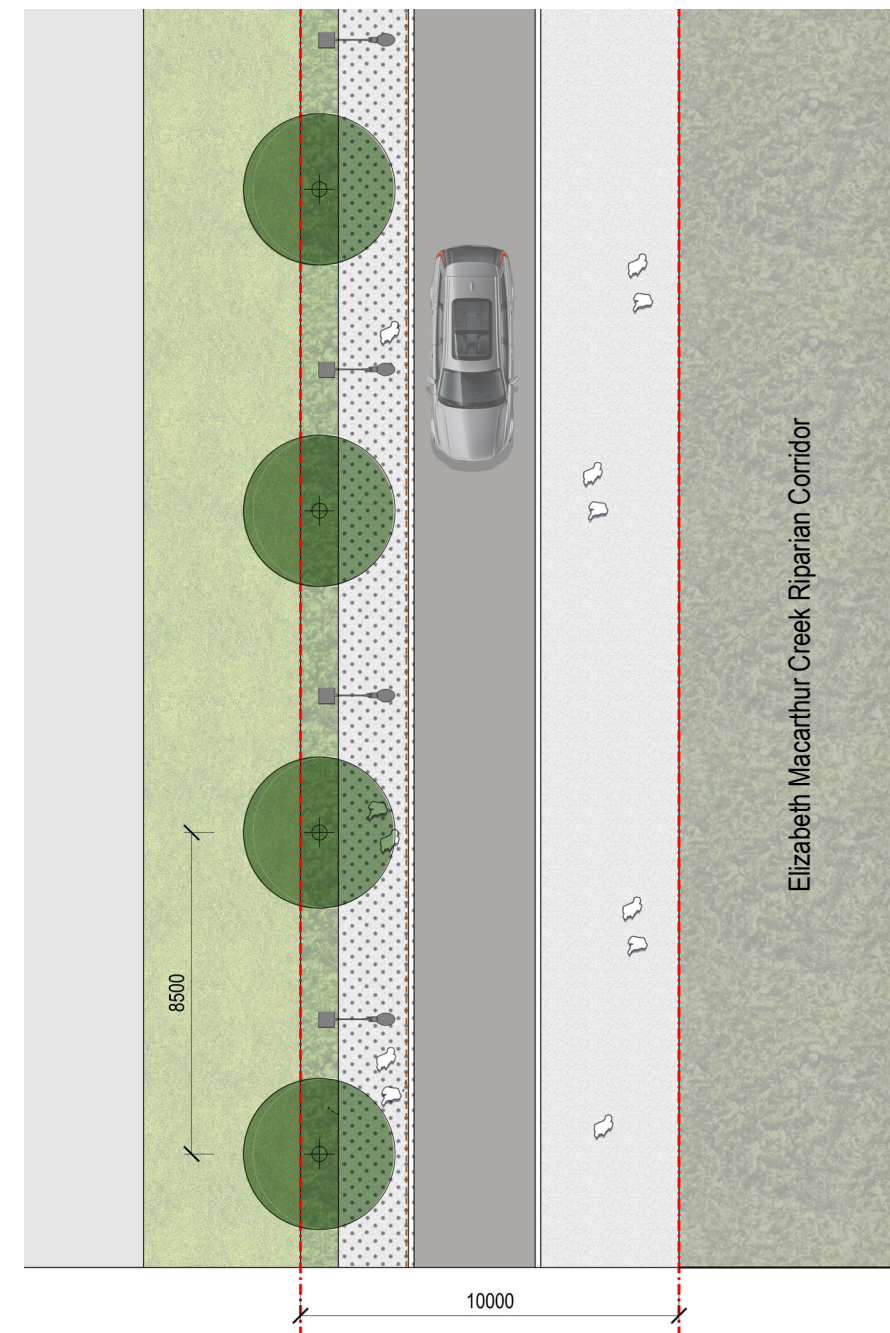


## LOCAL STREET (ADJACENT TO LOCAL URBAN PARK)

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



## PERIMETER ROAD ALONG RIPARIAN

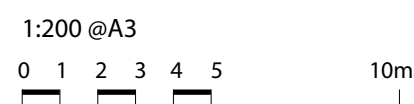
Kellyville - Riparian

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

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



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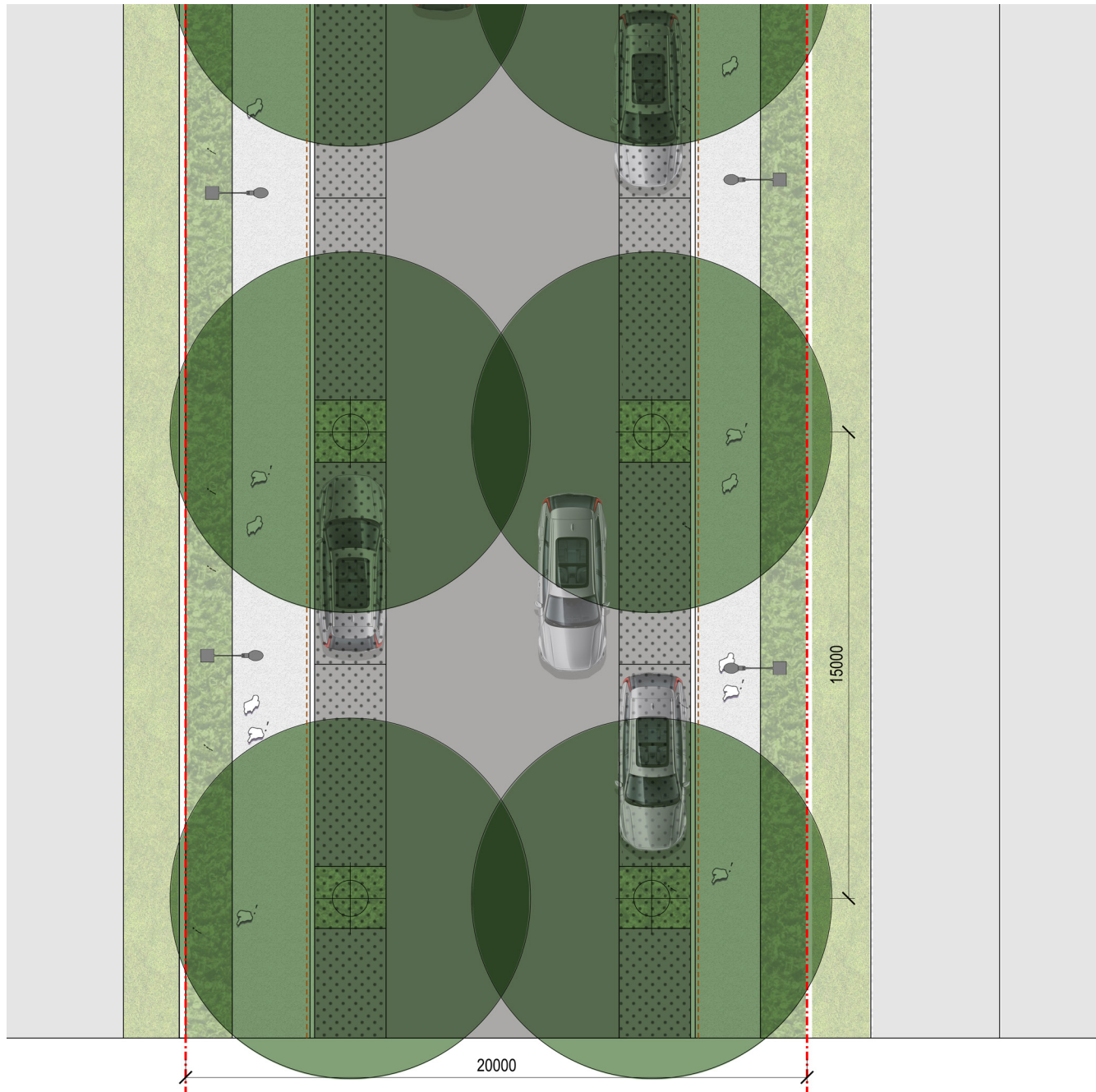
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

URBAN TREE CANOPY COVERAGE - DETAIL PLANS

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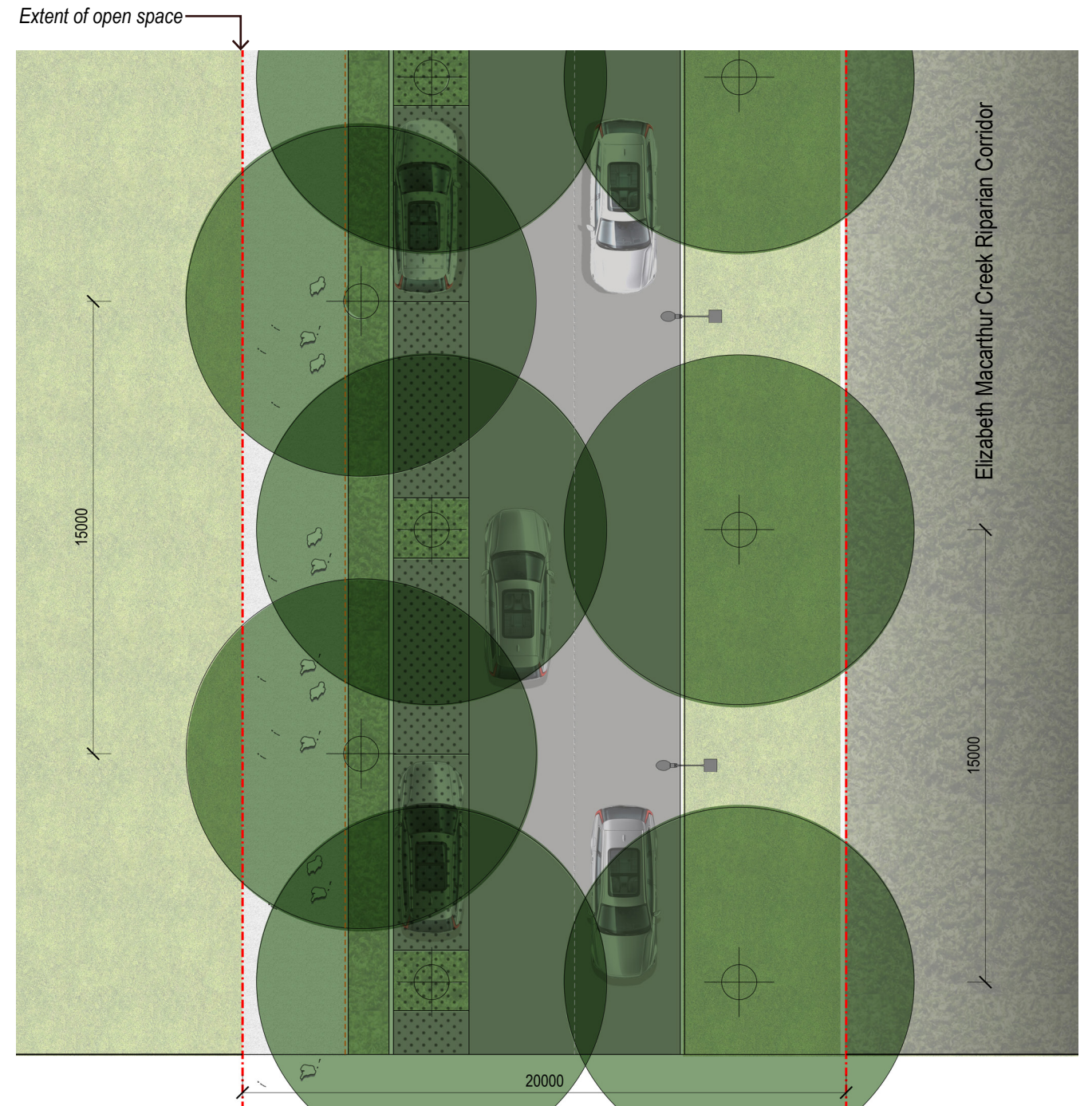


## MAIN STREET

### Bella Vista - Residential

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



## MAIN STREET

### Bella Vista - Open Space and Riparian

Tree Spacing: 15m (Two carparks between trees)  
Road corridor width: 20m from setback to setback  
Side of road with trees: 3

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



Client:  
Landcom



1:200 @A3  
0 1 2 3 4 5 10m

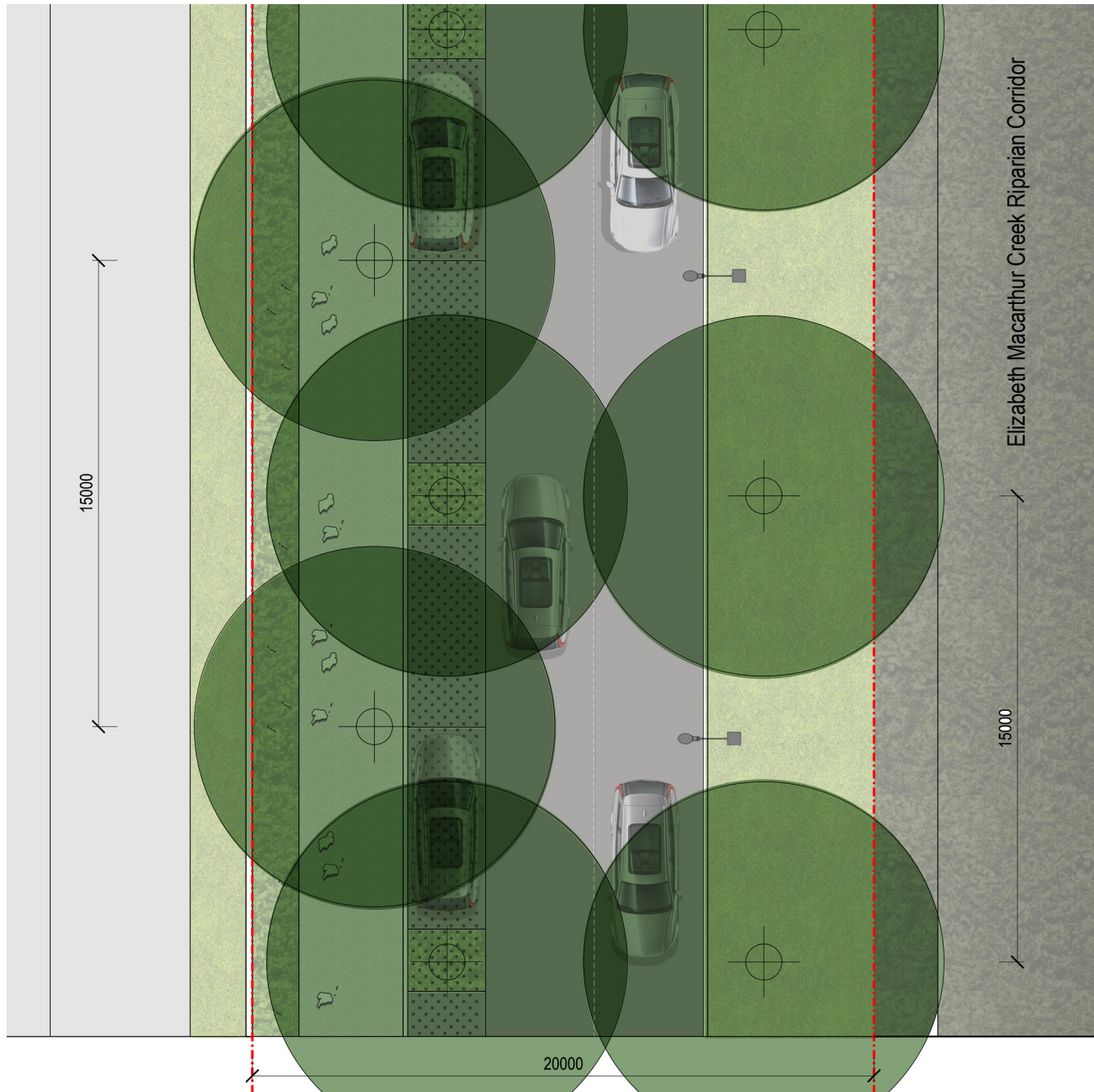
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

URBAN TREE CANOPY COVERAGE - DETAIL PLANS

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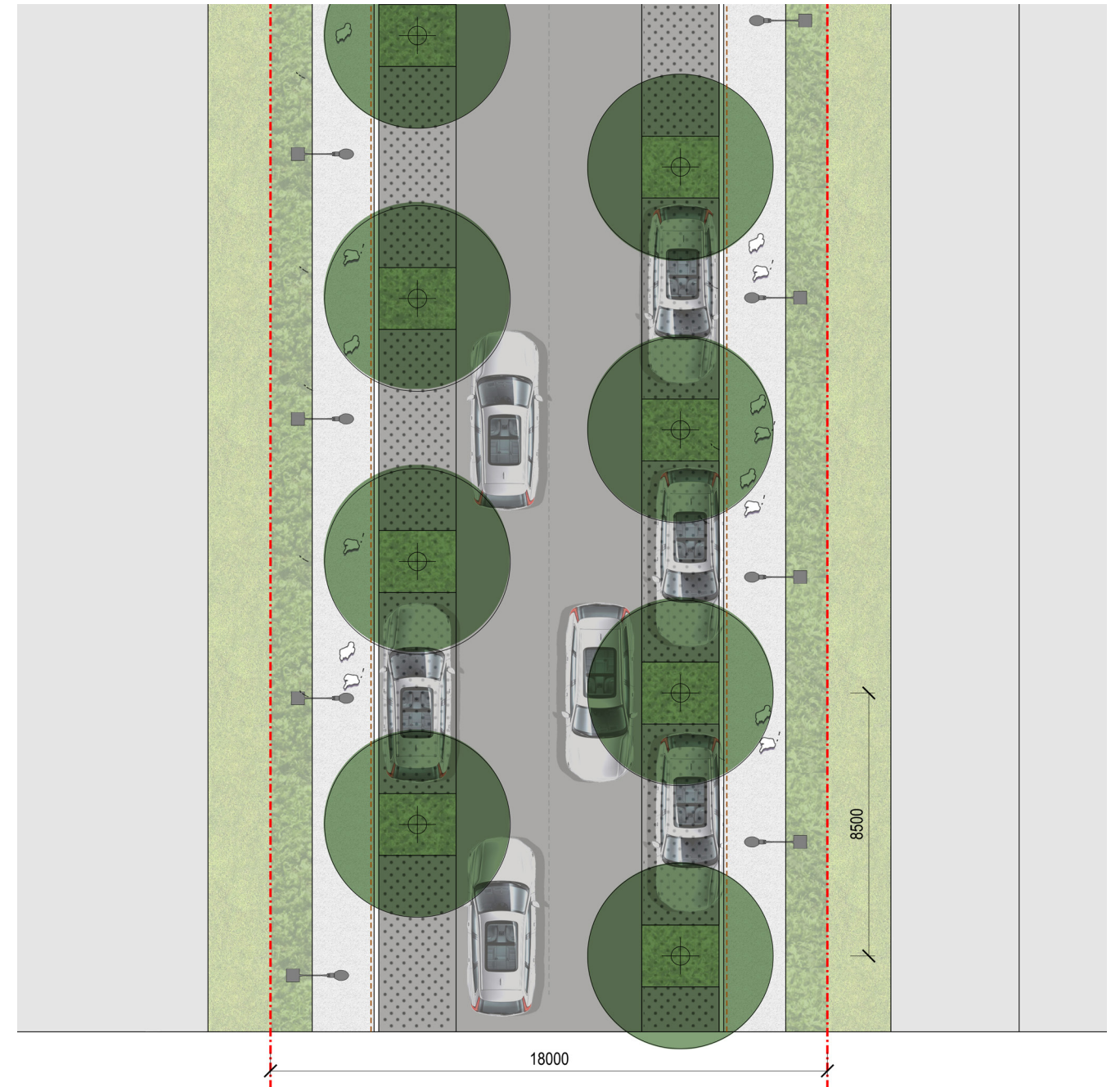
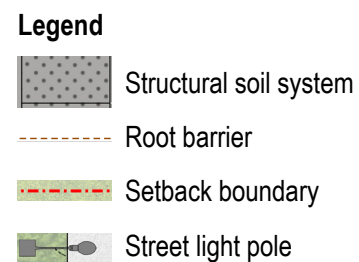




## MAIN STREET

Bella Vista - Residential and Riparian

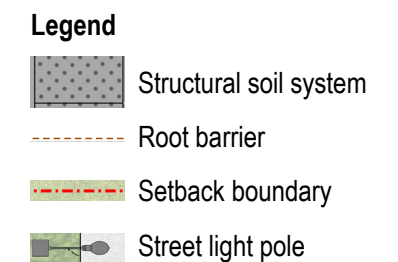
Tree Spacing: 15m (Two carparks between trees)  
 Road corridor width: 20m from setback to setback  
 Side of road with trees: 3



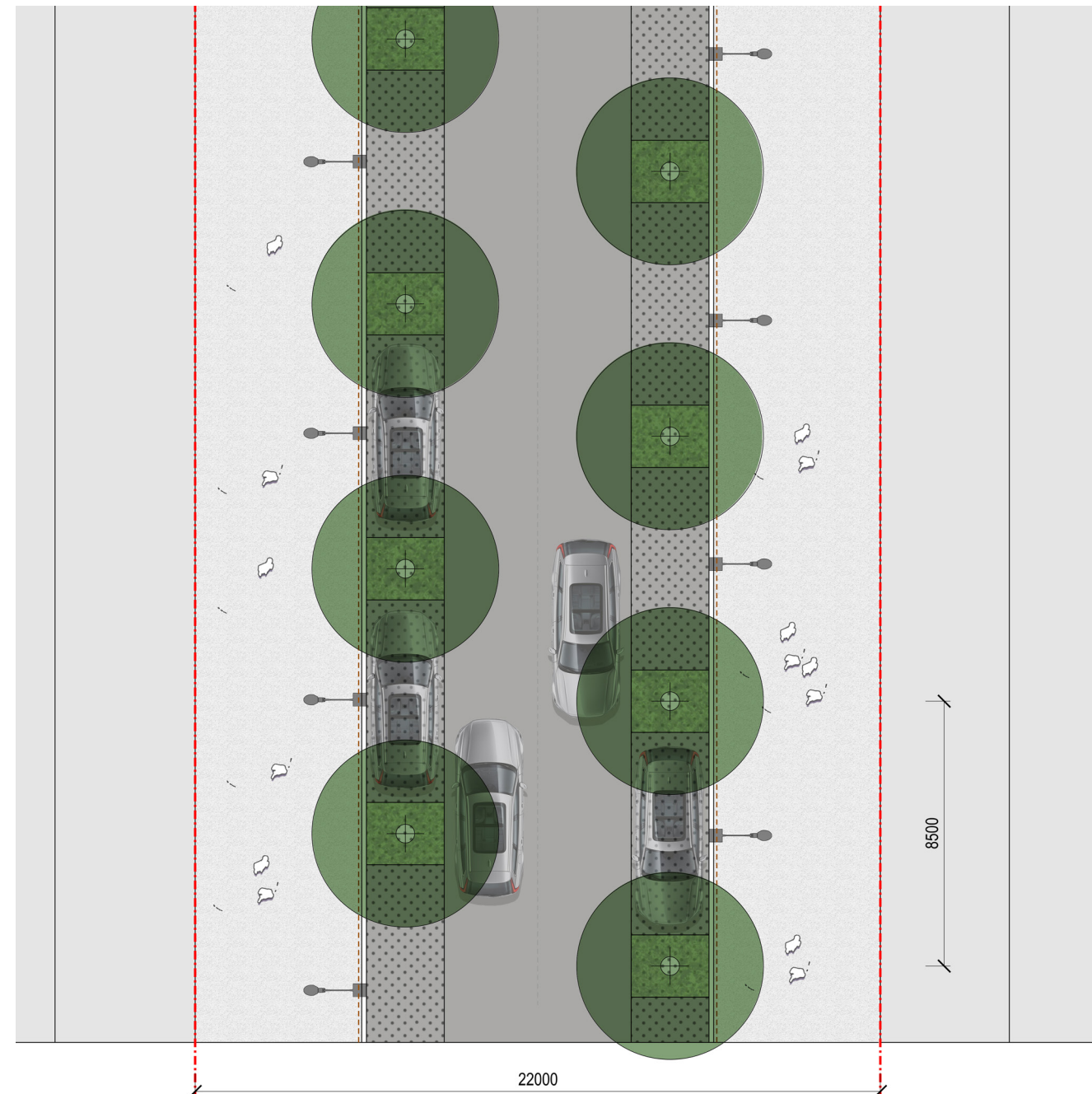
## LOCAL STREET

Bella Vista - Residential

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







## LOCAL STREET

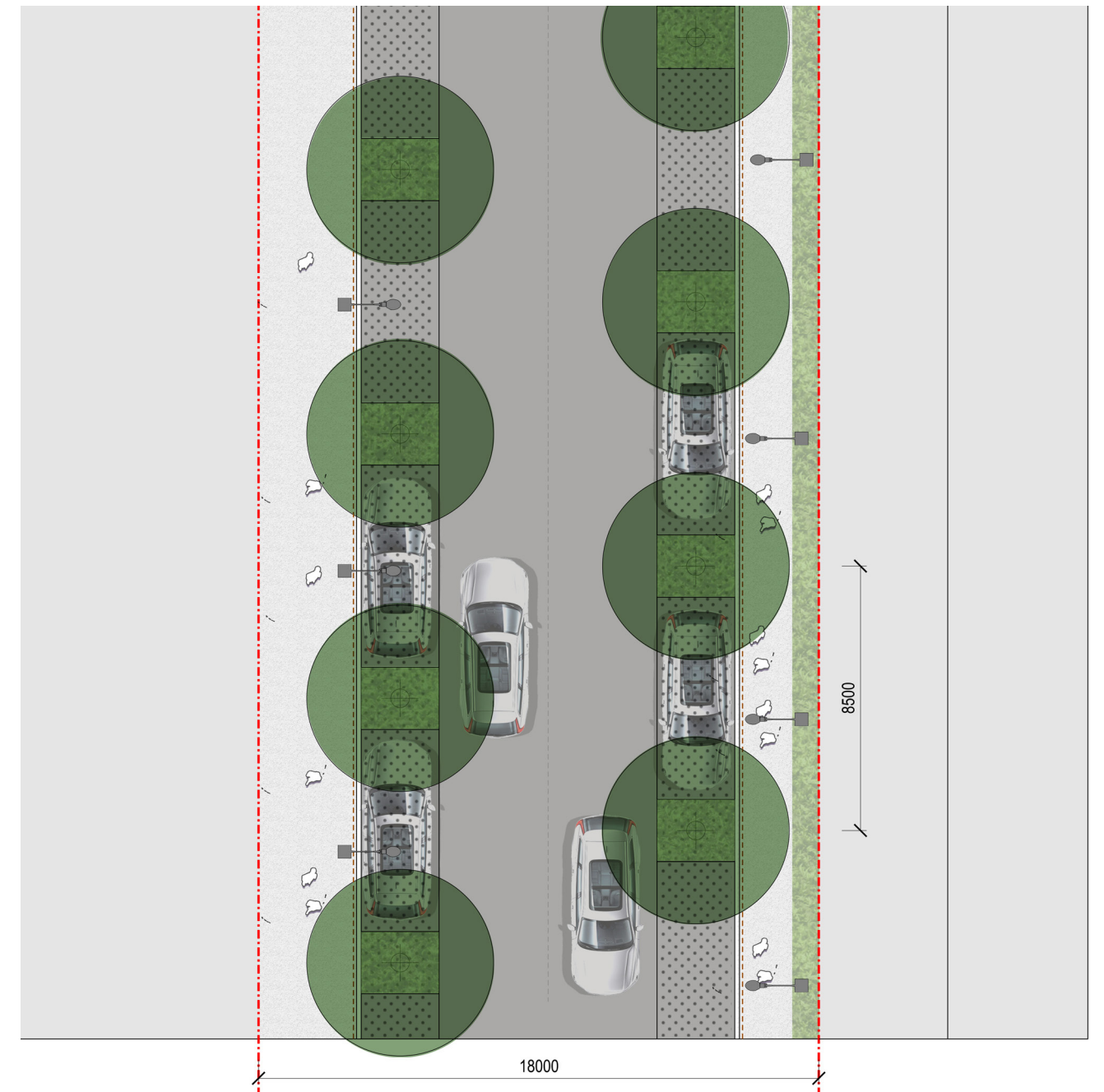
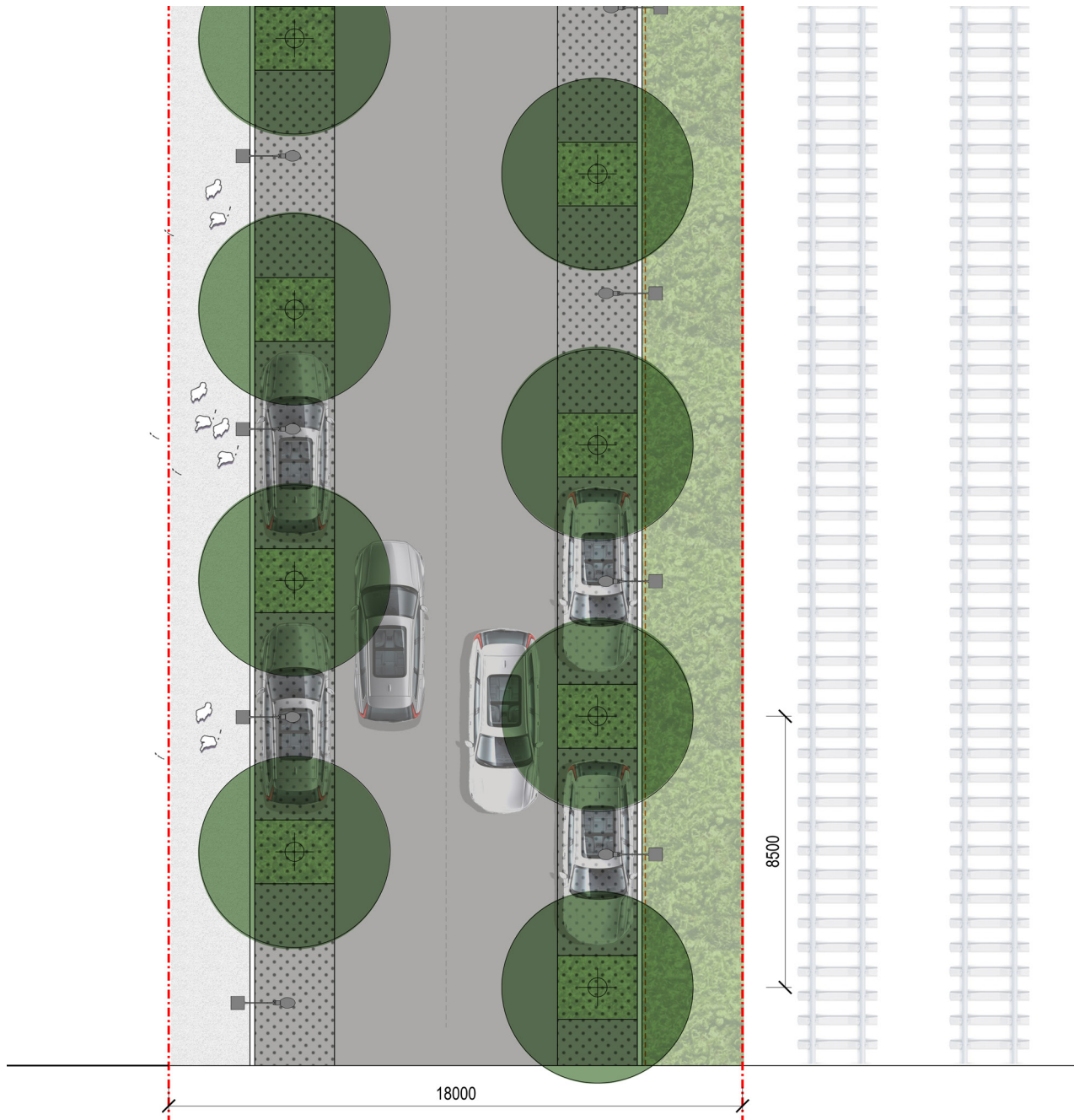
Bella Vista - Commercial

Tree Spacing: 8.5m (One carpark between trees)  
 Road corridor width: 22m from setback to setback  
 Side of road with trees: 2

### Legend

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





## LOCAL STREET

### Bella Vista - Viaduct and School

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

## LOCAL STREET

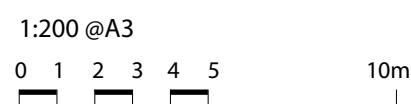
### Bella Vista - Residential and School

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



Client:  
Landcom



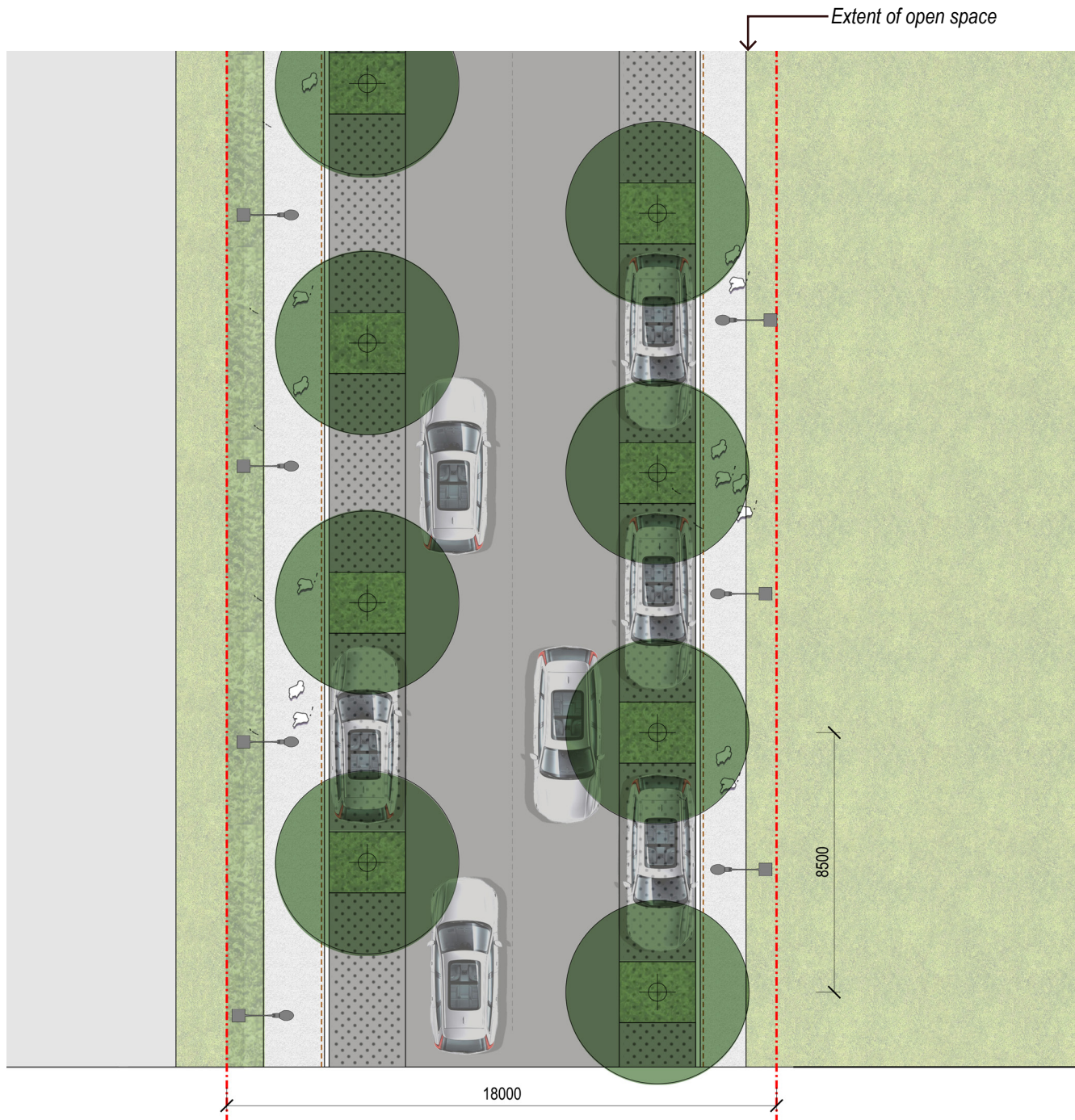
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

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URBAN TREE CANOPY COVERAGE - DETAIL PLANS

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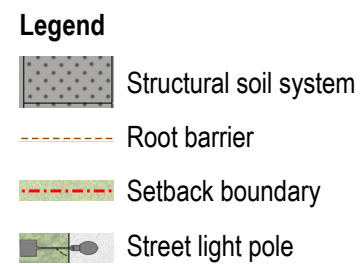




## LOCAL STREET

Bella Vista - Residential and Park

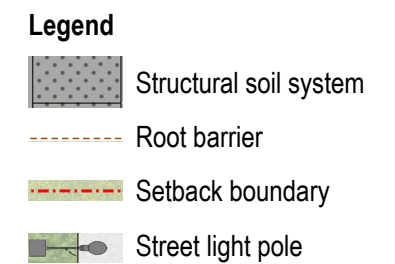
Tree Spacing: 8.5m (One carpark between trees)  
 Road corridor width: 18m from setback to setback  
 Side of road with trees: 2



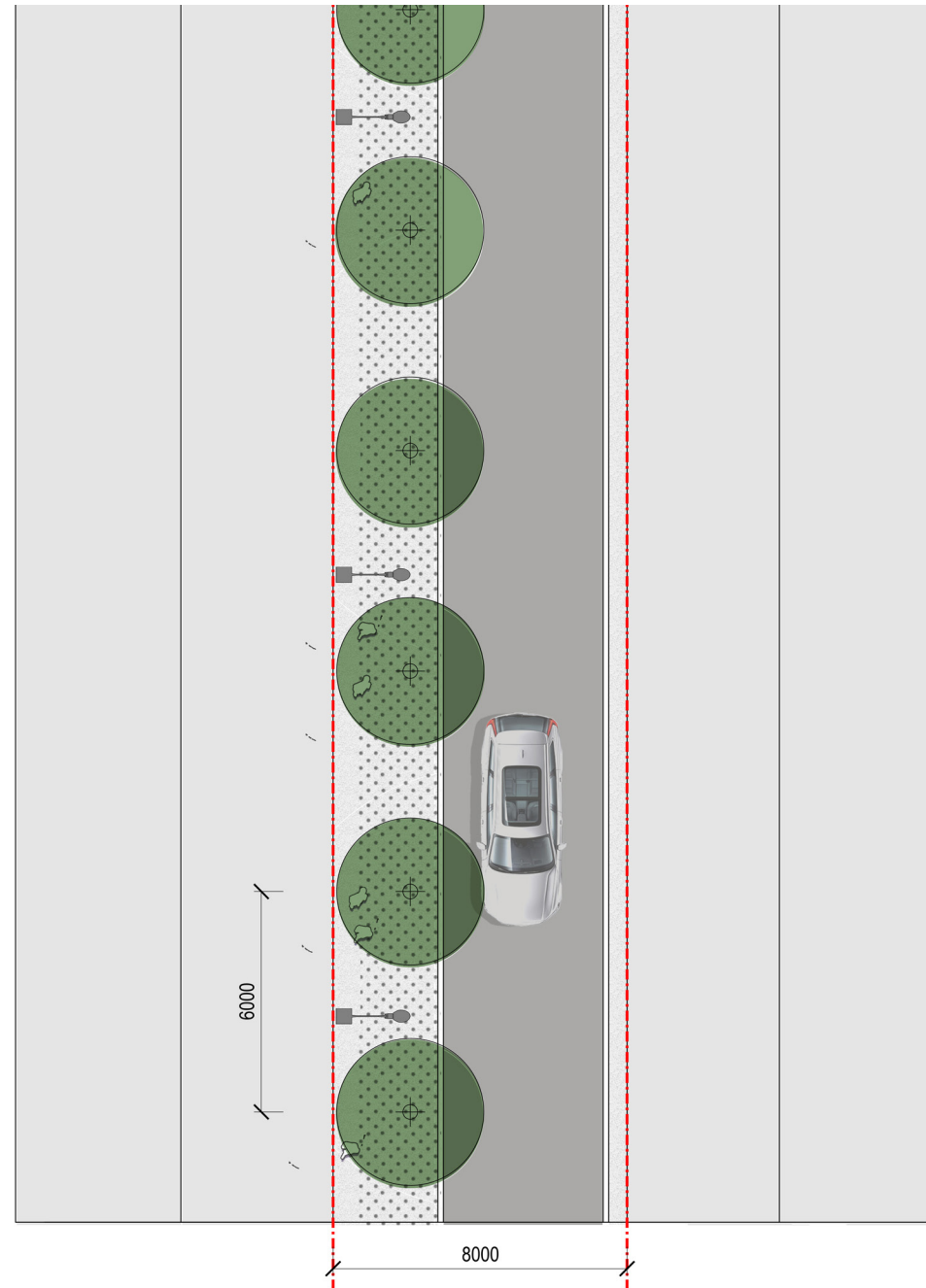
## ONE WAY STREET

Bella Vista - Park and Residential

Tree Spacing: 8.5m (One carpark between trees)  
 Road corridor width: 9m from setback to setback  
 Side of road with trees: 1











**LANEWAY - PRIVATE**  
Bella Vista - Residential

Tree Spacing: 6m (No carpark)  
Road corridor width: 8m from setback to setback  
Side of road with trees: 1

**Legend**






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



STREET TYPOLOGIES

The plan on the right and overleaf provide a rationale and further explanation of street typologies for both Kellyville and Bella Vista Precincts.

Legend

-  Main Street - Viaduct  
Two lane vehicular road with parking and pedestrian footpaths running along both sides of street with connections to Residential lots and Open Space provision to the west of the Viaduct
-  Main Street - Riparian  
Two lane vehicular road with single parking lane along the residential side of the street and pedestrian footpaths running along both sides of the street. Connection to Riparian Open Space and shared paths is the key aspect
-  Main Street - Residential and Park  
Two lane vehicular road with parking lanes and pedestrian footpaths running along the Residential lots and Public Park. Easy access between road corridor and Open Space is a key requirement. Eastern street includes bridge link across Elizabeth Macarthur Creek.
-  Local Street - Residential  
Two lane vehicular road with parking lanes and pedestrian footpaths running along the Residential lots. Footpaths and verge planting soften the street corridor edge to Residential lots.
-  Local Street - 15m Park and Residential  
Two lane vehicular road with single parking lane along residential lots and pedestrian footpaths running along the both sides of the street. Easy access between road corridor and Open Space is a key requirement.
-  Perimeter Road along the Riparian Corridor  
One way vehicular road pedestrian footpath along residential lots and generous shared pedestrian and bicycle path running along the Riparian Corridor.
-  Existing vehicular and pedestrian network with connections to development sites
-  Main vehicular roads and pedestrian footpaths already constructed to facilitate access to the Metro Station



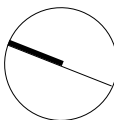
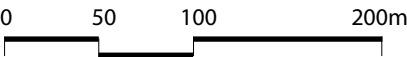
Kellyville Street Typologies Plan

Adjoining Page 23



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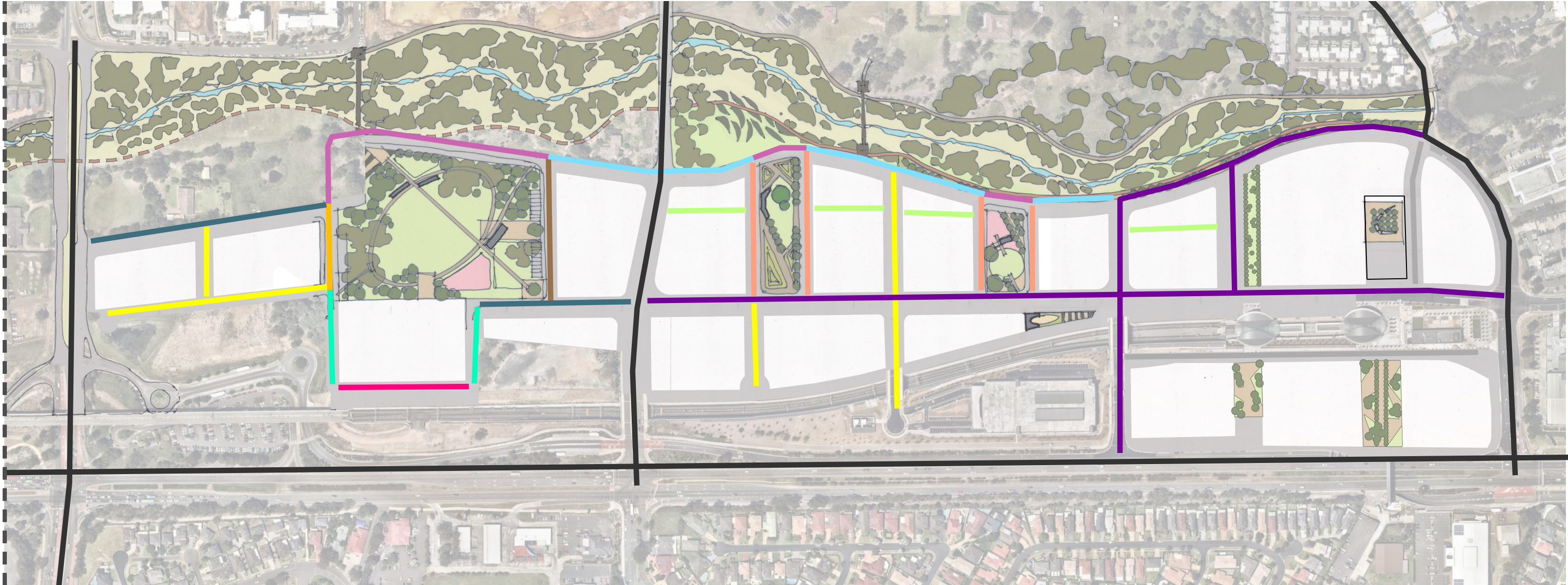
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

STREET TYPOLOGIES AND RATIONALE

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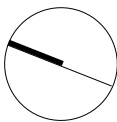
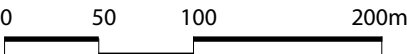
Bella Vista Street Typologies Plan

Legend			
	<b>Main Street - Residential</b> Two lane vehicular road with parking and wide pedestrian footpaths. Planted verges against the Residential lots provide a buffer for pedestrians		<b>Local Street - Residential</b> Two lane vehicular road with single parking lane and very generous pedestrian footpath running along Open Space. Connection to Riparian Open Space and paths is the key aspect
	<b>Main Street - Open Space and Riparian</b> Two lane vehicular road with single parking lane and very generous pedestrian footpath running along adjacent Open Space. Connection to Riparian Open Space and paths is the key aspect		<b>Local Street - Commercial</b> Two lane vehicular road with parking lanes and wide pedestrian footpaths to allow for street and frontage activation for dining experiences, etc.
	<b>Main Street - Residential and Riparian</b> Two lane vehicular road with single parking lane and very generous pedestrian footpath running alongside the Residential lots. Connection to Riparian Open Space and paths key aspect		<b>Local Street - Residential and Park</b> Two lane vehicular road with parking lanes and pedestrian footpaths running along the Residential lots and Public Park. Easy access between road corridor and Open Space is a key requirement.
			<b>Local Street - Sydney Metro and School</b> Two lane vehicular road with parking lanes and generous pedestrian footpath along the school boundary. Screen planting to Metro.
			<b>Local Street - Residential and School</b> Two lane vehicular road with parking lanes and generous pedestrian footpath along the school boundary.
			<b>One Way Street - Park and Residential</b> One lane vehicular road with parking lane and pedestrian footpath along Residential boundary.
			<b>Laneway - Private</b> Generous vehicle laneway with combined pedestrian and tree zone.
			<b>Local Street - Residential and Park 3.5m lanes</b> Two lane vehicular road with parking lanes and pedestrian footpaths running along the Residential lots and Public Park. Easy access between road corridor and Open Space is a key requirement.
			<b>Existing vehicular and pedestrian network with connections to development sites</b>
			<b>Main vehicular roads and pedestrian footpaths already constructed to facilitate access to the Metro Station</b>



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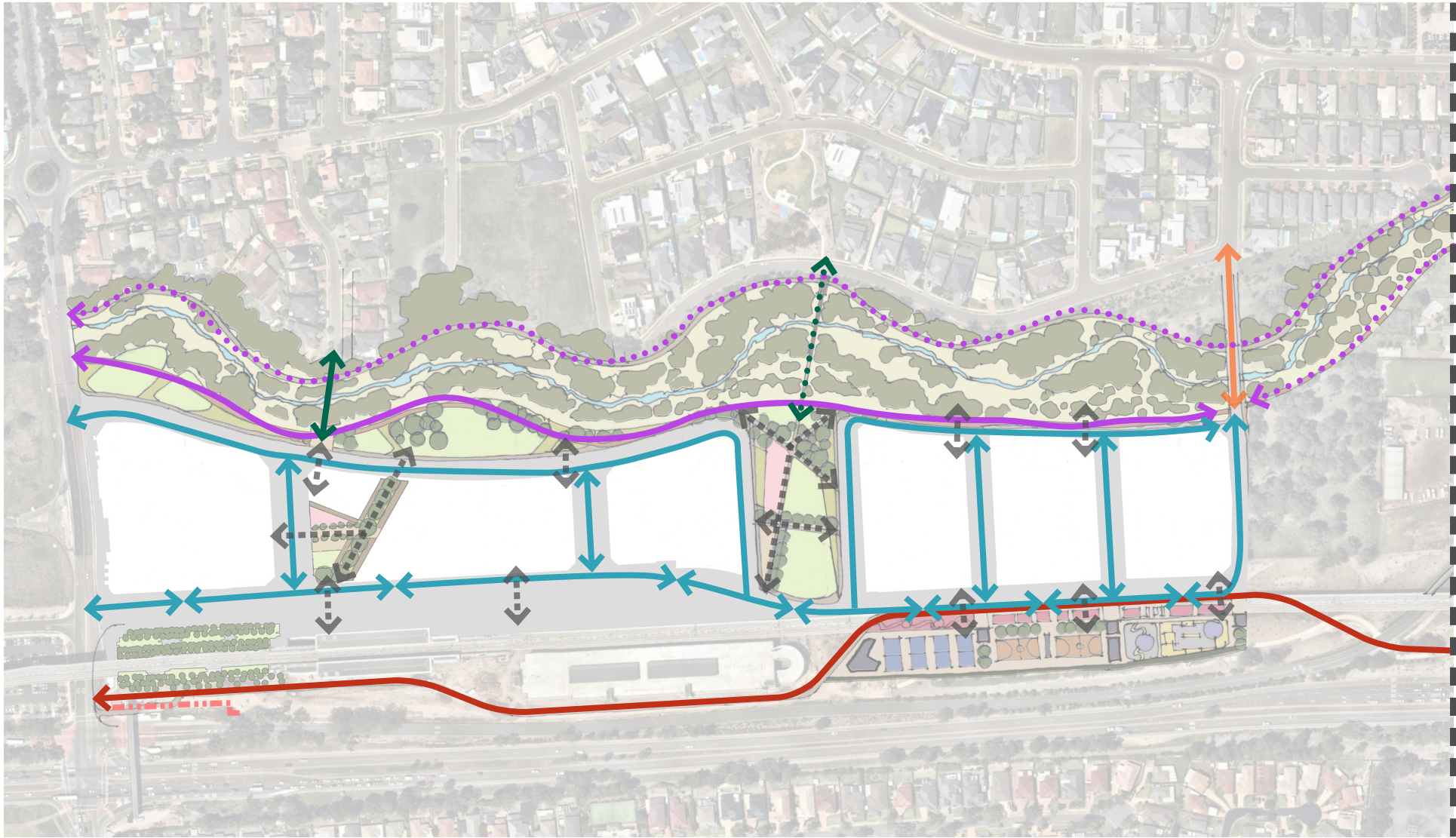


PEDESTRIAN AND VEHICULAR MOVEMENT

The plans on the right and overleaf illustrate the pedestrian and vehicular circulation by illustrating both movement and the critical connection across to Elizabeth Macarthur Creek.

Legend

- Suggested pedestrian movement through open space and pedestrian crossings (subject to future detailed design)
- Proposed shared path within riparian corridor
- Existing active transport corridor along viaduct with signalised crossings
- Potential shared path connection within riparian corridor
- One way vehicular and pedestrian movement (Footpath on one side or both sides of the street)
- Two direction vehicular and pedestrian movement (Footpath on one side or both sides of the street)
- Potential future vehicular and pedestrian connection
- Proposed footbridge
- Potential future footbridge
- Proposed road bridge for vehicles, cyclists and pedestrians



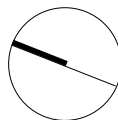
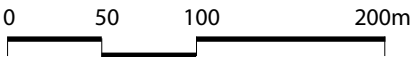
Adjoining Page 25



Client:  
Landcom



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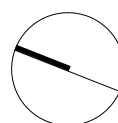
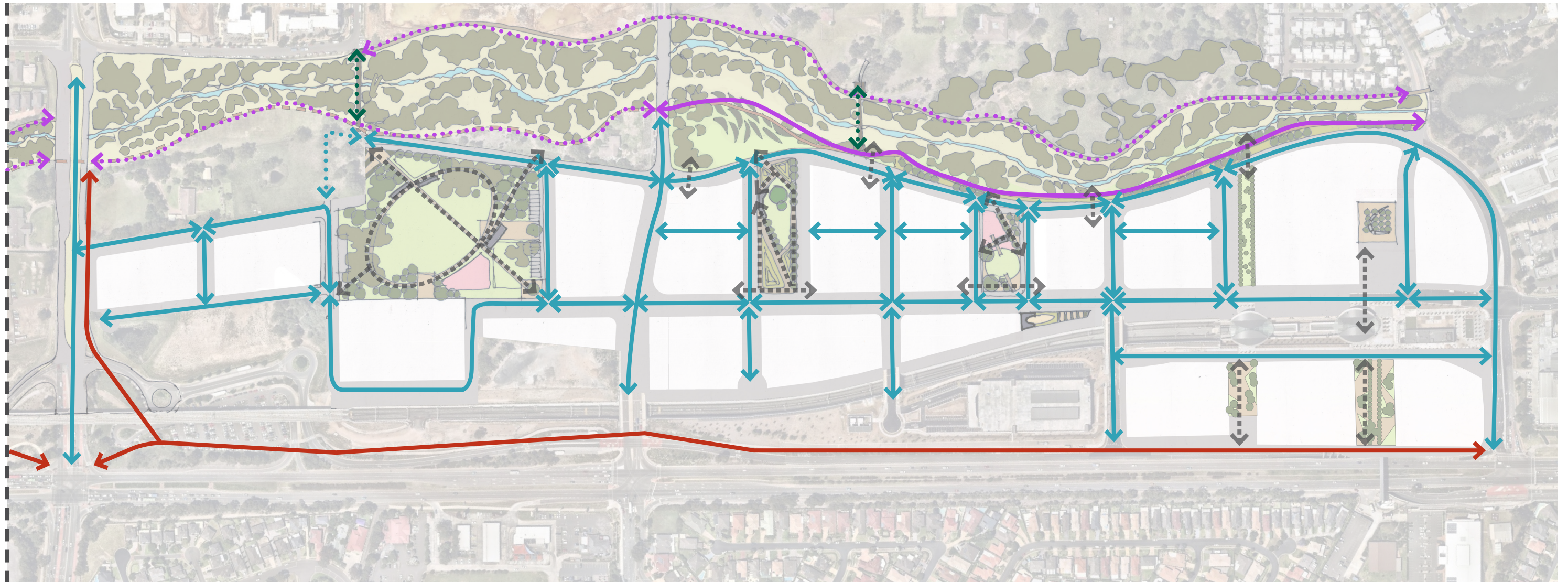
KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

PEDESTRIAN AND VEHICULAR CIRCULATION

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PROJECT CREDITS

CLIENT  
LANDCOM

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**KELLYVILLE AND BELLA VISTA STATION PRECINCT**  
**Landscape Master Plan and Open Space Strategy**  
**S18-0057**

Issue N • 17/06/2020





Cover Image:  
Looking at Elizabeth Macarthur Creek

Inside Cover:  
Lewis Jones Dr Reserve on the eastern side of Elizabeth Macarthur Creek



**CLOUSTON** associates  
KELLYVILLE AND BELLA VISTA  
STATION PRECINCT  
MASTER PLAN

Client:  
Landcom



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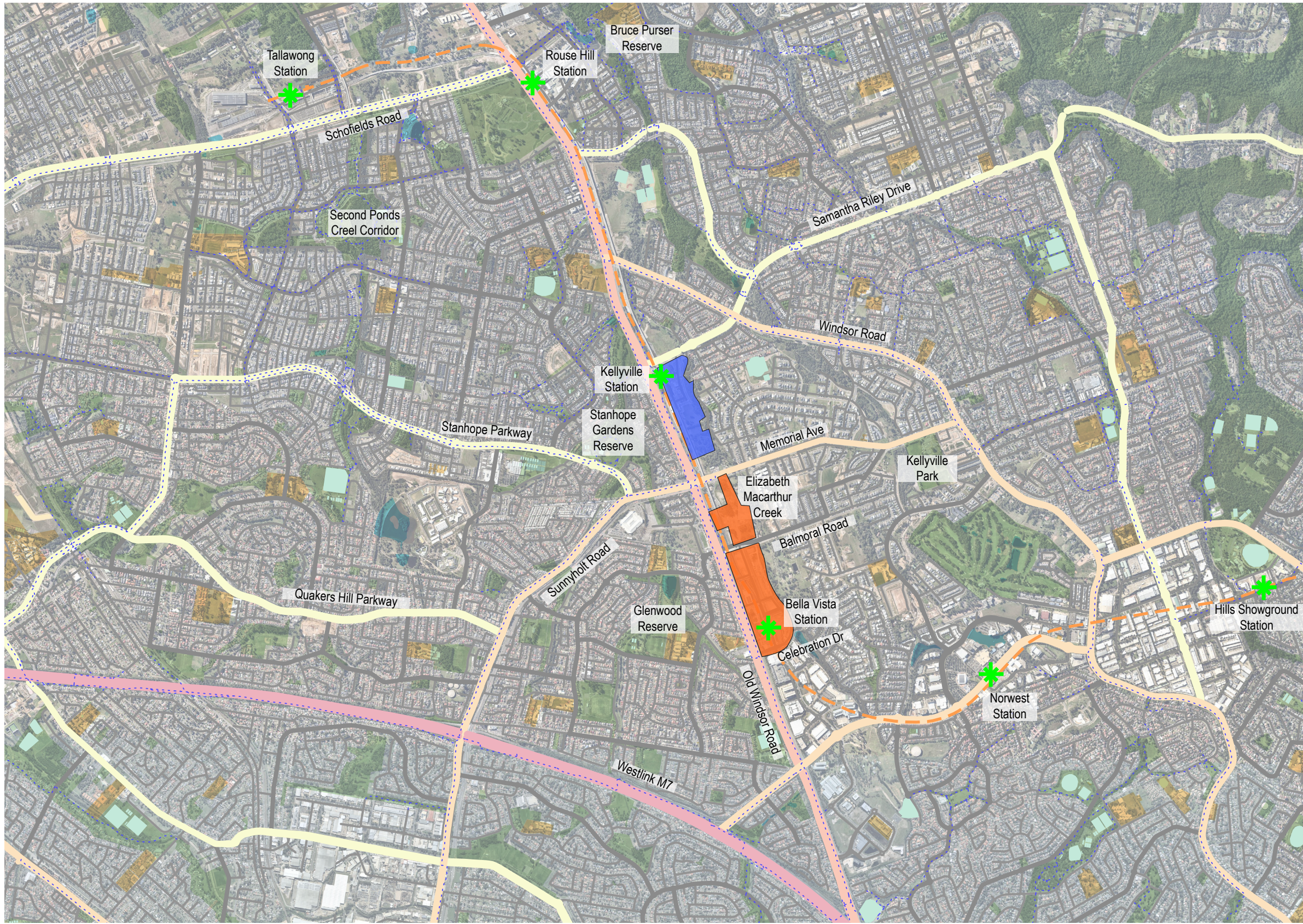
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Elizabeth Macarthur Creek near Celebration Drive and Brighton Drive





- LEGEND**
- KELLYVILLE PRECINCT WITHIN SSD BOUNDARY
  - BELLA VISTA PRECINCT WITHIN SSD BOUNDARY
  - EXISTING GREEN CORRIDORS
  - EXISTING SPORT FACILITIES
  - EXISTING WATER BODIES
  - EXISTING PUBLIC INFRASTRUCTURE
  - MOTORWAY
  - MAIN ROAD
  - ARTERIAL ROAD
  - COLLECTOR ROAD
  - LOCAL ROAD
  - METRO LINE
  - EXISTING CYCLE NETWORK
  - METRO STATION

NOT TO SCALE

Figure 1.1 Site location and context



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# 1.0 INTRODUCTION

## BACKGROUND

The Bella Vista and Kellyville Station Precincts form part of a network of eight station precincts along the Metro North West Line (Mnwl).

The NSW Government has identified both as Priority Precincts to support and drive the urban renewal of surplus lands from the construction of the Mnwl Metro into a new urban environment.

Bella Vista and Kellyville Station Precincts are envisaged to provide for up to 9,400 and 1,000 new jobs respectively and the delivery of up to 8,400 new homes, shared between both precincts. (GLN planning 2019).

## KELLYVILLE STATION PRECINCT

The Precinct spans the alignment of the Mnwl corridor, comprising an approximate 900m stretch of government owned land. Extending from Samantha Riley Drive in the north towards Memorial Avenue in the south, and bound by Old Windsor Road to the west. As well as existing Roads and Maritime Services (RMS) land to the south and Elizabeth Macarthur Creek to the east. (See Figure 1.1 overleaf)

The land immediately surrounding Kellyville Station is predominantly occupied by construction activities associated with the development of the Mnwl, including site compounds and car parking areas.

A commuter car park is situated adjacent to Samantha Riley Drive, accessed via a temporary roundabout. Lands south of Wuban Avenue to the southern extent of the precinct remain largely undeveloped and in their existing rural residential state.

## BELLA VISTA STATION PRECINCT

The Precinct spans the alignment of the Mnwl corridor comprising an approximate 1.4 km stretch of government owned land, extending from Celebration Drive in the south to Memorial Avenue in the north and generally bound by Old Windsor Road to the west and Elizabeth Macarthur Creek to the east. (See Figure 1.1 overleaf)

The Precinct is occupied by new road and railway infrastructure and the new Bella Vista Station is located at the southern end of the Precinct.

Other existing site activities and works include a multi-storey commuter car park immediately north of the station and a construction site compound in the north of the precinct between Balmoral Road and Memorial Avenue (GLN planning 2019).

## THE STATE SIGNIFICANT DEVELOPMENT APPLICATION (SSDA)

This Landscape Master Plan and Open Space Strategy Report has considered the entire precinct in the following aspects:

- open space hierarchy, provision and distribution
- open space and precinct connection into wider context
- public domain and street typologies
- connection between both precinct and Elizabeth Macarthur Creek

The Concept SSD Application will set out the concept proposal for the future development of the Kellyville and Bella Vista Station Precinct. The application is only required to demonstrate and consider the likely impacts associated with the concept proposal, not the likely impact of any development that would be subject to a separate development application.

Development consent will be sought for a concept development application pursuant to section 4.22(1) of the Environmental Planning and Assessment Act 1979 (EP&A Act), which sets out the concept proposal for each station precinct. For more detailed information regarding the station precinct proposals, please refer to the Kellyville and Bella Vista Urban Design Reports.

The concept SSDA does not seek development consent for any physical works. All development set out in each concept proposal will be subject to a separate approval pathway.

## PREVIOUS STUDIES AND REPORTS

In 2015 Landcom (then UrbanGrowth NSW) engaged consultants, Roberts Day, to prepare a preliminary concept Master Plan for the Kellyville and Bella Vista precincts. The Roberts Day Master Plan formed the starting point for the detailed Master Planning of the precincts, establishing an urban form that locates all land uses and built form, street types, public realm and landscape. This document describes and details the public realm and landscape aspects of the Master Plan.

## PROJECT OBJECTIVES

Landcom's key objectives for this project are to:

- establish a framework to support the urban renewal of the precinct for a mixed use development that delivers new residential dwellings, integrates land use, transport and infrastructure
- create an urban environment built upon the principles of transit orientated development that fosters high patronage of the Sydney Metro Network
- make provision for a range of new community and open space social infrastructure to support the social needs of the future Kellyville and Bella Vista Station Precincts residents and worker communities, including new town squares and linear open space network along the western fringe of Elizabeth Macarthur Creek
- secure a site with a minimum area of 1 ha, collocated with local open space for the establishment of a future educational establishment for primary school aged students
- enhance pedestrian and cyclist connections between the station precinct and surrounding urban environments to maximise patronage of the Sydney Metro and associated amenities
- enhance customer experience and urban amenity through the development of an integrated design concept that ensures delivery of a quality public domain area with strong connections to the site's surroundings
- embrace sustainability initiatives, including the implementation of reduced car parking requirements, water cycle management and water-sensitive design and measures intended to improve the environmental performance of buildings.

## LANDSCAPE AND PUBLIC REALM OBJECTIVES

The public realm and landscape proposals described and illustrated in this document draw on national and international best practice and align with the core project objectives of developing a Master Plan and strategy that:

- provides a landscape and public realm that responds to the landscape values and community development within the locality
- conserves and enhances the site's natural, cultural and heritage values
- promotes and integrates liveability, walkability, recreation and active transport
- meets the outdoor leisure and recreation needs of its new population
- uses street planting and landscape to reduce the impacts of the urban heat island effect in the public domain
- connects and enhances Elizabeth Macarthur Creek.

Importantly, the precincts are bounded by Old Windsor Road and Elizabeth Macarthur Creek. The Master Plan seeks to extend pedestrian and cycle connections (both on and off-road) into the adjoining locality.



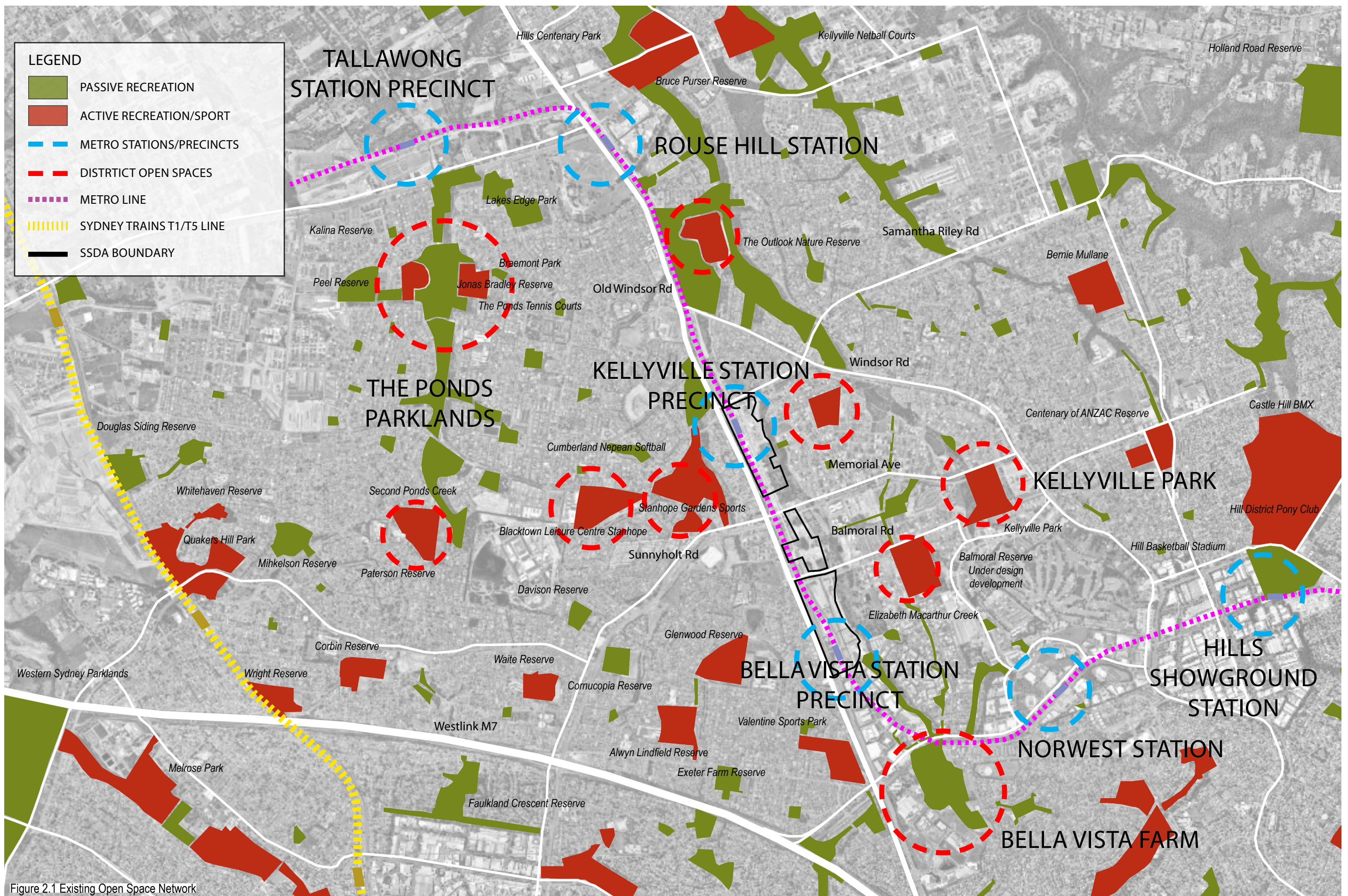
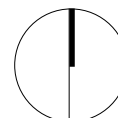


Figure 2.1 Existing Open Space Network





2.0 SITE OVERVIEW AND CONTEXT

THE SITE

The Kellyville Station Precinct site is approximately 18.8 hectares in area and is comprised of 18 allotments of government owned land, extending from Samantha Riley Drive in the north to Memorial Avenue in the south.

The Bella Vista Station Precinct site is approximately 33.79 hectares in area and is comprised of 1.4km stretch of government owned land, extending from Memorial Avenue in the north to Celebration Drive in the south.

Both Precincts lie immediately to the west of the Elizabeth Macarthur Creek corridor.

The annotated photos in Section 3 - Site Appreciation and Views Analysis illustrate the site's existing character and in particular demonstrate the precincts' relationship to Memorial Avenue, Samantha Riley Drive and Celebration Drive. Well established, existing trees are found to the east of Elizabeth Macarthur Creek Corridor, see Image 1 in Section 3 - Site Appreciation and Views Analysis.

OPEN SPACE IN THE LOCALITY AND DISTRICT

The existing public open space and associated environmental corridors in the wider district context of the precincts are illustrated in Figure 2.1.

As can be seen, the immediate locality and district is well serviced with existing public open space, the principal sites of which are listed below under their respective setting types.

Unstructured Recreation Parks

- Waite Reserve
- Faulkland Crescent Reserve
- Whitehaven Reserve
- Douglas Siding Reserve
- Davison Reserve
- Second Ponds Playground
- Kalina Reserve Park
- Tanunda Park
- Greenview Park
- Arrowroot Park
- Lakes Edge Park
- Braemont Park
- Connor Greasby Park
- Reserve 636
- The Gathering Park
- Edgewood Park

- Stoddart Park
- Lewis Jones Drive Reserve
- Barker Street Reserve

Sports Reserves

- Exeter Farm Reserve
- Valentine Sports Park
- Alwyn Lindfield Reserve
- Cornucopia Reserve
- Caddies Creek Reserve
- Glenwood Reserve
- Corbyn Reserve
- Wright Reserve
- Paterson Reserve
- Mihkelson Reserve
- Quakers Hill Park
- Harvey Park
- Peel Reserve
- Jonas Bradley Reserve
- The Ponds Tennis Courts
- Blacktown Leisure Centre
- Stanhope Garden Sports
- Bernie Mullane
- Hills District Pony Club
- Hills Basketball Stadium
- Kellyville Park
- Centenary of ANZAC Reserve
- Hills Centenary Park
- Bruce Purser Reserve
- Kellyville Netball Courts

Bushland

- Second Ponds Creek Conservation Area
- The Outlook Nature Reserve
- Caddies Creek Reserve

Creek Corridors

- Second Pond Creek

- Strangers Creek
- Elizabeth Macarthur Creek
- Breakfast Creek

Future Open Space

- Balmoral Reserve
- Rutherford Reserve

OPEN SPACE ACCESS AND CONNECTIVITY

The open space connection to the wider context has been investigated of particular note are the following:

- Old Windsor road is a major barrier between both precincts and the open spaces located to the west, highlighting the need for improved pedestrian and cyclists connections
- There are opportunities to maximise connections across Elizabeth Macarthur Creek
- A shared path along Elizabeth Macarthur Creek will be a significant contribution to open space connections
- Connection to the Elizabeth Macarthur Creek corridor for walkers and cyclists heading in a northerly direction will have options to follow a shared path to Caddies Creek Reserve
- Connections into existing Sydney Metro cycle paths network.

The accessibility and connectivity for walkers and cyclists between the Kellyville and Bella Vista precincts and open spaces in the locality are illustrated in Section 5 Design Principle and Strategy.

ADEQUACY OF EXISTING OPEN SPACE

The provision of the existing open space and diversity of recreation opportunities in the locality, provides a baseline from which future open space in the precincts can be evolved.

On this basis, a district level, several local and contributory open spaces along with the adjoining open space network will assist in meeting the future needs of the precinct's community.

SITE APPRECIATION

An illustrated overview of the existing site is provided in captioned photographs overleaf.



3.0 SITE APPRECIATION AND VIEWS ANALYSIS



KELLYVILLE PRECINCT

1



View of Elizabeth Macarthur Creek from Lewis Jones Drive, where existing mature trees will be retained. They will provide a backdrop for Kellyville Station Precinct. Sydney Water is developing proposals for the upgrade of the creek.

3



View across the site down Memorial Avenue from the corner of Arnold Avenue and Memorial Avenue, opportunities for pedestrian and cycleway connection to the wider open space network.

2



Existing park located on the eastern side of the creek, with potential for future connections to Kellyville Station Precinct to reinforce the wider open space network.

4



View from corner of Old Windsor Road and Samantha Riley Drive, the existing pedestrian crossing and footbridge connect the Kellyville Station Precinct and the open spaces on western side of Old Windsor Road.



## 3.0 SITE APPRECIATION AND VIEWS ANALYSIS

5



View across the riparian corridor from corner of Free Settlers Drive and Hodges Road, vegetation should be retained where possible to maximise the tree canopy coverage for both Kellyville and Bella Vista Station Precincts.

7



View across Celebration Drive and the road bridge across the creek. This will be one of the major intersections for vehicles travelling from the eastern side of the creek.

6



View of existing creek, located within close proximity of Bella Vista Business Park. The extension of this shared path network along the creek has been taken into consideration in the landscape Master Plan through both precincts.

8



View from Old Windsor Road and Memorial Avenue intersection. Upgrade on Memorial Avenue due to commence late 2019 by RMS.



BELLA VISTA PRECINCT



4.0 PLANNING CONTEXT

PROJECT OPPORTUNITY

1. Parramatta River Foreshore
2. Parramatta Light Rail
3. Great West Walk: Parramatta to Penrith
4. Duck River Corridor
5. Sydney Metro Northwest
6. Sydney Metro Northwest Potential Extension
7. M7 Motorway Pedestrian and Cycle Link
8. M2 Motorway Pedestrian and Cycle Link
9. Western Sydney Parklands and NW Link
10. Cattai and Caddies Creek Corridors
11. Darling Mills Creek Corridor
12. Parramatta to Penrith Rail Corridor
13. Little Duck Creek Corridor
14. Parramatta to Bankstown Rail Corridors
15. Prospect Reservoir Water Pipeline
16. Prospect Creek Parklands
17. Sydney Metro Northwest to T1 Western Line
18. Windsor Road Active Transport Corridor
19. Duck Creek
20. Rookwood Cemetery
21. M4 Overpass and A'Beckett Creek
22. Parramatta Road Urban Transformation
23. Toongabbie and Blacktown Creeks
24. Lidcombe TAFE, Sydney Uni Precinct
25. Ropes Creek Corridor
26. Second Ponds Creek and The Ponds
27. Parramatta to Strathfield Rail Corridor
28. Blue Gum, Scaly Bark and Guppy Creek
29. Blacktown Creek and Rail Corridor
30. Prospect to Seven Hills Elec Easement
31. North Parramatta and Dundas Creeks
32. Carlingford Rail Line
33. Upper Haslams Creek and Wyatt Park
34. Powells Creek and Mason Park
35. Clay Cliff Creek and Jubilee Park
36. Bells Creek, Marsden Park
37. Killarney Chain of Ponds and Ponds Ck
38. Breakfast Ck and Nth Blacktown CBD
39. Shane's Park and Wianamatta Nature Res
40. Marramarra National Park and Trails
41. Rural Area: Pitt Town to Dural
42. North Parramatta Urban Renewal
43. South Creek
44. First Ponds Creek
45. Hawkesbury River to Wisemans Ferry
46. Old Northern Road to Wisemans Ferry
47. Little Cattai Creek
48. M4 Motorway Corridor
49. Great Western Highway Corridor
50. Lake Parramatta and Hunts Creek
51. Marsden Park Elec Easement



Figure 4.1 West Central District, Sydney Green Grid - Spatial Framework and Project Opportunities by Tyrrell Studio for Government Architect NSW

INTRODUCTION

A number of related planning policies and strategies have been sourced to inform and underpin the rationale for the project site's access to open space, both within and adjoining the site. A brief summary of which is outlined below.

The fundamental premise guiding all best practice in public realm planning is the goal of a 'Liveable City'. In this regard the concept of the "8-80 City" seeks to offer equity to all; what meets the basic needs of an 8 year old or an 80 year old will likely meet the needs of everyone in between.

Central to this objective is the aim of maximising incidental and planned physical activity in which walkability and cycle friendly streets are major drivers. The following summary of best practice and relevant policies draw on this notion.

BEST PRACTICE METRICS FOR OPEN SPACE

Over the last thirty years in Australia and throughout much of the developed world a shift has occurred in the approach to the planning of public open space that is characterised by a move away from a quantity based approach to a more balanced qualitative rationale in which quantity still remains a key consideration.

The NSW State Government is currently preparing a suite of documents that will integrate best practice metrics for open space planning. While there is no clear indication as to the metrics that will be adopted for later guideline documents. The following are some of the KPIs that are currently considered best practice in the field - here in Australia and overseas – and which have been adopted for the purposes of this plan:

- **Access** - accessibility to open space is accepted as a critical metric, with a 400m walking catchment from most residences to public open space suitable for suburban environments. For high density populations (ie 40-60 dwellings/ Ha and above) a 200-250m catchment is considered more appropriate. Access to sports facilities are generally considered to be required at optimally 2kms and no more than 5kms from most residences.
- **Size** – current guidelines typically recommend an optimal 0.5-2 Ha size for local parks, with a minimum of 0.3Ha in more dense urban environments , while District Level Parks are typically recommended to be of 2-5 Ha (dependent on the setting type and larger for sports facilities – usually 10Ha+). Smaller spaces such as carefully located social spaces (eg street corners) also contribute to the fine grain of the public realm, especially in denser developments.
- **Quality** - open space in urban developments should be of high quality and well designed to attract use and activation for a broad range of ages, backgrounds and abilities. The design of open space should focus on social needs and minimise user conflicts; it should also be of robust but appealing design to foster engagement while catering for high levels of use.



# 4.0 PLANNING CONTEXT

- **Quantity** – there has been a shift away from calculating the amount of open space required in any locality based on Ha/per 1000 person standard towards a more context specific quantum using access and size metrics as above to establish distribution within denser urban environments. For suburban greenfield sites there remains some focus across Australian States on a percentage of total developable area metric (typically between from 8-12%).
- **Diversity** – while the culture of Sydney's population is highly diverse, for the most part people of all ages and backgrounds share a common desire for basic recreation needs. Accordingly, it is important to provide safe places to walk, to sit in shade or sun according to season, for play, social interaction, physical health and fitness and for contact with nature.
- **Social Engagement** - a well planned public realm is one of the key contributors to social and community cohesion. Features such as clear lines of sight, frequency of path crossing, places to sit and talk and 'offline' places from which to observe others without commitment to engagement are critical to fostering social engagement.
- **Activation** - the provision of community and cultural infrastructure will encourage community events, gatherings and activities that foster community capacity building. This infrastructure will allow the public realm to be activation-ready, fostering social cohesion within the community.
- **Contact with Nature** - the direct links between the ecological services that open space can return to urban environments (wildlife corridors, water management, heat island mitigation etc) and the increasing awareness of the health and wellbeing benefits of contact with nature require an integrated approach and commitment to green infrastructure in our streets and open spaces. Native planting and natural materials (stone, timber, etc) play an important role in this metric.
- **Health and Wellbeing** - the direct relationship between levels of lifestyle related diseases and accessibility or otherwise to quality open space are widely researched and documented. Ease of access, safety, quality and sense of place for public open space are the critical drivers in enhancing communities wellbeing.
- **Character and Identity** – a clear sense of place for all public spaces that draws on the heritage and landscape character of a locality generates high levels of community ownership. District views, use of locally endemic planting and local materials as well as the integration of public art all assist in cementing a sense of local identity in the users and the wider community.
- **Safety and Amenity** – a sense of personal safety is critical to the use of open space; in that respect a central tenet of Crime Prevention Through Environmental Design (CPTED) is passive surveillance, both from within the public realm and from adjoining buildings. Clear lines of sight, active spaces and good night lighting enhance a sense of safety. Likewise winter sun, summer shade and cooling breezes enhance amenity in public spaces.

- **Green and Grey Infrastructure** – increasingly the recreational values of natural and infrastructure corridors are being realised, especially for walking and cycling. Providing easy access to such corridors is shown to generate higher levels of recreational participation. The Sydney Green Grid provides a strong framework for such planning (see Figure 4.1 and Figure 4.2).
- **Walk and Cycle Friendly Streets** - pedestrian and cycle friendly streets also encourage physical daily activity for commuting, social or recreation uses. Safety, shade and amenity are key design considerations in this regard.
- **Heat Island Mitigation and Water Sensitive Urban Design** – the public realm is a critical contributor to moderating temperatures and humidity as well as in managing stormwater run-off. Extensive tree canopy, especially along streets, and planted roof gardens have a direct impact on lowering temperatures as do areas of irrigated grass and planting. In the same vein harvesting stormwater for reuse domestically and in irrigation reduces downstream volumes and impacts while reducing energy costs.

The core elements of these values and metrics, from Greener Places - Open Space for Recreation Guide by Government Architect NSW, will be incorporated in the Kellyville and Bella Vista Station Precincts.

## THE SYDNEY GREEN GRID

The Sydney Green Grid was published in 2017 by the Government Architect's office of NSW (GANSW) to document the network of natural corridors (coastal foreshore, rivers, creeks and bushland) and built form corridors (rail, road, canal, service infrastructure) that should also serve as recreational corridors for walking and cycling. The three aims of the Green Grid are, in summary, to:

- conserve, improve and expand Sydney's strategic network of open spaces
- reinforce a sense of place within Sydney's subregions
- safeguard and plan the green infrastructure of Sydney.

The relevant section of the Green Grid and its relation to the project site is illustrated in Figure 4.1. The corridors of most relevance to this project include:

- Sydney Metro Northwest (5)
- Cattai and Caddies Creek Corridor (10) .

## 'GREENER PLACES' - GREEN INFRASTRUCTURE POLICY

The recently released draft policy document Greener Places (GANSW 2018) outlines the essential role of Green Infrastructure in the delivery of sustainable landscapes and communities.

Greener Places proposes a design approach for urban environments that promotes nature as a key driver and the policy cites four core principles in realising that objective:

- *Integration:* combine Green Infrastructure with urban development and grey infrastructure
- *Connectivity:* create an interconnected network of open space
- *Multi-functionality:* deliver multiple ecosystem services simultaneously
- *Participation:* involve stakeholders in development and implementation.

The application of these four principles to the landscape design of Kellyville and Bella Vista Station Precincts is outlined later in Section 5 - Design Principles and Strategy.

## OPEN SPACE AND RECREATION RECOMMENDATIONS

The Social Infrastructure and Open Space Assessment prepared by Elton Consulting in May 2019 provides comprehensive recommendations for proposed open space in the Kellyville and Bella Vista Station Precincts. A summary of these recommendations can be found in Table 4.3.

## TECHNICAL STUDIES

A range of technical studies were commissioned specifically to inform the Urban Design, Built Form, Civil Engineering, Public Domain and Landscape Design of both precincts.

## URBAN DESIGN REPORTS

The Urban Design Reports prepared by SJB for Kellyville and HASSELL for Bella Vista integrate a series of urban design, public domain and built form guidelines. Of particular note in relationship to public domain and landscape are the following areas that the documents illustrate:

- Character areas
- Open space and community infrastructure
- Land use
- Street Typologies
- Building height
- Setbacks
- Solar Access



Figure 4.2 Sydney Green Grid - West Central District



## 4.0 PLANNING CONTEXT

CONSIDERATION	BEST PRACTICE METRICS	KELLYVILLE STATION PRECINCT - PROPOSED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	BELLA VISTA STATION PRECINCT - RECOMMENDED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	RECOMMENDATION FROM ELTON CONSULTING	APPLICATION
<b>Access</b>	<ul style="list-style-type: none"> <li>200-250m catchment for high density populations (ie 40-60 dwellings/Ha and above)</li> <li>2kms and no more than 5kms from most residences to access to sports facilities.</li> </ul>	<ul style="list-style-type: none"> <li>To facilitate convenient movement, with safe and direct pedestrian and cycle connections between key locations</li> <li>To provide appropriate opportunities for public access and recreation along creek corridors.</li> </ul>	<ul style="list-style-type: none"> <li>Pedestrian and cycle access should be addressed throughout the precinct, including connections from roads and public open space</li> <li>To provide appropriate opportunities for public access and recreation along creek corridors</li> <li>Footpaths are to be provided on both sides of every street. Pavement width is to allow for comfortable walking, unimpeded by obstacles.</li> </ul>	<p>For a high-density neighbourhood, residents must be within:</p> <ul style="list-style-type: none"> <li>A 2–3 minute walk / 200m walking distance to a local park; a maximum of 25 minute walk / 2 km proximity to any district park district-level open space area that provides a range of activities (2ha+); a maximum of 30 minutes travel time on public transport or by vehicle to regional open space (5ha+); 10 minutes walking or 800m (400m preference for high density areas) to linear open space that is minimum of 20m wide; within 20 minutes safe walking or 2km to district level organised sport and recreation spaces such as field sports</li> <li>Open space should be within 400m of workplaces and schools.</li> </ul>	<ul style="list-style-type: none"> <li>Open spaces have been spread across both precincts to achieve 400m catchment and 200-250m catchment in high density environment</li> <li>A shared path is proposed along the riparian corridor to reinforce open space connection in the wider context</li> <li>A connected open space network with footpaths/share paths. Steps and ramps will be provided where necessary for all abilities access throughout</li> <li>Proposed footbridge in Kellyville to connect the eastern side of Elizabeth Macarthur Creek</li> <li>A district park will be centrally located between Memorial Avenue and Balmoral Road.</li> </ul>
<b>Size</b>	<ul style="list-style-type: none"> <li>Recommend an optimal 0.5-2 ha size for local open spaces, with a minimum of 0.3ha in high density urban environments</li> <li>Recommend an optimal 2-5 ha size for district open space (dependent on the setting type).</li> </ul>	<ul style="list-style-type: none"> <li>Sport fields - 57 000m<sup>2</sup></li> <li>Local park - 14 000m<sup>2</sup></li> <li>Sporting courts under the train line - 13 000m<sup>2</sup>.</li> </ul>	<ul style="list-style-type: none"> <li>Park/s in the creek corridor - 7000m<sup>2</sup></li> <li>Local Parks - 2-1.5ha</li> <li>Shared way minimum 3m in width were parks follow the length of Elizabeth Macarthur Creek to join the Kellyville path in the North and the Norwest business park in the south.</li> </ul>	<ul style="list-style-type: none"> <li>One large district park of approximately 3ha</li> <li>Six to Eight local parks with an average park size of 0.4ha and a minimum size of 0.2ha (3.0 ha in total).</li> </ul>	<ul style="list-style-type: none"> <li>2.74ha district park is provided</li> <li>Minimum 0.3ha for local parks.</li> </ul>
<b>Quality</b>	<ul style="list-style-type: none"> <li>Open space should be of high quality and well designed to attract use and activation for a broad range of ages, backgrounds and abilities</li> <li>The design of open space should focus on social needs and minimise user conflicts; it should also be of robust but appealing design to foster engagement while catering for high levels of use.</li> </ul>	<ul style="list-style-type: none"> <li>To provide high quality landscaping of existing and new public open space to cater for passive recreation for residents and workers.</li> </ul>	<ul style="list-style-type: none"> <li>To provide high quality landscaping of existing and new public open space to cater for passive recreation for residents and workers.</li> </ul>	<ul style="list-style-type: none"> <li>visual and physical access</li> <li>landscape setting</li> <li>condition of facilities and equipment</li> <li>maintenance</li> <li>number of activations within the space</li> <li>size, shape, and topography</li> <li>adjacent land uses</li> <li>amount of vegetation</li> <li>biodiversity outcomes.</li> </ul>	<ul style="list-style-type: none"> <li>The design for the open spaces provides a variety of spaces, activities and opportunities for social interaction</li> <li>The parks shall be designed to gain optimal solar access</li> <li>An ongoing maintenance management strategy shall be established.</li> </ul>

Table 4.3 Application of best practice and planning requirements for open spaces



## 4.0 PLANNING CONTEXT

CONSIDERATION	BEST PRACTICE METRICS	KELLYVILLE STATION PRECINCT - PROPOSED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	BELLA VISTA STATION PRECINCT - RECOMMENDED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	RECOMMENDATION FROM ELTON CONSULTING	APPLICATION
<b>Quantity</b>	<ul style="list-style-type: none"> <li>For suburban greenfield sites there remains some focus across Australian States on a percentage of total developable area metric (typically anywhere from 8-12%).</li> </ul>	No Specific Requirement	<ul style="list-style-type: none"> <li>Provide for 3 to 5 local parks amongst new development.</li> </ul>	<ul style="list-style-type: none"> <li>8ha of open space in total consists of 2ha riparian linear park, 3ha of local parks, 3ha of local sports facilities</li> <li>6 to 8 local parks in various sizes.</li> </ul>	<ul style="list-style-type: none"> <li>One district open space is provided (2.74ha)</li> <li>3 local parks are provided</li> <li>Squares / Plazas are provided for each precinct</li> <li>5.63ha of Primary Open Space has been provided across Kellyville and Bella Vista</li> <li>2.4ha of Contributory Open Space has been provided, eg managed lawns along the riparian corridor</li> <li>Additional sport courts under viaduct in the Kellyville Station Precinct.</li> </ul>
<b>Diversity</b>	<ul style="list-style-type: none"> <li>Provide safe places to walk, to sit in shade or sun according to season, for play, for social interaction, for physical health and fitness and for contact with nature.</li> </ul>	No Specific Requirement	No Specific Requirement	No Specific Indication	<ul style="list-style-type: none"> <li>Native and exotic species including deciduous tree species to maximise the opportunities for winter summer and summer shade</li> <li>Different characters of open space eg civic space, local park and woodland park.</li> </ul>
<b>Social Engagement</b>	<ul style="list-style-type: none"> <li>A well-planned public realm is one of the key contributors to social and community cohesion.</li> </ul>	<ul style="list-style-type: none"> <li>To provide opportunities for collaboration between artists and designers in the development of creative, innovative, memorable, integrated and sustainable public art projects.</li> </ul>	<ul style="list-style-type: none"> <li>To provide opportunities for collaboration between artists and designers in the development of creative, innovative, memorable, integrated and sustainable public art projects.</li> </ul>	<ul style="list-style-type: none"> <li>Collocated community facility and library of 1,650sqm to be located in Bella Vista town centre.</li> </ul>	<ul style="list-style-type: none"> <li>Square/ Plaza spaces are capable of hosting community events and markets</li> <li>Clear lines of sight encouraging incidental meetings and ample seating in social arrangements</li> <li>Proposed multi-storey community facility will be located adjacent to the Station Plaza in Bella Vista.</li> </ul>
<b>Activation</b>	<ul style="list-style-type: none"> <li>Provision of community and cultural infrastructure will encourage community events, gatherings and activities that foster community capacity building.</li> </ul>	<ul style="list-style-type: none"> <li>The park should be defined by public streets on three sides.</li> </ul>	No Specific Requirement	No Specific Indication	<ul style="list-style-type: none"> <li>The parks have three sides street frontages and direct pedestrian access</li> <li>The open spaces shall accommodate significant clear green open space to incorporate a variety of unstructured recreation activities.</li> </ul>

Table 4.3 (Continued)



## 4.0 PLANNING CONTEXT

CONSIDERATION	BEST PRACTICE METRICS	KELLYVILLE STATION PRECINCT - PROPOSED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	BELLA VISTA STATION PRECINCT - RECOMMENDED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	RECOMMENDATION FROM ELTON CONSULTING	APPLICATION
<b>Contact with Nature</b>	<ul style="list-style-type: none"> <li>Direct links between the ecological services that open space can return to urban environments (wildlife corridors, water management, heat island mitigation etc)</li> <li>Increasing awareness of the health and wellbeing benefits of contact with nature.</li> </ul>	<ul style="list-style-type: none"> <li>To contribute to the enhancement of ecological values Sufficient tree planting to provide shade and greenery.</li> </ul>	<ul style="list-style-type: none"> <li>Retain hollowbearing trees and fallen logs/ snags etc for native fauna</li> <li>Provide access to the creek edge at key locations.</li> </ul>	No Specific Indication	<ul style="list-style-type: none"> <li>Maximises the number of existing trees/ woodland that can be retained</li> <li>A shared path is proposed along Elizabeth Macarthur Creek to encourage interaction with nature</li> <li>Mitigating the impact of the urban heat island effect through street tree planting</li> <li>Minimises cut and fill (in balance if/where required).</li> </ul>
<b>Health and Wellbeing</b>	<ul style="list-style-type: none"> <li>The direct relationship between levels of lifestyle related diseases and accessibility or otherwise to quality open space are widely researched and documented.</li> </ul>	<ul style="list-style-type: none"> <li>To encourage residents to walk or cycle to shops, Kellyville Station, recreation, community and other facilities</li> <li>Provide a variety of sporting fields</li> <li>Provide sporting fields that function well under the viaduct (eg basketball, tennis, skating, outdoor futsal).</li> </ul>	<ul style="list-style-type: none"> <li>To encourage residents to walk or cycle to shops, Kellyville Station, recreation, community and other facilities</li> <li>Provide a range of sport opportunities within local park.</li> </ul>	<ul style="list-style-type: none"> <li>Improve walking, cycling and public transport connections, including through the Greater Sydney Green Grid</li> <li>Provide public realm and open space focus.</li> </ul>	<ul style="list-style-type: none"> <li>Open spaces provide opportunities for walking, exercise, play and social engagement</li> <li>Diversity of open spaces eg active and passive open spaces.</li> </ul>
<b>Character and Identity</b>	<ul style="list-style-type: none"> <li>A clear sense of place for all public spaces that draws on the heritage and landscape character of a locality generates high levels of community ownership.</li> </ul>	<ul style="list-style-type: none"> <li>Provide interpretive installation of the White Hart Inn foundations</li> <li>Potential aboriginal heritage interpretation installations.</li> </ul>	<ul style="list-style-type: none"> <li>Landscaping and choice of materials unite and relate to the other spaces throughout the Town Centre</li> <li>Where High Ecological Value Cumberland Plain Woodland Vegetation Community occurs, protect and manage to maintain values</li> <li>In creek corridor areas all species must be endemic to the Cumberland Plain Woodland</li> <li>Use native pasture species for lawn areas within creek corridor.</li> </ul>	No Specific Indication	<ul style="list-style-type: none"> <li>Maximises the opportunities to retain the existing Cumberland Woodland and Alluvial Woodland characters</li> <li>Preferred vegetation types for streetscape plantings have been advised by the design guidelines to contribute to precinct character and reduce the impact of urban heat island effect.</li> </ul>

Table 4.3 (Continued)



## 4.0 PLANNING CONTEXT

CONSIDERATION	BEST PRACTICE METRICS	KELLYVILLE STATION PRECINCT - PROPOSED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	BELLA VISTA STATION PRECINCT - RECOMMENDED DEVELOPMENT CONTROL PLAN AMENDMENTS - THE HILLS 2015	RECOMMENDATION FROM ELTON CONSULTING	APPLICATION
<b>Safety and Amenity</b>	<ul style="list-style-type: none"> <li>A sense of personal safety is critical to the use of open space; in that respect this is a central tenet of Crime Prevention Through Environmental Design (CPTED).</li> </ul>	<ul style="list-style-type: none"> <li>Provide streetlighting within the park for safe use at night.</li> </ul>	<ul style="list-style-type: none"> <li>Provide street lighting within the park for safe use at night.</li> </ul>	No Specific Indication	<ul style="list-style-type: none"> <li>Lighting in the parks shall be well considered</li> <li>Local and district open spaces are bordered by public streets on three sides to enable passive surveillance</li> <li>Sight lines will be optimised by restricting the heights of shrub planting below eye level.</li> </ul>
<b>Green and Grey Infrastructure</b>	<ul style="list-style-type: none"> <li>Increasingly the recreational values of natural and infrastructure corridors are being realised, especially for walking and cycling.</li> </ul>	<ul style="list-style-type: none"> <li>Sufficient tree planting to provide shade and greenery</li> <li>Provide large open grass area</li> <li>Allow for bridges over the creek to encourage connectivity.</li> </ul>	<ul style="list-style-type: none"> <li>Where natural vegetation exists, all trees are to be preserved in accordance with The Hills LEP 2012.</li> </ul>	No Specific Indication	<ul style="list-style-type: none"> <li>A shared path is proposed along the riparian corridor to reinforce open space network</li> <li>The lawn open space in local parks shall be substantial to accommodate different activities</li> <li>The parks shall be designed to optimised solar access.</li> </ul>
<b>Walk and Cycle Friendly Streets</b>	<ul style="list-style-type: none"> <li>Pedestrian and cycle friendly streets also encourage physical daily activity for commuting, social or recreation uses.</li> </ul>	<ul style="list-style-type: none"> <li>To create an attractive and comfortable streetscape for pedestrians and cyclists that comprises consistent and high quality paving, street furniture and street tree plantings.</li> </ul>	No Specific Requirement	<ul style="list-style-type: none"> <li>Improve walking, cycling and public transport connections, including through the Greater Sydney Green Grid.</li> </ul>	<ul style="list-style-type: none"> <li>The various path systems including the shared path, dedicated cycle way and pedestrian paths combine to create a network which connects the surrounding areas. The open spaces form an important walking and cycling route to and from the riparian corridor.</li> </ul>
<b>Heat Island Mitigation and WSUD</b>	<ul style="list-style-type: none"> <li>The public realm is a critical contributor to moderating temperatures and humidity as well as in managing stormwater run-off.</li> </ul>	<ul style="list-style-type: none"> <li>To contribute to the management of stormwater.</li> </ul>	<ul style="list-style-type: none"> <li>Floodwater management and water quality provided by landscape swales, detention basin and constructed wetlands to polish stormwater and slow runoff from streets before entering natural creek system</li> <li>To contribute to the management of stormwater.</li> </ul>	No Specific Indication	<ul style="list-style-type: none"> <li>A balance of greenspace and hard surfaces has been emphasised to minimise urban heat island effect</li> <li>Wide canopy trees shall be selected to maximise summer shade and mitigate temperature.</li> </ul>

Table 4.3 (Continued)



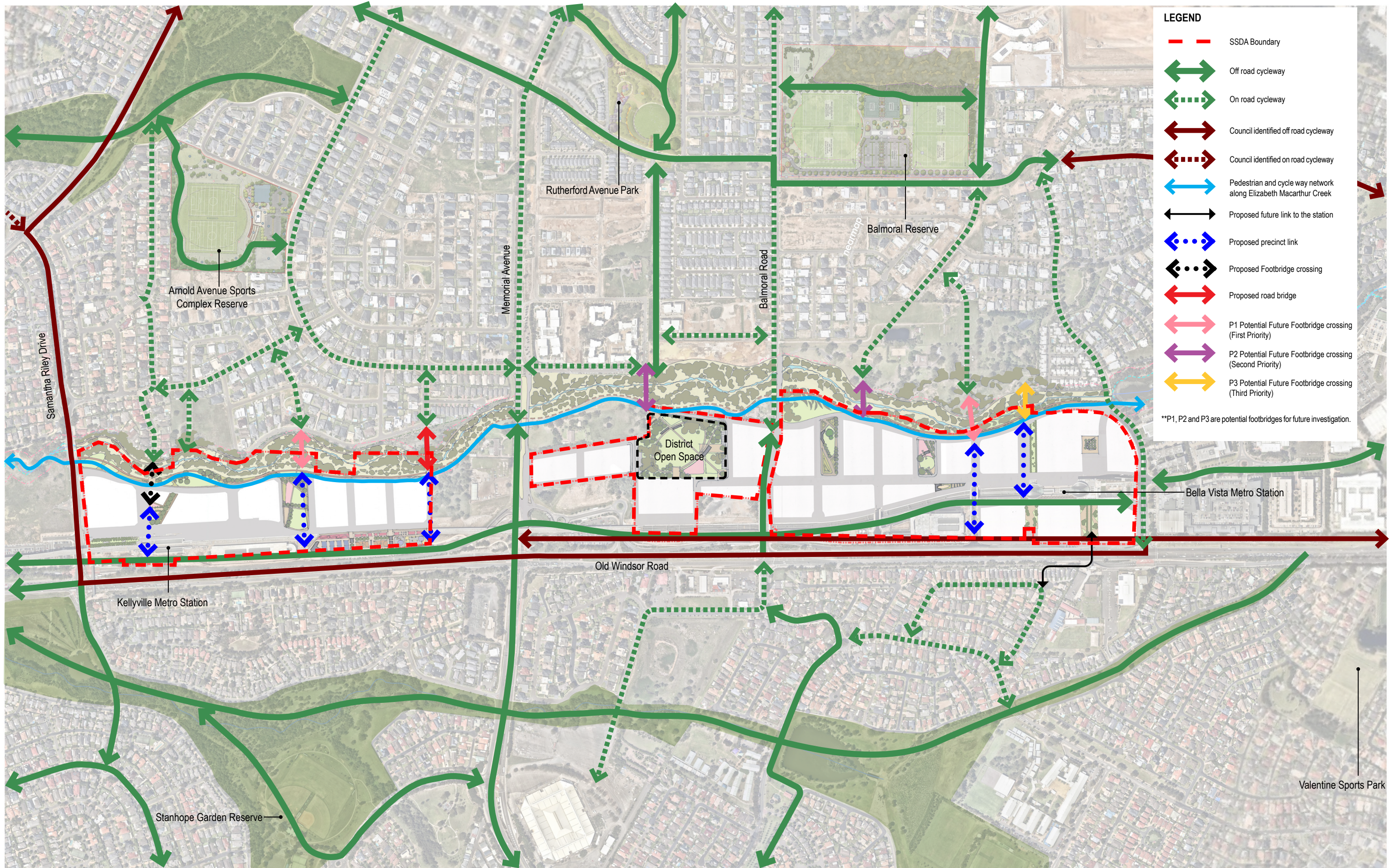


Figure 5.1 Precinct Connections



## 5.0 DESIGN PRINCIPLES AND STRATEGY

### DESIGN PRINCIPLES

The public realm and landscape design illustrated in the following pages has addressed the six project objectives outlined in the introduction as follows;

#### 1. Create a memorable experience

- Create an identifiable image that builds upon the creek system
- Create a strong sense of arrival and unique character
- Build a sense of community - activities, events, programmed space as well as flexible open space
- Use public art and interpretation to enrich the experience of residents and visitors.

#### 2. Connect people with places

Rather than being an island, the site should have a meaningful relationship with the surrounding neighbourhood, town centre, train station and district parks.

- Provide pedestrian links to and through the site
- Create opportunities for recreational walking and cycling.
- Provide a legible sense of arrival and orientation
- Use the linear nature of the creek line for regional connections
- Provide connections across the creekline.

#### 3. Create places to play and learn

Public spaces need multiple and varied areas for human interaction. By fostering a sense of belonging (whether it is fleeting, temporary or regular/ongoing) people establish a connection with their experience of the site. This can be achieved by:

- Provide a series of recreational spaces that cater for different ages and social groups
- Use recreational spaces and commercial facilities to activate spaces and destinations
- Include loosely programmed areas where people can find individual expression in open space that hasn't been designed for a single purpose or predominant culture
- Create moments for people to interact with their environment, enhancing a sense of place
- Provide linkages to local / regional open space.

#### 4. Celebrate the creek

The creek must have recreational appeal, and become a coherent connection that forms a familiar rhythm through the site.

- Maximise exposure to the creek for residential use and optimising adjoining land values
- Use the creek for recreation and open space beyond complementing its riparian corridor role
- Slow water down to build soil moisture profile
- Extend the length of the flow of water on site
- Manage external water-borne pollution into the site
- Use flood management to enhance rather than detract from the site's qualities
- Protect the environment and enhance biodiversity.

#### 5. Look after the landscape

Ongoing stewardship of the landscape with maximise amenity and presentation of the parklands:

- Strategically maintain the parklands for estate presentation
- Focus high maintenance areas to key sites
- Provide infrastructure that is robust, vandal resistant and easily maintained
- Carefully locate high-value infrastructure, facilities and electrical equipment above flood levels if possible
- Manage upstream weeds and water pollutants
- Consider how the landscape can adapt to climate change.

#### 6. Reduce urban heat island effect

The landscape in the network of open space can make a major contribution to reducing urban heat island impacts:

- Use street planting and landscape to reduce the impacts of urban heat island effect in the public domain
- Use street trees to increase canopy coverage throughout the precinct to reduce impacts of the urban heat island effect
- Provide green roofs that offer shade and remove heat from the air through evapotranspiration
- Irrigate high use lawn areas to assist heat mitigation.

### GREENER PLACES APPLICATION

The application of the Greener Places policy to this project results in the following responses:

#### Integration

The design integrates green and grey infrastructure in a number of ways including:

- Trees in streets
- Recycled water use
- Interaction between Kellyville and Bella Vista Precincts and Elizabeth Macarthur Creek
- Balance of recreational space and tree planting to achieve canopy cover.

#### Connectivity

The site performs a core role as a hub in a network of connecting open spaces through:

- Shared paths and cyclepaths
- Reinforcement of links to Elizabeth Macarthur Creek
- Ease of pedestrian access North / South and East / West

#### Multifunctionality

The ecosystem services within and beyond the site are served by a variety of design responses including:

- North/south and east/west canopy species connectivity, providing habitat, refuge and connection for native fauna and avifauna both within the site and to the Elizabeth Macarthur Creek corridor
- User demands and needs
- Connectedness, interaction and stewardship
- Contribution to understanding of place
- Integration of public art.

#### Participation

Landcom has adopted a highly participatory approach to the development of the site design through:

- Consultation and design iteration with agencies
- Engagement with various State government agencies (TfNSW, DPIE, Sydney Water and The Hills Shire Council)
- Engagement with Landcom's Design Advisory Panel (DAP)
- Community consultation
- Balancing interests of varying stakeholders
- Equity of access through engagement.



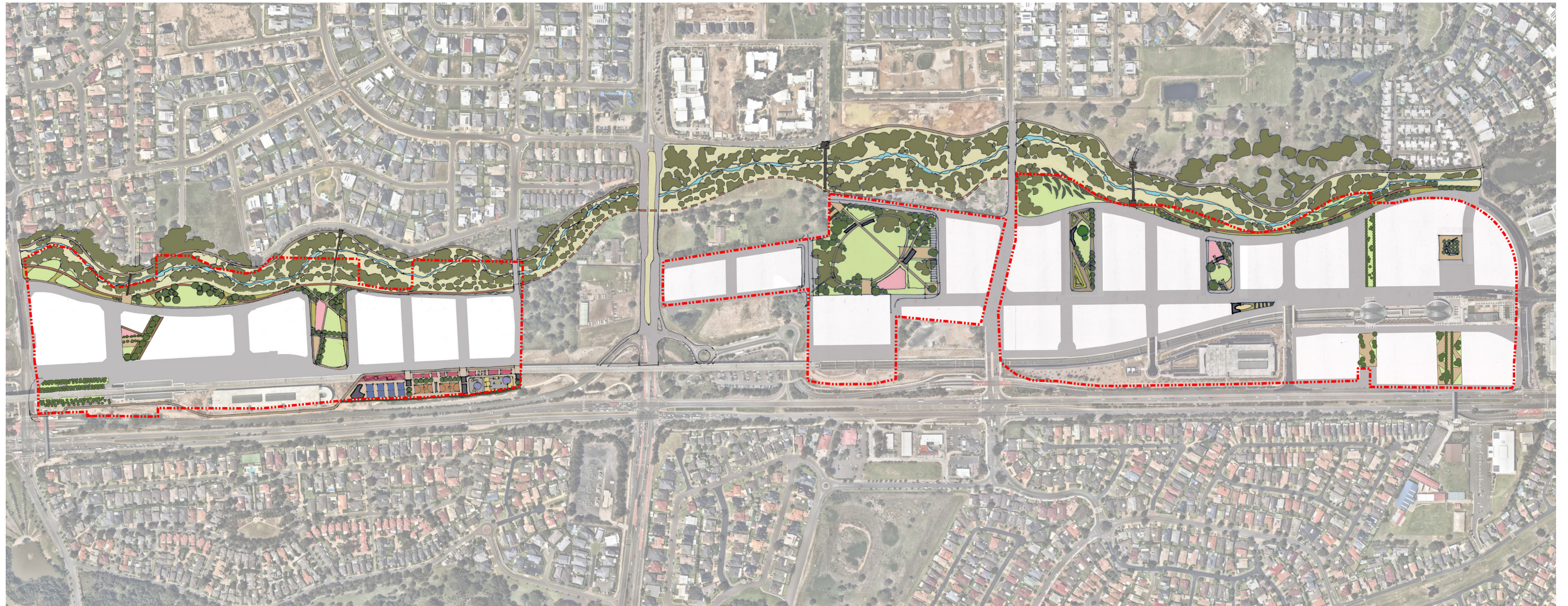


Figure 6.1 Landscape Master Plan



## 6.0 CONCEPT MASTER PLAN

### OVERVIEW

The Concept Master Plan illustrated opposite (Figure 6.1) and explored in more detail in the following pages describes a highly connected precinct offering opportunities for the community to enjoy a public realm network which links day-to-day destinations (transport, work, school, shops etc) with an accessible and integrated parkland system that responds to and is informed by, the distinct character and qualities of the Elizabeth Macarthur Creek corridor along its eastern boundary.

The considered distribution and quantity of public open space along the length of the Kellyville and Bella Vista urban precincts provides all residents with the opportunity to access an open space within a 5-10 minutes / 200-400 metres walking distance from any home, via a network of safe, walkable streets and off-road pathways.

In addition, these open spaces cater for a diverse range of formal and informal recreational opportunities and activities such as walking, cycling, jogging, play, exercise, kickabout, informal sport, picnicking, socialising, engagement with nature and the like.

### PUBLIC OPEN SPACE

The proposed public open space network provides a quantum and distribution of open space and recreation connections that meets current best practice and is aligned with site specific analysis of open space requirements as identified in the recreation needs analysis undertaken by Elton Consulting. The locations and qualities of the public open spaces within the precinct celebrate the identity of the surrounding landscape, reconnecting the development to the creek and maximising its recreational opportunity. The open spaces accommodate a broad spectrum of informal recreational and social opportunities complimented by community amenities and facilities.

It is important to note that while informal sports activities, such as kickabout, fitness training, skate and courts sports have been accommodated within the precinct, the community's requirements for organised field sports will be provided at neighbouring district and regional sports facilities such as Caddies Creek Sporting Complex and Kellyville Park, and will be readily accessibly by active transport via the Elizabeth Macarthur Creek corridor path network and integration into the existing cycle and pedestrian network.

Caddies Creek Sporting Complex will incorporate four new single playing fields, two associated amenities buildings and parkland. This upgrade is scheduled to be completed in late 2019

Detailed information on the number, hierarchy, catchment, size, setting, function, users and uses and character of each open space are outlined later in this document. (Refer to Section 8 Open Space Hierarchy and Function).

### STREETS AND PATHS

A hierarchy of streets that service the precincts also form a crucial aspect of the public realm, offering safe, pedestrian and cycle orientated movement, passive surveillance on all streets and to open spaces to satisfy CPTED requirements and provide extensive tree canopy to mitigate the urban heat island effect.

The varying street types and associated landscape elements are described and illustrated in detail later in this document. (Refer to Section 9 Street Typologies).

### COMMUNAL OPEN SPACE

The communal and privately owned and managed open spaces within the development compliment and expand upon the network of public open spaces to provide further opportunities for recreational activity, social interaction and cohesion within the community, providing more intimate and reflective spaces for the residents.

These spaces will be accessible, both physically and visually, to the wider public open spaces and will respond to adjacent retail and commercial opportunities, providing informal breakout office space, social corners and opportunities for outdoor dining.

### SHARED PATH ALONG ELIZABETH MACARTHUR CREEK

The public open space specifically provided through this SSDA will be complemented by and contribute to the broader network of open spaces in the region through a series of connected paths and pedestrian bridges along the Elizabeth Macarthur Creek corridor. The proposed shared path for pedestrian and cyclist is a critical feature that aims to:

- Connect Kellyville and Bella Vista Precincts into the wider open space networks especially to Caddies Creek Sporting Complex
- Provide a safe, walkable and cycle-friendly environment
- Encourage physical connection between both precincts and nature (Elizabeth Macarthur Creek)

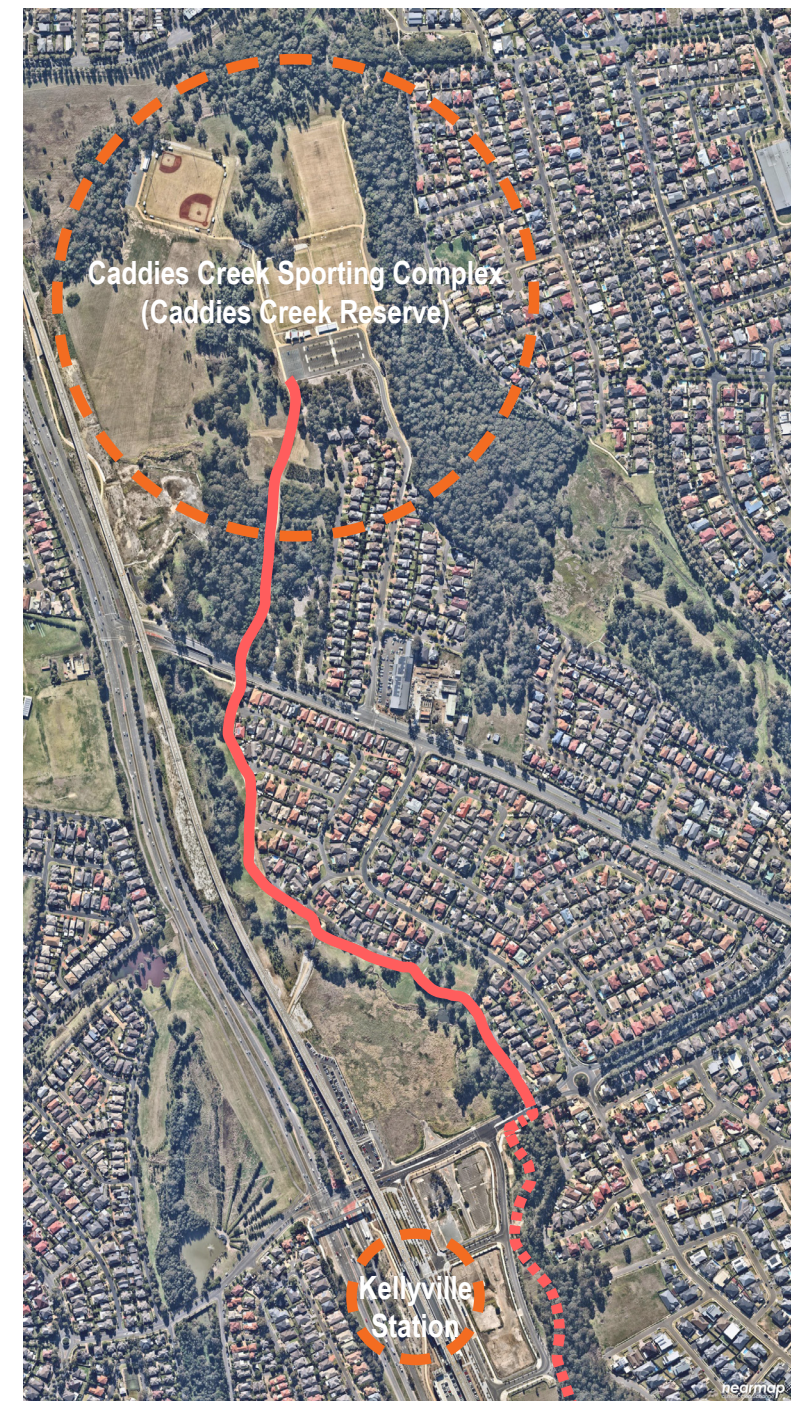


Figure 6.2 Shared path connection to Caddies Creek Sporting Complex

- Existing shared path connects to Caddies Creek Sporting Complex
- - - Proposed shared path along Elizabeth Macarthur Creek



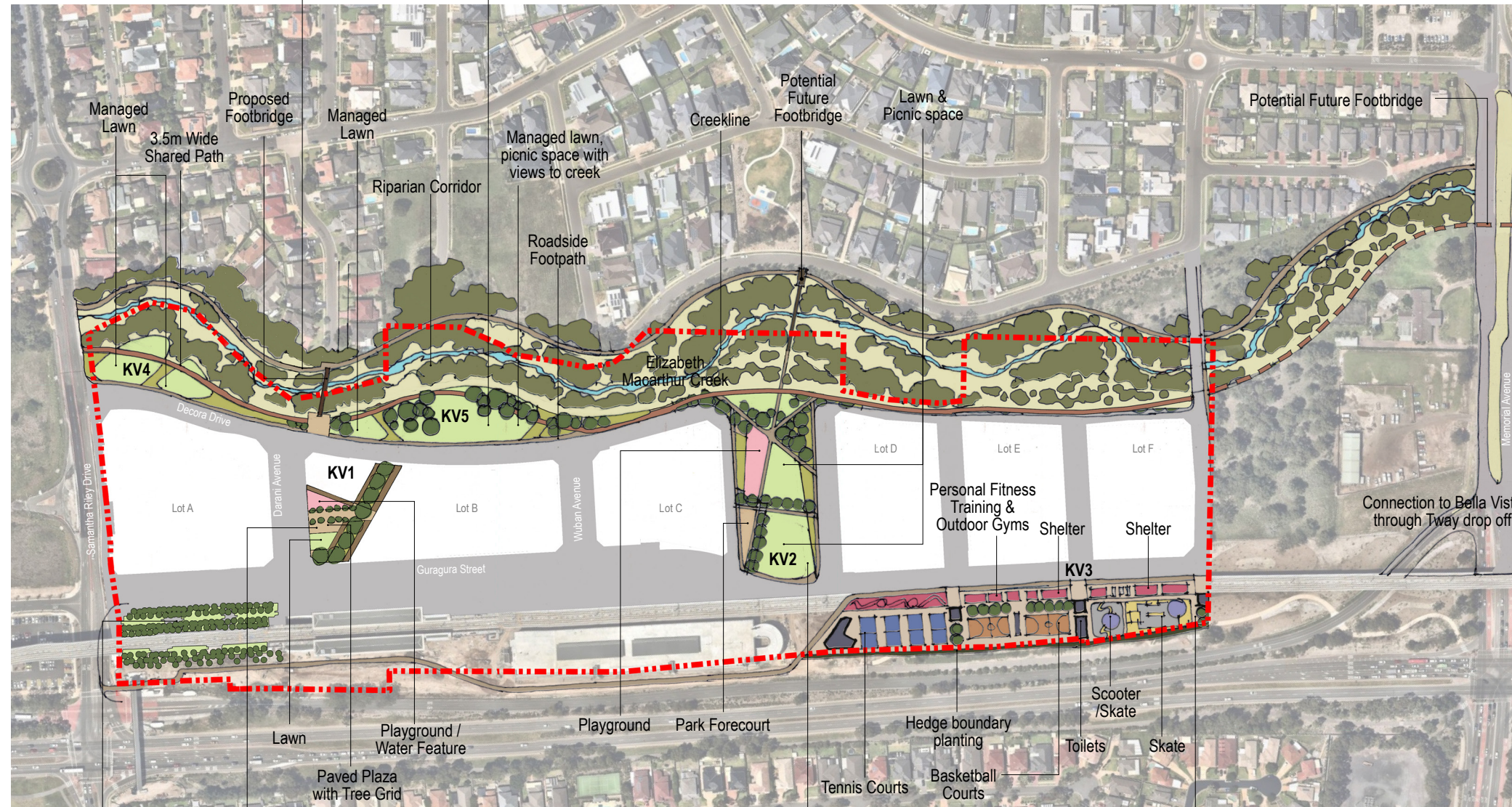


Figure 6.3 Kellyville Concept Master Plan

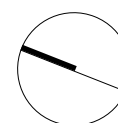
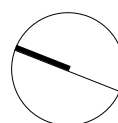






Figure 6.4 Bella Vista Concept Master Plan





7.0 OPEN SPACE PRECEDENTS



Public square with water feature in Rouse Hill Town Centre



## 7.0 OPEN SPACE PRECEDENTS

The following pages provide a series of precedent projects and images that are used to convey the general design character, function and potential users and uses intended for open spaces within the precincts.

These precedents are categorised as follows:

- 7.1 Open Space Precedents - Urban Plaza
- 7.2 Open Space Precedents - 0.1 - 0.3ha
- 7.3 Open Space Precedents - 0.4 - 0.5ha
- 7.4 Open Space Precedents - 0.5 - 0.9ha
- 7.5 Open Space Precedents - >1ha
- 7.6 Open Space Precedents - Activities and Uses

Four small, contemporary urban plazas are described identifying some of the common design elements and facilities found in plazas of similar size and within similar urban contexts to those within the precinct. (Refer to page 22 to 23)

In addition, a number of open space precedents of varying sizes have been investigated to highlight the potential form and function of local and district open spaces in Kellyville and Bella Vista Station Precincts. (Refer to page 24 to 28)

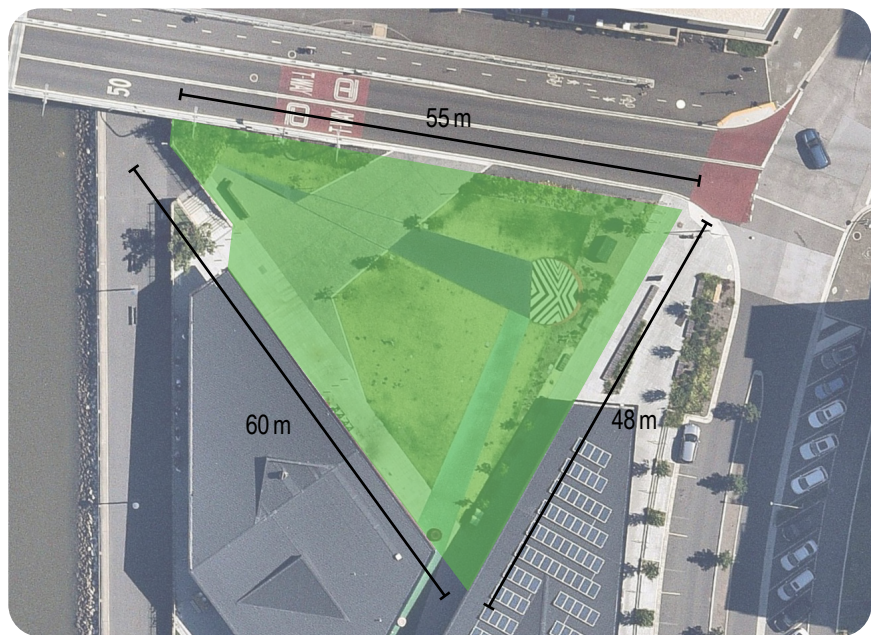
These precedents have been selected based on current best practice, size and relevance to the project, and provide percentages of open space, vegetation and play space for each precedent.



The images above illustrate the opportunity to integrate fine grain walkable streets in high density environments in the SW1 precinct on Brisbane's Southbank. They also demonstrate how the transitions between public, communal and private open space can be managed without loss of privacy or use of screening. The borrowed landscape that is visible to the public enhances the sense of space in a very dense environment, without loss of privacy.



7.1 OPEN SPACE PRECEDENTS - URBAN PLAZA



Plaza

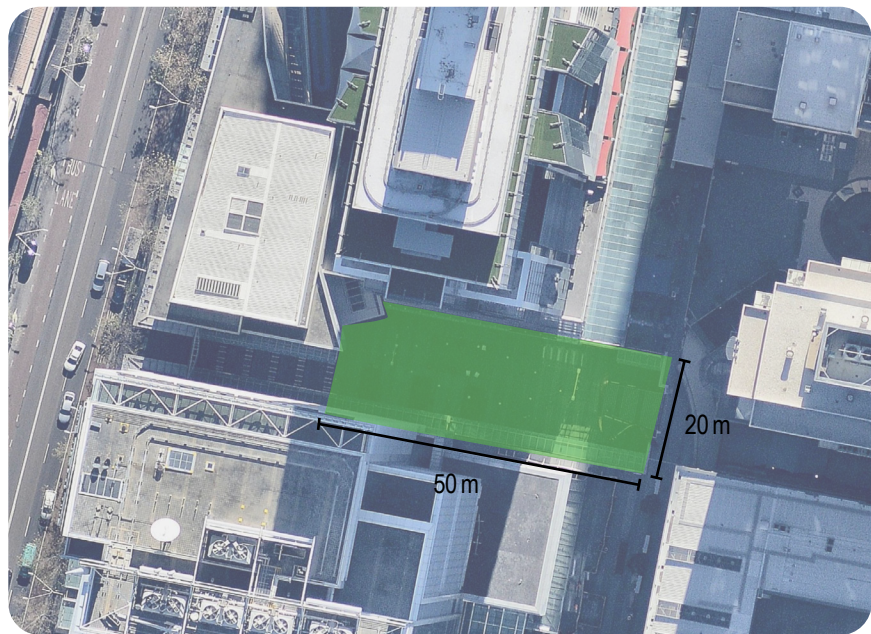


Place: **The Connection (Rhodes Community Centre)**  
Location: Shoreline Drive, Rhodes  
Area: 0.15 ha

The Connection is located on the corner of Shoreline Drive and Gauthorpe Street adjacent to Bennelong Bridge in Rhodes. The open space is located immediately adjacent to a cafe and the community centre. It acts as the public plaza / space for the community centre and waterfront promenade. High quality hard paving along with formal and informal seating, planting and lawn provide amenity for the visitors.

Average dimensions: Triangular shape with three edges, 48m, 55m and 60m.

Relevance: Urban Plaza KV1, KV6, BV4, BV6 and BV7



Plaza



Place: **World Square, Sydney**  
Location: George Street, Sydney  
Area: 0.1 ha

The World Square plaza is surrounded by cafes, retail and restaurants within the World Square. This is also a thoroughfare to Central Station for high volume of foot traffic. The space is mainly paved with flexibility to host various events during different seasons. Mass planting beds, seating and outdoor dining along shop frontage are also provided.

Average dimensions: 50m x 20m

Relevance: Urban Plaza KV1, KV6, BV4, BV6 and BV7



## 7.1 OPEN SPACE PRECEDENTS - URBAN PLAZA



Plaza

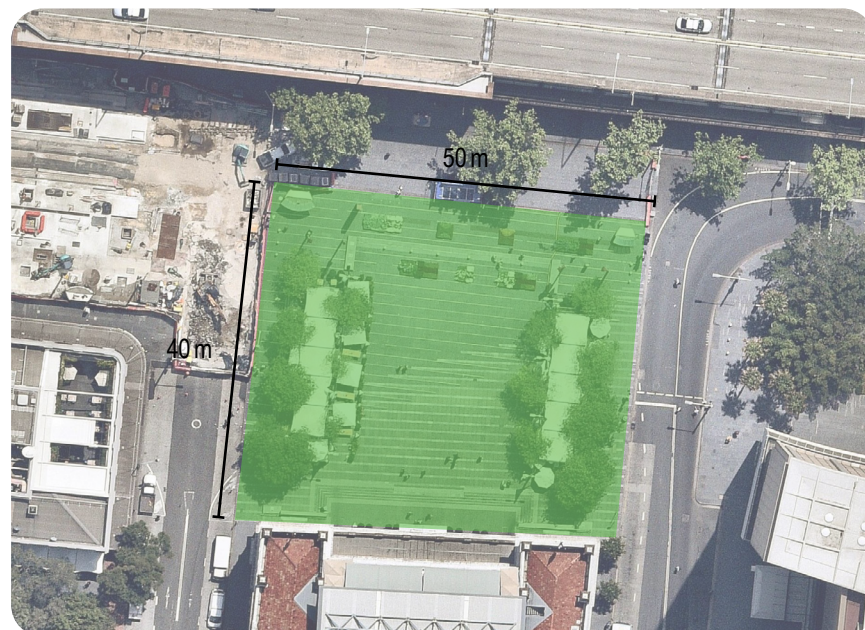


Place: **Rouse Hill Town Centre**  
Location: Main Street, Rouse Hill  
Area: 0.08 ha

Rouse Hill Town Centre Square is located on the corner of Main Street and Civic Way within Rouse Hill Town Centre. The square acts as the public space for the shopping centre and is activated by cafes and retail outlets along the northeast edge with a library fronting the southern facade. The space is mainly paved and included a water feature, formal and informal seating and planting provide amenity for this precinct.

Average dimensions: 30m x 30m

Relevance: Urban Plaza KV1, KV6, BV4, BV6 and BV7



Plaza



Place: **Customs House, Sydney**  
Location: Young Street, Sydney  
Area: 0.23 ha

Customs House Plaza is located between Circular Quay Train Station and Customs House at Circular Quay. Cafes and outdoor dining are located on the east and west sides of the square with trees defining the space. The plaza is mainly paved with a flexible centre space to host various events. Tree planting defines eastern and western edges.

Average dimensions: 50m x 40m

Relevance: Urban Plaza KV1, KV6, BV4, BV6 and BV7



7.2 OPEN SPACE PRECEDENTS - 0.1 - 0.3HA



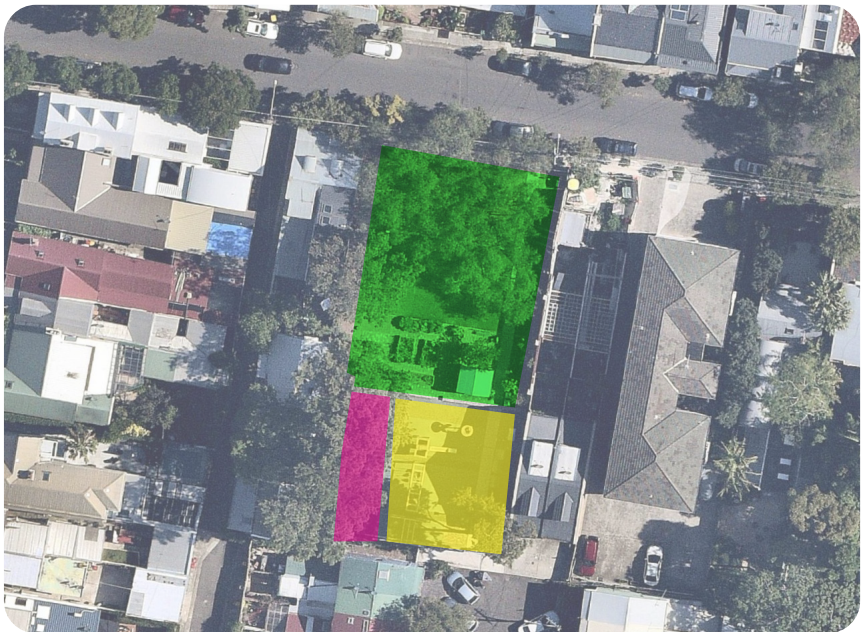
OPEN SPACE 65% VEGETATION SPACE 5%  
PLAY SPACE 30%



Place: **Matron Ruby Grant Park**  
Location: Joynton Avenue, Zetland  
Area: 0.3 ha

The Matron Ruby Grant Park occupies the former South Sydney Hospital site, and is at the heart of the Green Square cultural and community precinct in Zetland. The park seamlessly integrates with the surrounding community while preserving the historical and cultural roots of the place.

Relevance: Local Open Space BV2.



OPEN SPACE 65% VEGETATION SPACE 10%  
PLAY SPACE 25%



Place: **Chelsea Street Playground**  
Location: Chelsea Street, Redfern  
Area: 0.1 ha

Chelsea Street Playground is a small local park located within the high density suburb of Redfern, Sydney. The playground contains a communal play area with small play structures and shelters, while also featuring a barbecue area, veggie patch and dog lawn, all contained within an area of 1,045 square metres.

Relevance: Local Open Space BV2.



## 7.2 OPEN SPACE PRECEDENTS - 0.1 - 0.3HA



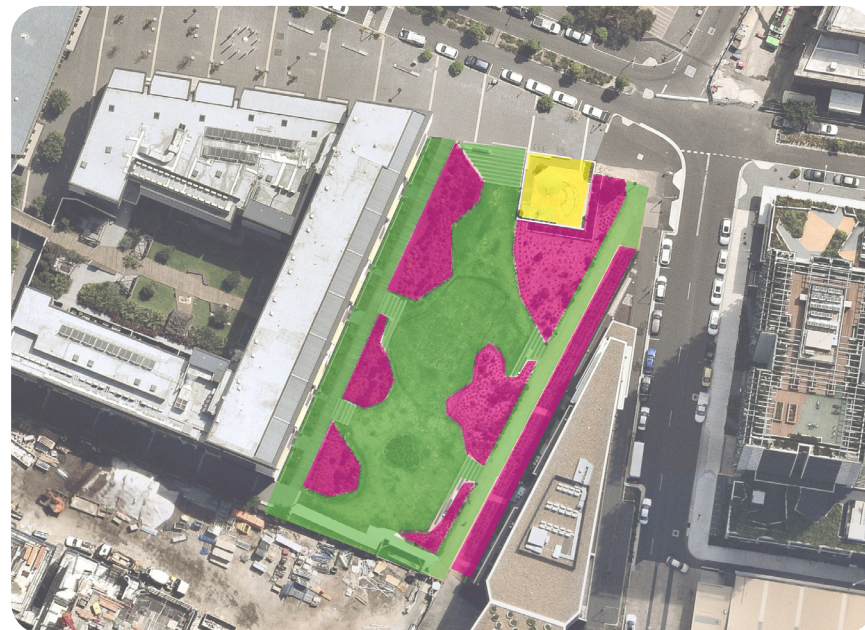
■ OPEN SPACE **85%**
■ VEGETATION SPACE **15%**  
■ PLAY SPACE **0%**



**Place: Union Square**  
 Location: Rider Boulevard, Rhodes  
 Area: 0.15 ha

Union Square is located on the corner of Rider Boulevard and Mary Street adjacent to Rhodes Train Station. The space acts as the public square for the Rhodes Waterside development and is activated by restaurants along its southern edge. High quality hard paving along with formal and informal seating, planting and public art provide amenity for the surrounding high density housing population.

Relevance: Local Open Space BV2.



■ OPEN SPACE **60%**
■ VEGETATION SPACE **30%**  
■ PLAY SPACE **10%**



**Place: The Rope Walk 2**  
 Location: Archibald Avenue, Zetland  
 Area: 0.3 ha

The Rope Walk 2 is a Pocket Park with a Pocket Playground for toddlers and young children. The park is part on the ongoing redevelopment of Zetland, Victoria Park and Green Square. This Park is rectangular with access from Archibald Ave and Sam Sing Street, but it flanked on its long edges by newly completed private residential buildings, somewhat compromising its amenity.

Relevance: Local Open Space BV2.



7.3 OPEN SPACE PRECEDENTS - 0.4 - 0.5HA



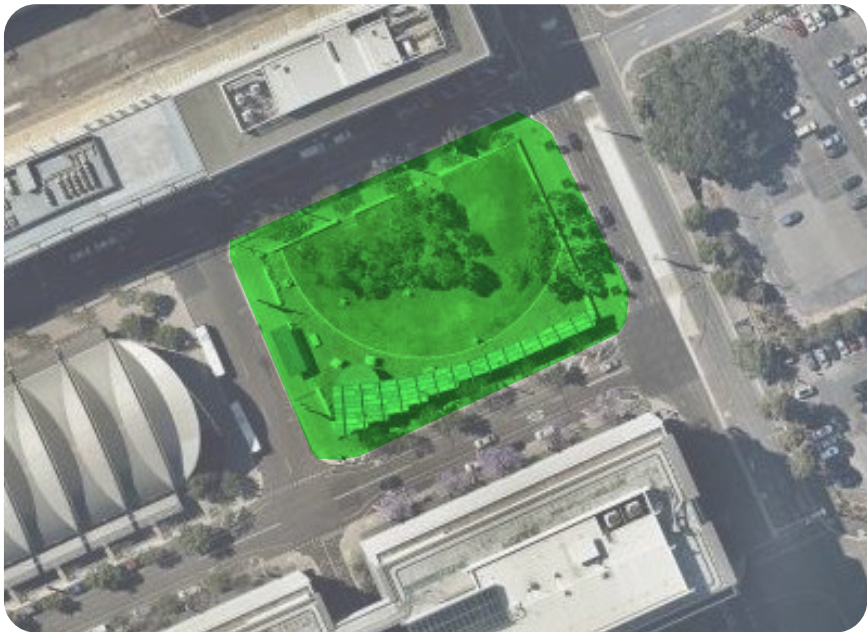
OPEN SPACE 65%    VEGETATION SPACE 35%  
PLAY SPACE 0%



Place: **Mary Ann Park**  
Location: Mary Ann Street, Ultimo  
Area: 0.45 ha

Mary Ann Park is located along Mary Ann Street in the inner city suburb Ultimo. The Sydney Technical College building faces the park and is located across the street. Manicured lawns and native plants give it the park oasis-like qualities within the previously industrial environment. The park includes amenities such as shelters, benches and BBQ stands, providing handy rest-stop areas for walkers, residents, business people and students.

Relevance: Local Open Space KV2



OPEN SPACE 100%    VEGETATION SPACE 0%  
PLAY SPACE 0%



Place: **Jacaranda Square**  
Location: Murray Rose Ave, Sydney Olympic Park  
Area: 0.4 ha

The Jacaranda Square sits within Sydney Olympic Park. The square is located adjacent to Olympic Park Station and is close to cafes and other services. The space provides a vibrant town square for visitors and residents and features a formal edge of wall and seats. Visitors are protected from the elements via a perimeter network of shelters and tree canopies.

Relevance: Local Open Space KV2



### 7.3 OPEN SPACE PRECEDENTS - 0.5 - 0.9HA



OPEN SPACE 60%

VEGETATION SPACE 15%

PLAY SPACE 25%



Place: **Wulaba park**

Location: Amelia Street, Waterloo

Area: 0.5 ha

Wulaba Park is a dynamic play space located on O'Dea Avenue, Waterloo. The design integrates public art, a strong colour theme, sustainable materials including recycled bricks and sustainable water management practices.

Relevance: Local Open Space KV2



OPEN SPACE 85%

VEGETATION SPACE 5%

PLAY SPACE 10%



Place: **Rhodes Foreshore Park**

Location: Shoreline Drive, Rhodes

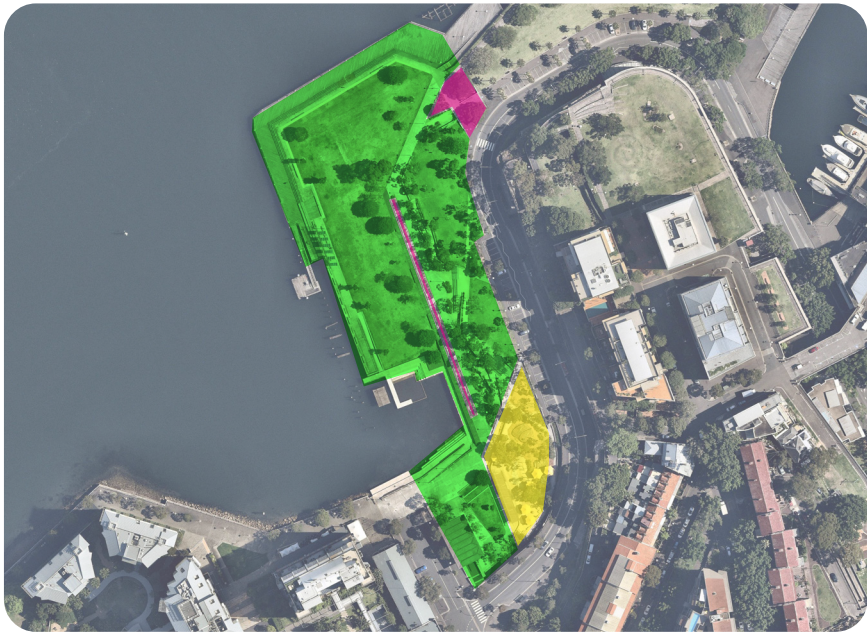
Area: 0.85 ha

Rhodes Foreshore Park is located along the shoreline of Homebush Bay adjacent to The Connection event venue. The park has easy access to Rhodes Train Station. The park is linear in shape with a small play space and large kickabout lawn. The western edge of the park connects into the foreshore walk around Homebush Bay.

Relevance: Local Open Space KV2



7.4 OPEN SPACE PRECEDENTS - >1 HA



OPEN SPACE 75%      VEGETATION SPACE 10%  
PLAY SPACE 15%



Place: **Pirrama Park Play Area**  
Location: 20 Pirrama Rd, Pyrmont  
Area: 1.8 ha  
  
Pirrama Park is located at Jones Bay, about 1.5km from CBD. The play area inside of the park includes playground, shelter, waterplay and seating features.  
  
Relevance: District Open Space BV1



OPEN SPACE 75%      VEGETATION SPACE 20%  
PLAY SPACE 15%

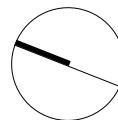


Place: **Chatswood Oval**  
Location: Orchard Road, Chatswood  
Area: 2.8 ha  
  
Chatswood Park is strategically situated at the heart of the suburb of Chatswood at the intersection of Albert Ave and Orchard Road. Chatswood Park can currently be characterised by two distinct zones. There are the northern park area, with mature exotic trees, mass planting and a play space and skate park. The second zone is the oval precinct with the sportsfield and supporting facilities and buildings.  
  
Relevance: District Open Space BV1



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### OPEN SPACE HIERARCHY

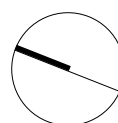
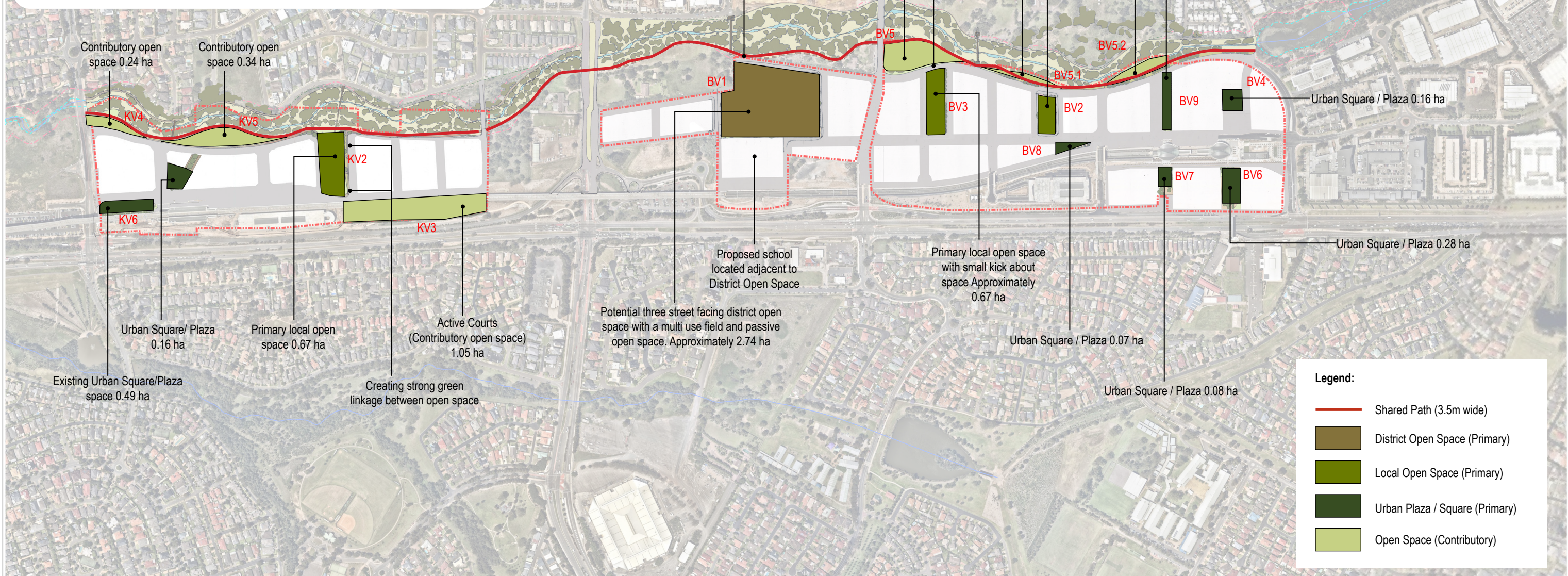
The Precinct Plans on this page and overleaf (Page 30 and Page 31) illustrate the types and distribution of open spaces within both the Kellyville and Bella Vista Precincts, providing details on the open space hierarchy (Local and District), setting types (eg Civic and Urban, Plaza, Managed Lawns etc) and park sizes.

### OPEN SPACE FUNCTION AND PURPOSE

Table 8.1 (Kellyville) and Table 8.2 (Bella Vista) describe each open space in detail, describing the following aspects of each:

- Location and number – cross referenced to the maps on Page 30 and Page 31
- Hierarchy – Local, District or Contributory
- Catchment - the expected area or distance from which the users are likely to originate
- Size – matching or exceeding best practice standards for the required park size under each hierarchy
- Setting – identifying the recreation opportunities available
- Function – primary role of the open space
- Users and Uses – anticipated typical user types and typical duration of visit
- Character – the nature and experience of the space (formal, informal, natural, urban etc)
- Potential Elements – the typical park components and recreation facilities available at the park.

The tables also identify the total quantum of public open space in each precinct and the additional contributory open space.





8.0 OPEN SPACE HIERARCHY AND FUNCTION - KELLYVILLE

PARK NO.	HIERARCHY	CATCHMENT	SIZE	SETTING	FUNCTION	USERS AND USES	CHARACTER	POTENTIAL ELEMENTS
Kellyville								
KV1	Primary - Urban Plaza / Square	200- 400m	0.16ha	<ul style="list-style-type: none"><li>Civic and Urban Space</li></ul>	<p>Multi-use space directly associated with transport and retail hub.</p> <p>A place to sit and have a coffee, eat lunch or catch up with neighbours met while shopping. Public seating should be available as well as café seating for adjoining businesses.</p>	<p>To provide for day-to-day use by adjoining residents, retailers, commuters to and from the station, lunchtime breaks for local employees and visitors to adjoining shops and community facilities.</p> <p>Duration of stay likely to be short (15-20 mins)</p>	<ul style="list-style-type: none"><li>Strong civic focus</li><li>Robust design suitable for extensive pedestrian movement</li><li>Sun and shade balance.</li></ul>	<ul style="list-style-type: none"><li>Plaza space for events, stalls etc plus water feature</li><li>Seats, seating walls</li><li>Connected pathways, steps and ramps</li><li>Planting for shade and seasonal interest</li><li>Potential public art</li><li>All abilities access throughout</li><li>Wayfinding signage.</li></ul>
KV2	Primary - Local Open Space	200- 400m	0.67ha	<ul style="list-style-type: none"><li>Parkland</li></ul>	<p>To provide local passive open space and day to day use by adjoining residents.</p> <p>To provide level open space.</p> <p>Potential connection/ interaction with KV3.</p> <p>Three sides to streets to provide easy access and potential on street parking.</p> <p>Balance of hardscape and softscape to maximise the opportunities for different informal activities.</p> <p>Potential opportunities for stormwater detention, water harvesting and WSUD capacity.</p>	<p>Potential lunchtime breaks for local employees and visitors to adjoining shops and community facilities.</p> <p>Duration of stay likely to be medium during the week (15-30 mins) and longer for residents at the weekend (45-60 mins).</p>	<ul style="list-style-type: none"><li>Town park character</li><li>Semi formal design</li><li>Spaces defined by planting</li><li>Balance of quiet spaces and open lawn.</li></ul>	<ul style="list-style-type: none"><li>Large kick about lawn (irrigated)</li><li>Children's playground</li><li>Potential space for events, markets etc</li><li>Shelters, seats, picnic settings and BBQs</li><li>Connected pathways. Steps and ramps if applicable</li><li>Feature trees with seasonal colour, shrubs defining areas and social seating</li><li>Potential public art</li><li>Wayfinding signage</li><li>All abilities access throughout.</li></ul>

Table 8.1 Open space hierarchy, function and design elements for Kellyville Station Precinct



## 8.0 OPEN SPACE HIERARCHY AND FUNCTION - KELLYVILLE

PARK NO.	HIERARCHY	CATCHMENT	SIZE	SETTING	FUNCTION	USERS AND USES	CHARACTER	POTENTIAL ELEMENTS
<b>Kellyville</b>								
<b>KV3</b>	<b>Contributory Open Space</b>	200- 400m	1.05ha	<ul style="list-style-type: none"> <li>Informal Active Space</li> </ul>	Informal sport courts, skate park with amenities.  Picnic shelter and seatings.  Potential connection/ interaction with the KV2.	To provide informal active open space for day-to-day use by adjoining residents and local employees.  Duration of stay likely to be longer for residents (30-60 mins).	<ul style="list-style-type: none"> <li>High energy space</li> <li>Intense activities in small space</li> <li>Clearly defined spaces for different activities.</li> </ul>	<ul style="list-style-type: none"> <li>Informal sport courts for different sports eg basketball, tennis etc</li> <li>Combination of passive and active open space</li> <li>Potential public art</li> <li>Shelter and shade structures</li> <li>All abilities access throughout</li> <li>Wayfinding signage</li> <li>Night lighting for evening use and safety.</li> </ul>
<b>KV4 KV5</b>	<b>Contributory Open Space</b>	200- 400m	0.24ha 0.34ha	<ul style="list-style-type: none"> <li>Managed Lawn Space</li> </ul>	To provide additional passive open space for adjoining residents and users of the riparian corridor (cyclists and walkers).  Located along the riparian corridor.  Seatings and potential shelter with picnic setting.	For local residents and riparian corridor users, both cyclists and walkers.  Various duration of stay.	<ul style="list-style-type: none"> <li>Calm reflective space</li> <li>Views into and along creek</li> <li>Strong natural vegetation framework, including commuters.</li> </ul>	<ul style="list-style-type: none"> <li>Informal passive open space</li> <li>Managed and irrigated lawn</li> <li>Small runabout space suitable for young children</li> <li>Wayfinding signage.</li> </ul>
<b>KV6</b>	<b>Existing Primary - Urban Plaza / Square</b>	200- 400m	0.49ha	<ul style="list-style-type: none"> <li>Existing Civic and Urban Space</li> </ul>	Provides day-to-day use for adjoining residents, retail, commuters to and from the station, lunchtime breaks for local employees and visitors to adjoining shops.  A place to sit and have a coffee, wait for Metro users, eat lunch or catch up with neighbours met while shopping. Public seating is available for users under the established tree canopy of the plaza.	Lunchtime breaks for local employees and visitors.  Duration of stay likely to be short during the week (15-20 minutes) and longer for residents at the weekend (30 mins).	<ul style="list-style-type: none"> <li>Gateway of Kellyville Precinct</li> <li>Urban plaza setting in a mixed use environment</li> <li>Mainly paved space with shaded public seating and low planting.</li> </ul>	<ul style="list-style-type: none"> <li>Plaza has been fully delivered as part of the Metro Works and therefore has no potential elements.</li> </ul>

Table 8.1 (Continued)

**Total Primary Open Space: 1.32 ha**  
**Total Contributory Open Space: 1.63 ha**



8.0 OPEN SPACE HIERARCHY AND FUNCTION - BELLA VISTA

PARK NO.	HIERARCHY	CATCHMENT	SIZE	SETTING	FUNCTION	USERS AND USES	CHARACTER	POTENTIAL ELEMENTS
Bella Vista								
BV1	Primary - District Open Space	2 - 5km	2.74ha	<ul style="list-style-type: none"><li>District Park with multi-use</li></ul>	<p>Multi-use space that can accommodate a range of large and small group activities, including periodic sports use (school, junior training and occasional exhibition matches etc) and offer opportunities for cultural expression and environmental education.</p> <p>Typical functions would include:</p> <ul style="list-style-type: none"><li>Sports</li><li>Events and celebrations</li><li>Picnic and play</li><li>Youth activities</li><li>Off-leash areas</li><li>Public gardens</li><li>Community facilities.</li></ul>	<p>Residents within 2-5km catchment.</p> <p>Adjoining school informal use</p> <p>Duration of stay likely to be longer for residents (60- 120 mins). Longer when events held.</p>	<ul style="list-style-type: none"><li>District Park character</li><li>Town Oval character</li><li>Space for different activities, both active and passive</li><li>Balance of quiet space and open lawn</li><li>Softscape dominant with existing Cumberland vegetation to be retained, where present</li><li>Balance of winter sun and summer shade.</li></ul>	<ul style="list-style-type: none"><li>Major Open Space in the Kellyville and Bella Vista Precinct</li><li>A large multi-use level grass space</li><li>Space for events, stalls etc plus water feature</li><li>Multi- use community facility building including community room, toilets, change facility, storage etc</li><li>Seats, seating walls</li><li>Connected pathways,steps and ramps</li><li>Planting for shade and seasonal interest</li><li>Potential public art</li><li>All abilities access throughout</li><li>Wayfinding signage.</li></ul> <p>Other possible uses may include:</p> <ul style="list-style-type: none"><li>Community gardens and nursery</li><li>Community / public art and other interpretative items</li><li>Youth spaces including multi-use areas and skate facilities</li><li>Off-leash dog exercise areas</li><li>On and off street car parking areas.</li></ul>
BV2	Primary - Local Open Space	200 - 400m	0.38ha	<ul style="list-style-type: none"><li>Parkland</li></ul>	<p>To provide local passive open space and day to day use by adjoining residents.</p> <p>To provide level open space.</p> <p>Three/Four sides to streets to provide easy access and potential on street parking.</p> <p>Balance of hardscape and softscape to maximises the opportunities for different activities.</p>	<p>Potential lunchtime breaks for local employees and visitors to adjoining shops and community facilities.</p> <p>Duration of stay likely to be medium during the week (30 minutes) and longer for residents at the weekend (45-60 mins).</p>	<ul style="list-style-type: none"><li>Semi formal design</li><li>Space defined by both planting and open lawn</li><li>A sense of comfortable and safe space for residents to gather</li><li>Encourages use and interaction among residents.</li></ul>	<ul style="list-style-type: none"><li>Large kick about lawn (irrigated)</li><li>Children's playground</li><li>Potential space for events, market etc</li><li>Shelters, seats, picnic settings and BBQs</li><li>Connected pathways. Steps and ramps if applicable</li><li>Feature trees with seasonal colour, shrubs defining areas and social seating</li><li>Potential public art</li><li>Wayfinding signage</li><li>All abilities access throughout.</li></ul>

Table 8.2 Open space hierarchy, function and design elements for Bella Vista Station Precinct



## 8.0 OPEN SPACE HIERARCHY AND FUNCTION - BELLA VISTA

PARK NO.	HIERARCHY	CATCHMENT	SIZE	SETTING	FUNCTION	USERS AND USES	CHARACTER	POTENTIAL ELEMENTS
<b>Bella Vista</b>								
<b>BV3</b>	<b>Primary - Local Open Space</b>	200 - 400m	0.67ha	<ul style="list-style-type: none"> <li>Parkland</li> </ul>	<p>To provide local passive open space and day-to-day use by adjoining residents.</p> <p>To provide level open space.</p> <p>Potential connection/interaction with the riparian corridor, BV5.</p> <p>Bordered on three/four by streets to provide easy access and potential on street parking.</p> <p>Balance of hardscape and softscape to maximises the opportunities for different activities.</p>	<p>Potential lunchtime breaks for local employees and visitors to adjoining shops and community facilities.</p> <p>Duration of stay likely to be medium during the week (30 minutes) and longer for residents at the weekend (45-60 mins).</p>	<ul style="list-style-type: none"> <li>Semi formal design</li> <li>Space defined by both planting and open lawn</li> <li>A sense of comfortable and safe space for residents to gather</li> <li>Encourages use and interaction among residents.</li> </ul>	<ul style="list-style-type: none"> <li>Large kick about lawn (irrigated)</li> <li>Children's playground</li> <li>Potential space for events, market etc</li> <li>Shelters, seats, picnic settings and BBQs</li> <li>Connected pathways. Steps and ramps if applicable</li> <li>Feature trees with seasonal colour, shrubs defining areas and social seating</li> <li>Potential public art</li> <li>Wayfinding signage</li> <li>All abilities access throughout.</li> </ul>
<b>BV4 BV6 BV8</b>	<b>Primary - Urban Plaza / Square</b>	200m	0.16ha 0.28ha 0.07ha	<ul style="list-style-type: none"> <li>Civic and Urban Space</li> </ul>	<p>To provide for day-to-day use by adjoining residents, retail, commuters to and from the station, lunchtime breaks for local employees and visitors to adjoining shops and community facilities.</p> <p>A place to sit and have a coffee, eat lunch or catch up with neighbours met while shopping. Public seating should be available as well as café seating for adjoin businesses.</p>	<p>Lunchtime breaks for local employees and visitors</p> <p>Duration of stay likely to be short during the week (15-20 minutes) and longer for residents at the weekend (30 mins).</p>	<ul style="list-style-type: none"> <li>Gateway of Bella Vista Precinct</li> <li>An urban plaza setting in a mixed use environment</li> <li>Interface with community facility</li> <li>Mainly paved space with opportunity for outdoor dining and shaded public seating.</li> </ul>	<ul style="list-style-type: none"> <li>Plaza space for events, stalls etc plus water feature</li> <li>Planting for shade and seasonal interest</li> <li>Seats, seating walls</li> <li>Connected pathways, steps and ramps</li> <li>Potential public art</li> <li>All abilities access throughout</li> <li>Wayfinding signage.</li> </ul>
<b>BV5 BV5.1 BV5.2</b>	<b>Contributory Open Space</b>	200- 400m	0.54ha 0.23ha 0.32ha	<ul style="list-style-type: none"> <li>Managed Lawn Space and Native Planting</li> </ul>	<p>To provide additional passive open space for adjoining residents.</p> <p>Located along the riparian corridor.</p> <p>Seating and potential shelter with picnic setting.</p>	<p>Duration of stay likely to be longer for residents at the weekend (20-30 mins).</p>	<ul style="list-style-type: none"> <li>Semi formal space</li> <li>Managed irrigated lawn with defined edge</li> <li>With Riparian corridor backdrop.</li> </ul>	<ul style="list-style-type: none"> <li>Informal passive open space with seating</li> <li>Managed and irrigated lawn</li> <li>Wayfinding signage.</li> </ul>
<b>BV7 BV9</b>	<b>Primary - Urban Plaza / Square</b>	200- 400m	0.08ha 0.15ha	<ul style="list-style-type: none"> <li>Civic and Urban Space</li> <li>Social Corner</li> <li>Pedestrian thoroughfare.</li> </ul>	<p>Social corner for residents/visitors to meet up while out and about.</p> <p>A place to sit and have a coffee, eat lunch or catch up with neighbours.</p> <p>A green pedestrian space with good canopy cover</p>	<p>Duration of stay likely to be short for both residents and visitors (5-20 minutes)</p> <p>Pedestrian thoroughfare with minimal stopping</p>	<ul style="list-style-type: none"> <li>Balance of hardscape and softscape</li> <li>Street tree planting to provide shade.</li> </ul>	<ul style="list-style-type: none"> <li>Seating</li> <li>Planting for shade and seasonal interest</li> <li>Potential public art</li> <li>Wayfinding signage.</li> </ul>

Table 8.2 (Continued)

**Total Primary Open Space: 4.53 ha****Total Contributory Open Space: 1.09 ha**

\*BV9 is a green link - a linear pedestrian, tree lined space with seating and social opportunities



8.0 OPEN SPACE HIERARCHY AND FUNCTION - CADDIES CREEK RESERVE

PARK NO.	HIERARCHY	CATCHMENT	SIZE	SETTING	FUNCTION	USERS AND USES	CHARACTER	ELEMENTS
Additional Open Space								
Caddies Creek Reserve	Primary - District Open Space	2 - 5km	11ha	<ul style="list-style-type: none"><li>District Park with multi-use</li></ul>	<p>Multi-use space that can accommodate a range of large and small group activities, including periodic sports use.</p> <p>Typical functions would include:</p> <ul style="list-style-type: none"><li>Sports such as football, cricket and baseball</li><li>Events</li><li>Picnic and play</li><li>Youth activities</li><li>Walking trail.</li></ul>	<p>Residents within 2-5km catchment.</p> <p>Duration of stay likely to be longer for residents (60- 120 mins). Longer when events held.</p>	<ul style="list-style-type: none"><li>District Park character</li><li>Sports Reserve character</li><li>Space for different activities, both active and passive</li><li>Balance of quiet space and open lawn</li><li>Incorporated major environmental initiatives including water recycling and environmental restoration.</li></ul>	<ul style="list-style-type: none"><li>One of the major sport reserves in The Hills Shire Council</li><li>Four sporting fields</li><li>Two amenities buildings</li><li>Abundant parkland</li><li>Space for events, stalls etc</li><li>More than 120 car parking spaces</li><li>A playground</li><li>More than two kilometres of shared pedestrian/ cycle path</li><li>Paved walking trails</li><li>Disable access.</li></ul>

Table 8.3 Caddies Creek Reserve function, character and elements.



## 8.0 OPEN SPACE HIERARCHY AND FUNCTION - CADDIES CREEK RESERVE



Figure 8.4 Existing sports fields and facilities in Caddies Creek Reserve with potential future expansion.



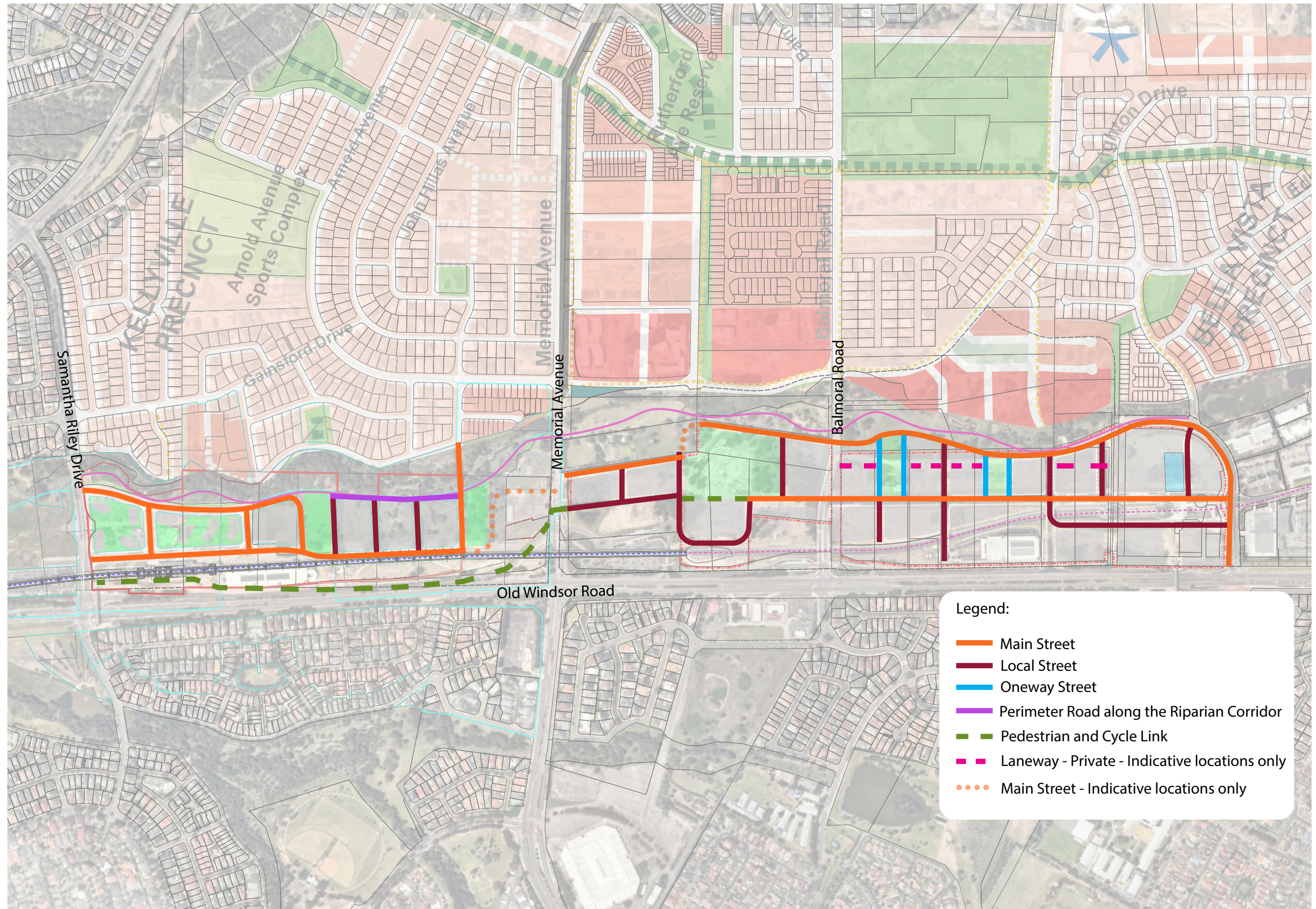


Figure 9.1 Street typologies



9.0 STREET TYPOLOGIES

STREET TYPOLOGIES

A series of street typologies have been allocated for Kellyville and Bella Vista Precincts. The map overleaf (Sk44) illustrates the street types and their locations. The following street types are proposed:

- Main Street - 20m wide
- Local Street - 18m wide (except adjacent to the local open space in Kellyville)
- Oneway Street - 9m wide (only in Bella Vista)
- Perimeter Road along the Riparian Corridor - 10m wide (only in Kellyville)
- Laneway - Private - 8m wide (only in Bella Vista)

Some of the roads had been previously delivered as part of the Sydney Metro works, refer to Map Sk 48 for details.

IN STREET TREE PLANTING

Street tree planting in the road corridor (rather than in the pedestrian pavement corridor) is proposed for both the Kellyville and Bella Vista Precincts, using a structural soil system (Strata Vault is a commonly used system). This approach has the following typical benefits:

- Permits higher soil volumes including under trafficked areas, without entailing soil compaction
- Results in lesser impact on tree growth from in-ground services
- Detains higher volumes of urban stormwater after storm events
- Increases tree root access to more in-ground water
- Promotes increased mature canopy width and therefore increased shading of paths and parked cars
- Frees up more width for pedestrian movement on paths (and cycle movement if adjoining a shared path)
- Ensures that street lighting can be spaced to avoid being covered by tree canopy.

See the Urban Design Guidelines for further details on the structural soil system.

TREE SPACING

Street tree spacing has been integrated with on-street car park spacing so that on-street car park capacity will not be compromised. The varying spacing between trees reflects the different street widths and different tree sizes; this ensures a full canopy spread in each case. The following spacing has been proposed for the two precincts respectively:

Kellyville Precincts:

- Main Street - Tree spacing: 15m with two car parks between trees
- Local Street – Tree spacing: 8.5m with one car park between trees
- Perimeter Road along the Riparian Corridor – Tree spacing: 8.5m, no car park is proposed

Bella Vista Precincts:

- Main Street - Tree spacing: 15m with two car parks between trees
- Local Street – Tree spacing: 8.5m with one car park between trees
- One way Street – Tree spacing: 8.5m with one car park between trees
- Laneway – Tree spacing: 6m, no car park is proposed in laneway

TREE CANOPY COVERAGE

Street tree species, tree canopy overlaps and tree canopy overhanging in to property lots have also been taken into consideration. The following street tree canopy coverage (as a percentage of the public domain streets and paths) can be achieved with the above-mentioned spacing:

- Kellyville: 55.1%
- Bella Vista: 49.8%

STREET TREES (KELLYVILLE PRECINCT)

Tree selection should be based on the performance matrix below for Main Streets in the Kellyville Precinct:

- Large tree
- Australian native
- Evergreen
- Mature height at least 15-20m
- At least 12m mature canopy spread
- Provide a unique character and promote diversity in streetscape

The following species are recommended for Main Streets in the Kellyville Precinct:

- *Eucalyptus amplifolia* (Cabbage Gum)
- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus moluccana* (Grey Box)
- *Eucalyptus tereticornis* (Forest Red Gum)

Tree selection should be based on the performance matrix below for Local Streets in the Kellyville Precinct:

- Medium size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 10-12m
- Mature canopy spread approximately 6-8m

The following species are recommended for Local Streets in the Kellyville Precinct:

- *Fraxinus oxycarpa* 'Raywoodii' (Claret Ash)
- *Pyrus calleryana* (Callery Pear)
- *Sapium Sebiferum* (Chinese Tallowood)

Tree selection should be based on the performance matrix below for Perimeter Road along the Riparian Corridor in the Kellyville Precinct:

- Small size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 5-8m
- Mature canopy spread approximately 6-8m

The following species are recommended for Perimeter Road along the Riparian Corridor in the Kellyville Precinct:

- *Prunus cerasifera* 'Nigra' (Black Cherry Plum)
- *Ulmus parvifolia* (Chinese Elm)

STREET TREES (BELLA VISTA PRECINCT)

Tree selection should be based on the performance matrix below for Main Streets in the Bella Vista Precinct:

- Large tree
- Australian native
- Evergreen
- Mature height at least 15-20m
- At least 12m mature canopy spread
- Provide a unique character and promote diversity in streetscape

The following species are recommended for Main Streets in the Bella Vista Precinct:

- *Eucalyptus crebra* (Narrow-leaved Ironbark)
- *Eucalyptus tereticornis* (Forest Red Gum)
- *Melaleuca styphelioides* (Prickly-leaved Paperbark)
- *Tristaniopsis laurina* 'Luscious' (Kanooka Gum)

Tree selection should be based on the performance matrix below for Local Streets in the Bella Vista Precinct:

- Medium size tree
- Australian native or exotic
- Evergreen or deciduous
- Mature height approximately 10-12m
- Mature canopy spread approximately 6-8m

The following species are recommended for Local / One Way Streets in the Bella Vista Precinct:

- *Fraxinus griffithii* (Evergreen Ash)
- *Fraxinus oxycarpa* 'Raywoodii' (Claret Ash)
- *Pyrus calleryana* (Callery Pear)
- *Sapium Sebiferum* (Chinese Tallowood)
- *Pistacia chinensis* (Chinese Pistachio)

Tree selection should be based on the performance matrix below for Laneways in Bella Vista Precinct:

- Small size tree with narrow form
- Exotic
- Evergreen or deciduous
- Mature height approximately 4-6m
- Mature canopy spread approximately 3-4m

The following species are recommended for Laneway in Bella Vista Precinct:

- *Gordonia axillaris* (Fried Egg Plant)
- *Lagerstroemia indica* (Crepe Myrtle)



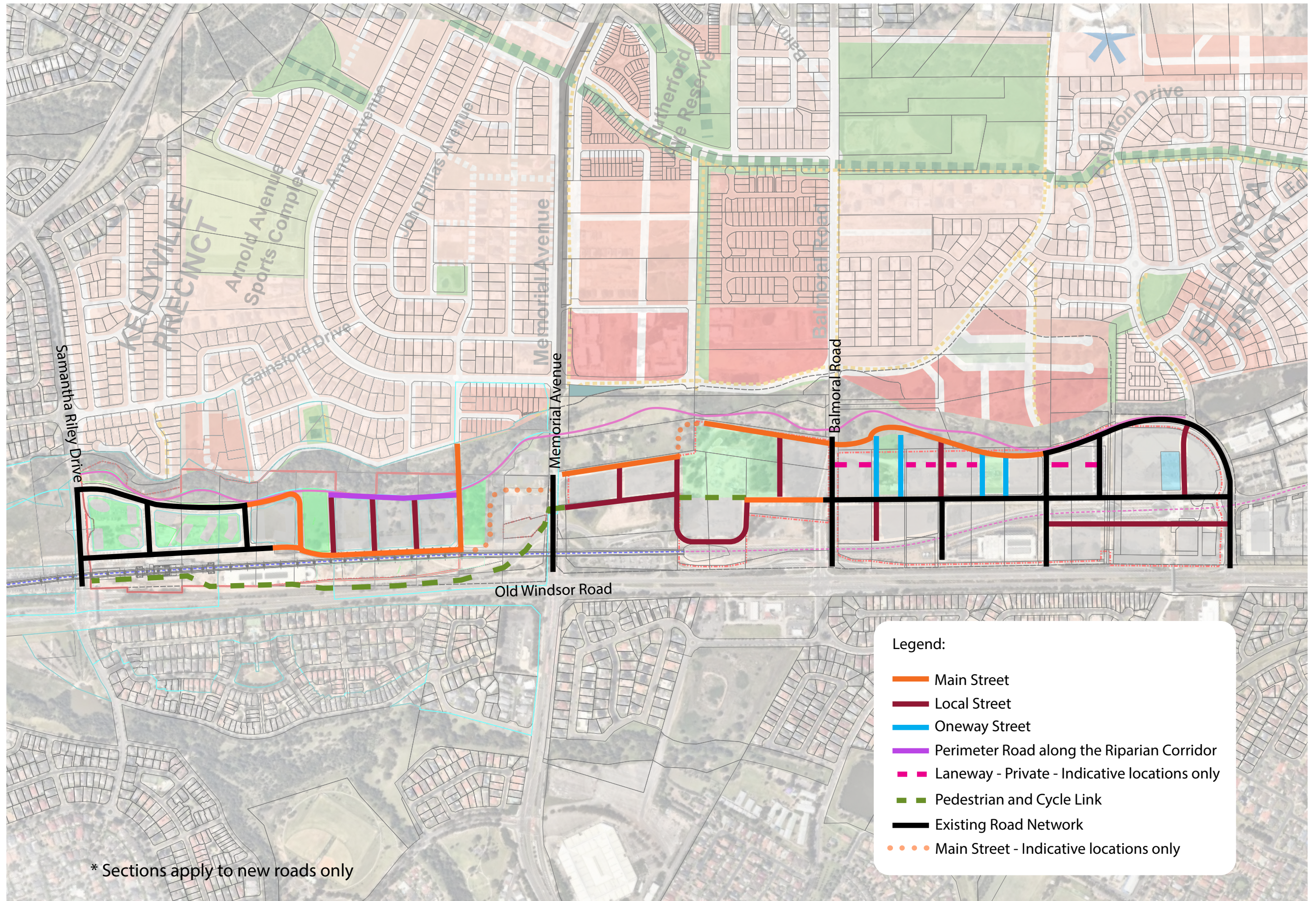
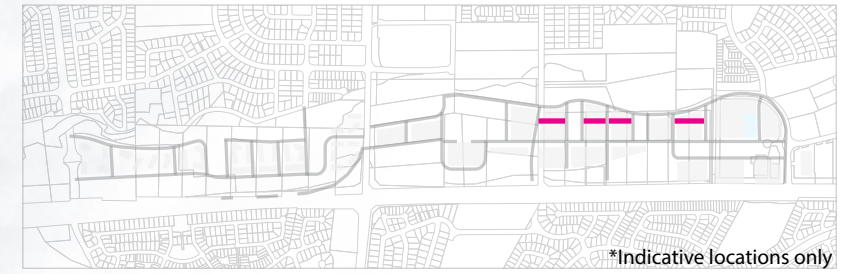
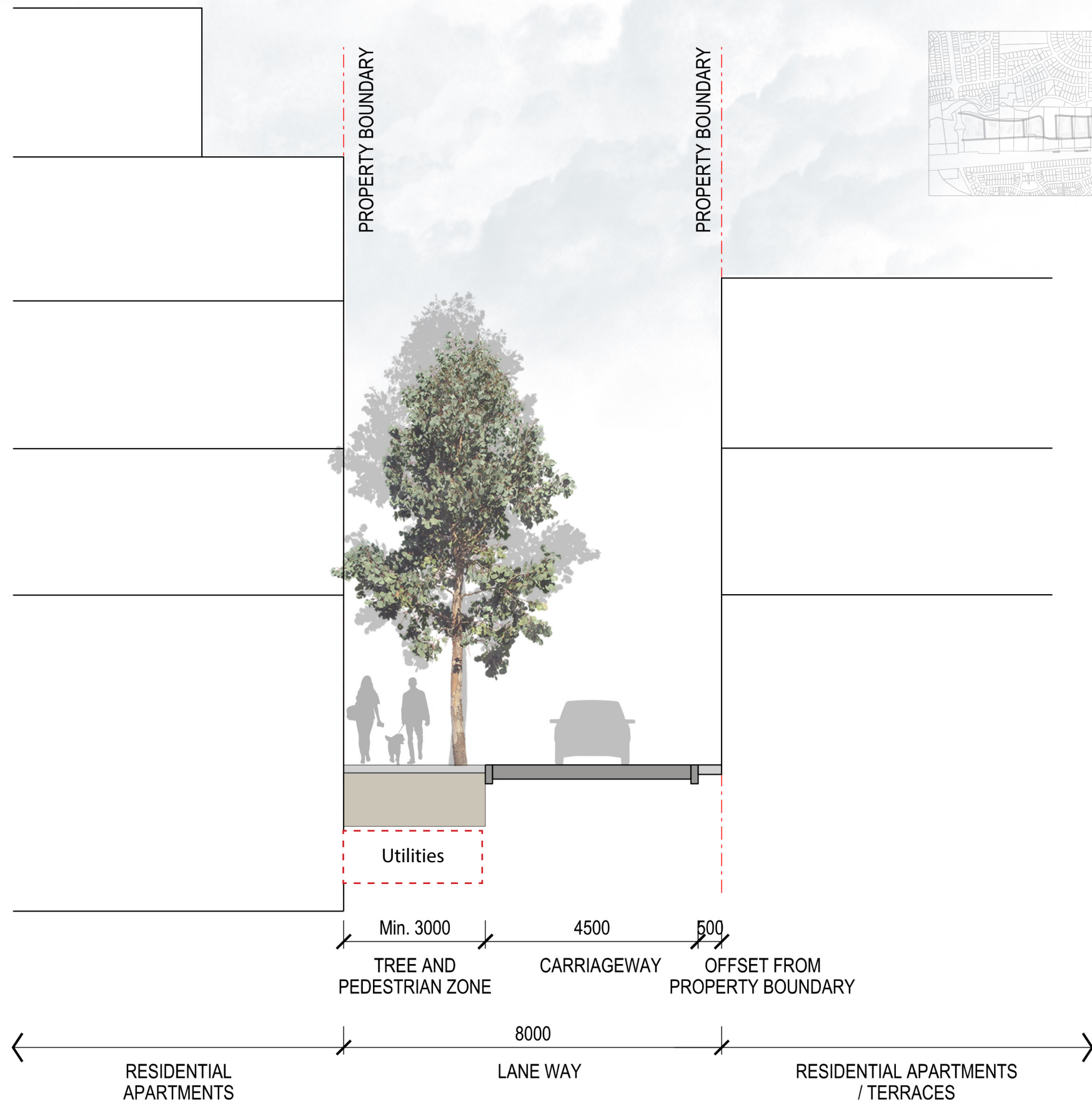


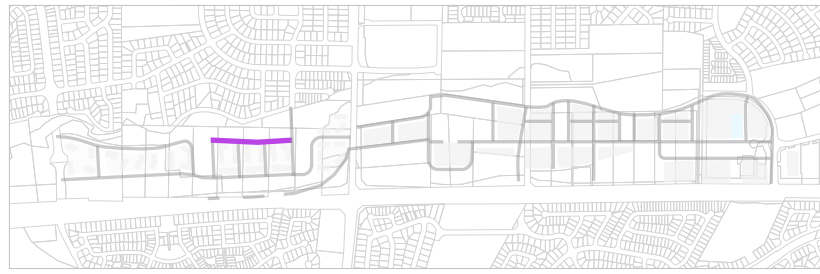
Figure 9.2 Street typologies (Road as built)





**LANEWAY - PRIVATE**  
Bella Vista - Residential





**PERIMETER ROAD ALONG THE RIPARIAN CORRIDOR**  
Kellyville - Riparian



Client:  
Landcom

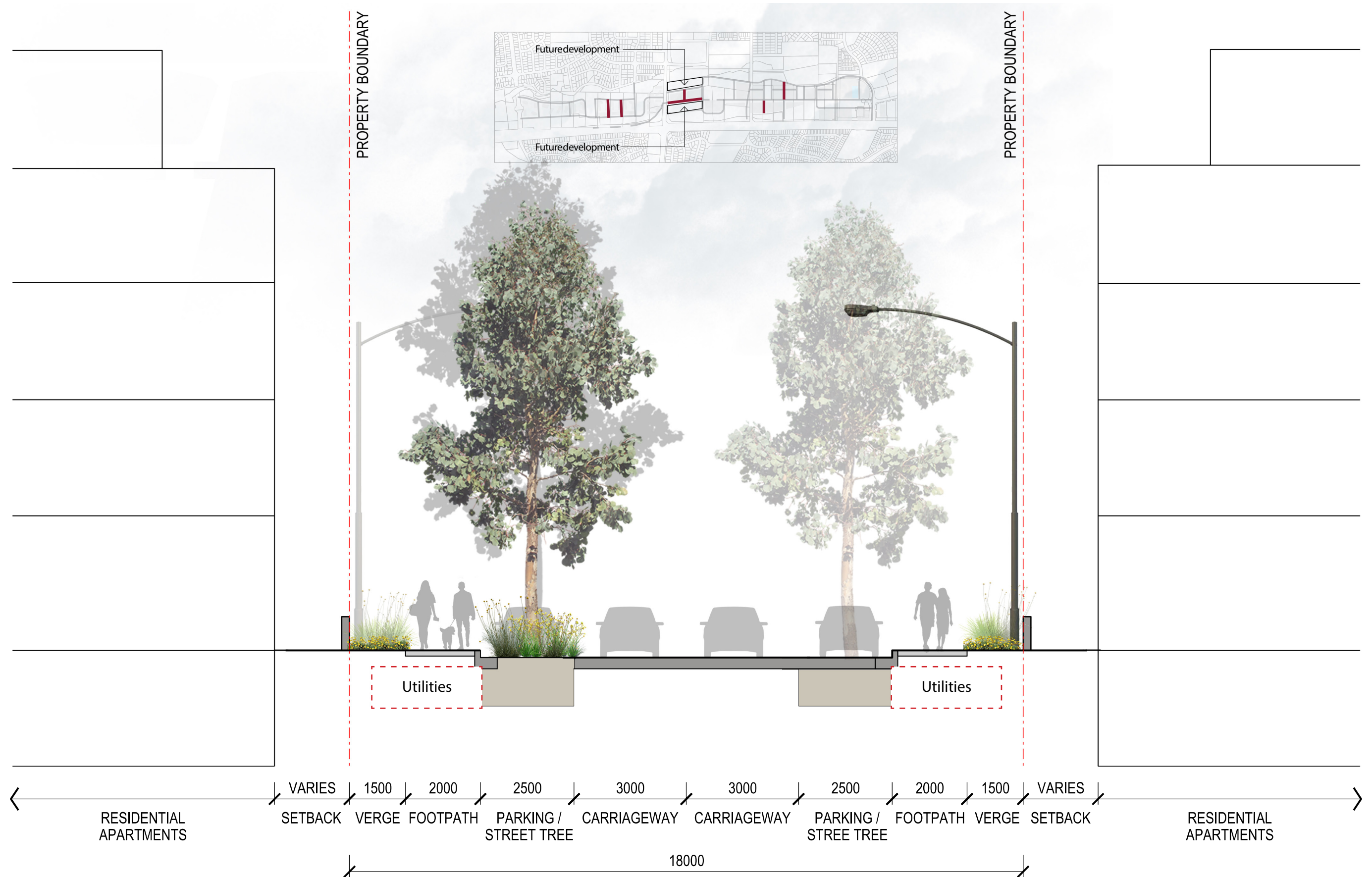


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## LOCAL STREET

Kellyville and Bella Vista - Residential



Client:  
Landcom

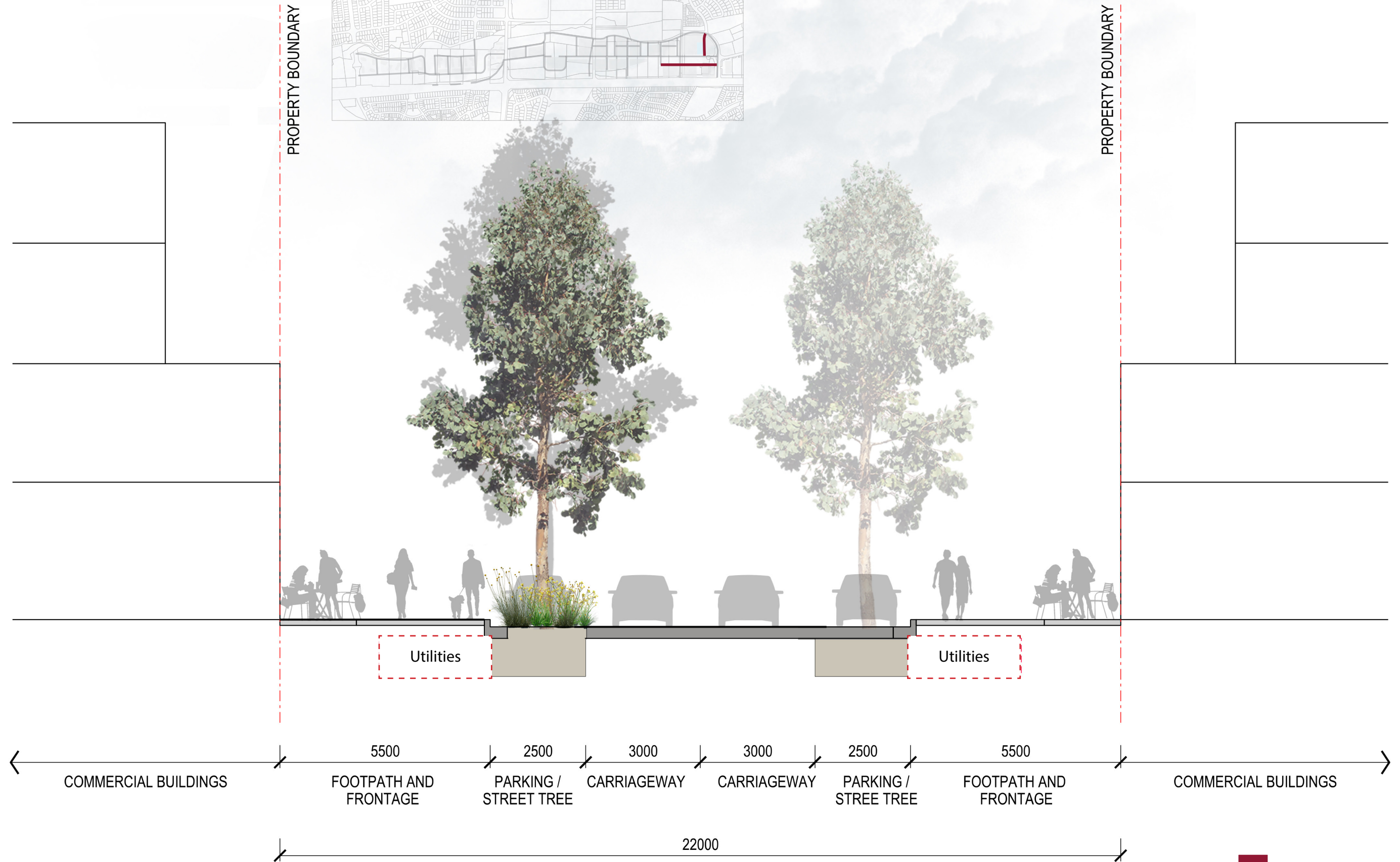


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**LOCAL STREET**  
Bella Vista - Commercial



Client:  
Landcom



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LOCAL OPEN SPACE

PROPERTY BOUNDARY



**LOCAL STREET - 15M**  
Kellyville - Park and Residential



Client:  
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KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

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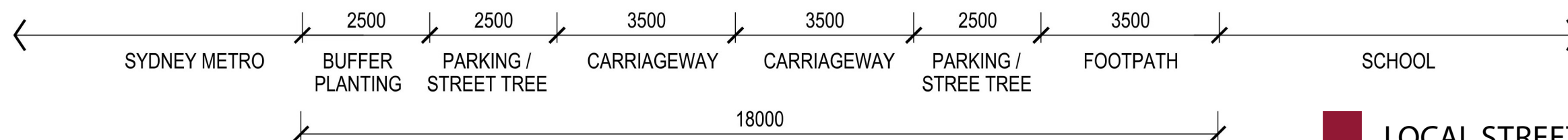
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SYDNEY METRO

SCHOOL BOUNDARY



**LOCAL STREET**  
Bella Vista - Viaduct and School



Client:  
Landcom  **LANDCOM**

LANDSCAPE ARCHITECTS • URBAN DESIGNERS • LANDSCAPE PLANNERS

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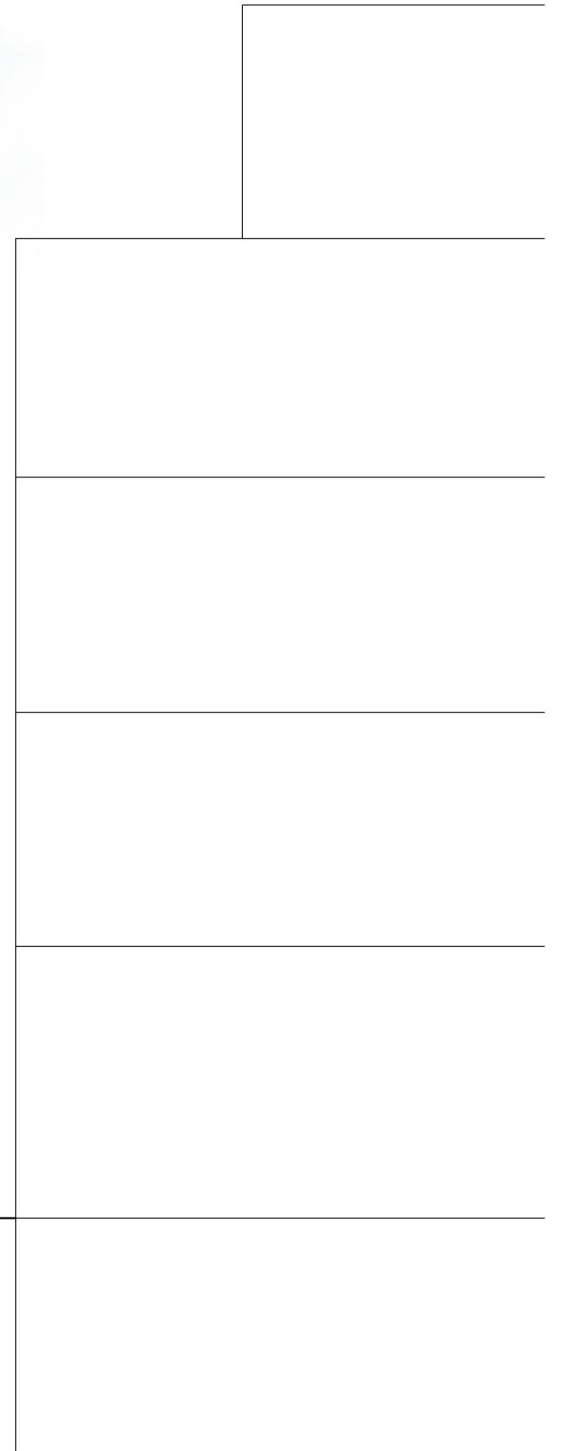
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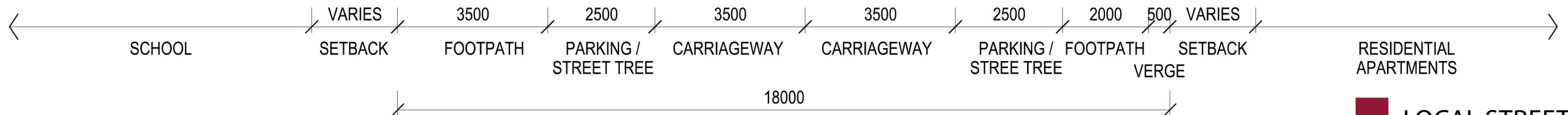


PROPERTY BOUNDARY

PROPERTY BOUNDARY



Utilities



## LOCAL STREET

Bella Vista - Residential and School



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**LOCAL STREET**  
Bella Vista - Residential and Park





## ONEWAY STREET

Bella Vista - Park and Residential



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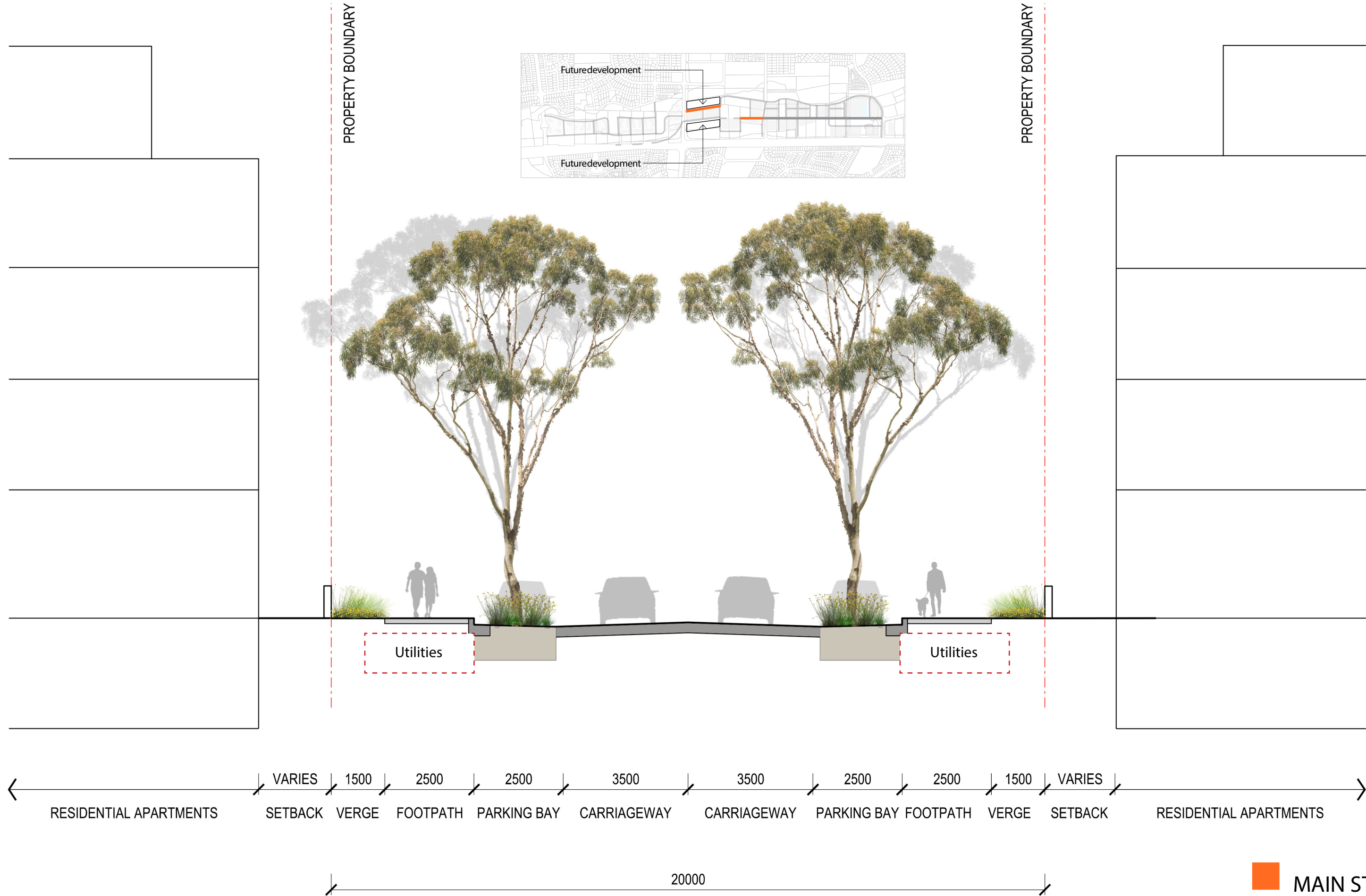


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**MAIN STREET**  
Bella Vista - Residential



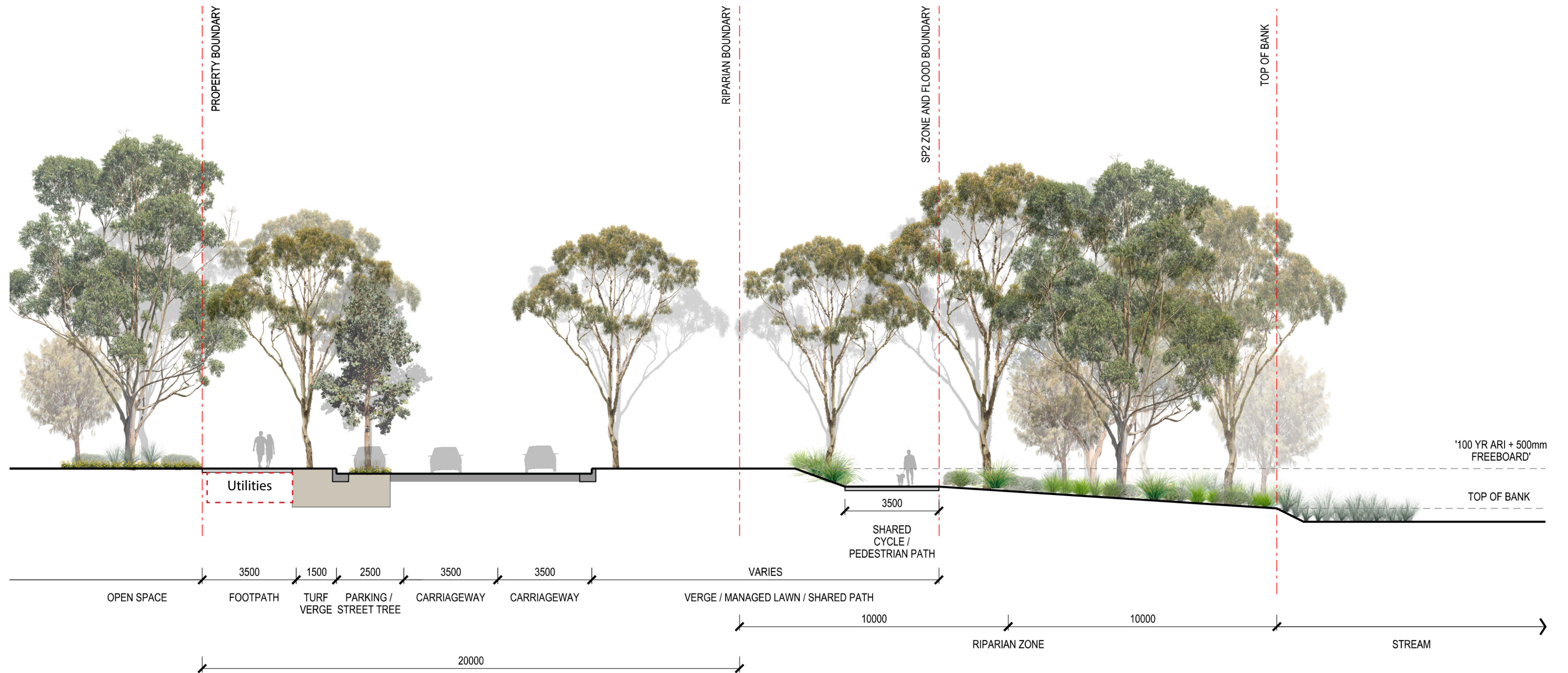
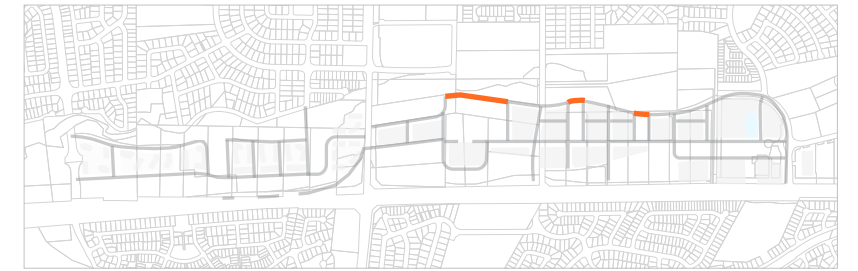
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## MAIN STREET

### Bella Vista - Open Space and Riparian



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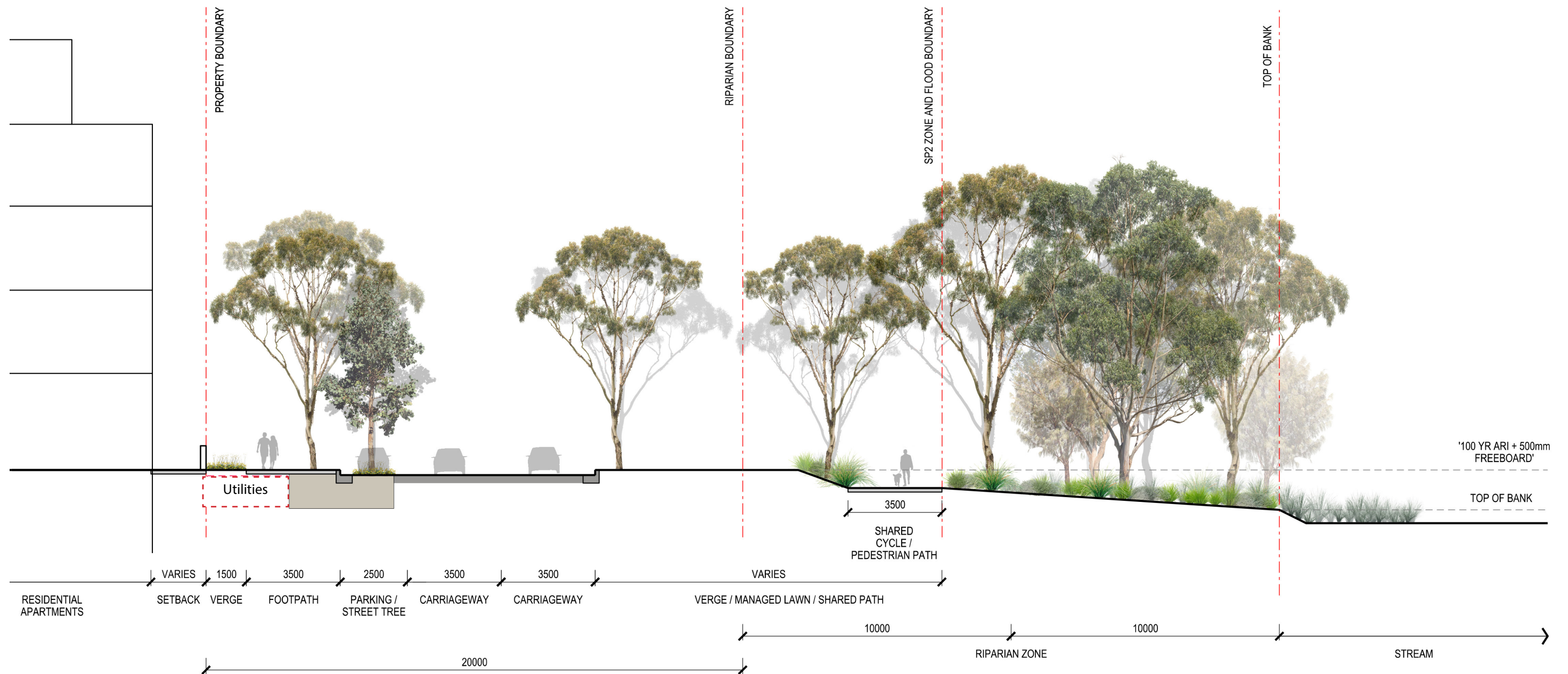
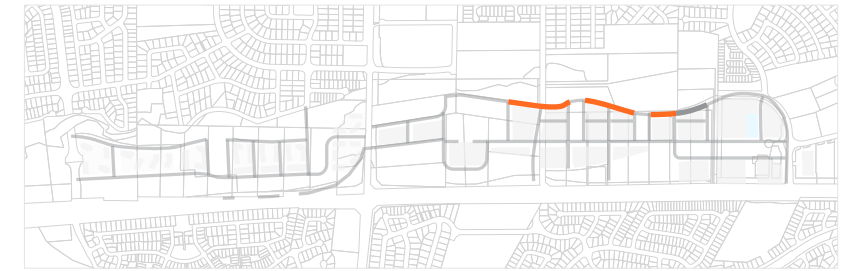


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## MAIN STREET

Bella Vista - Residential and Riparian



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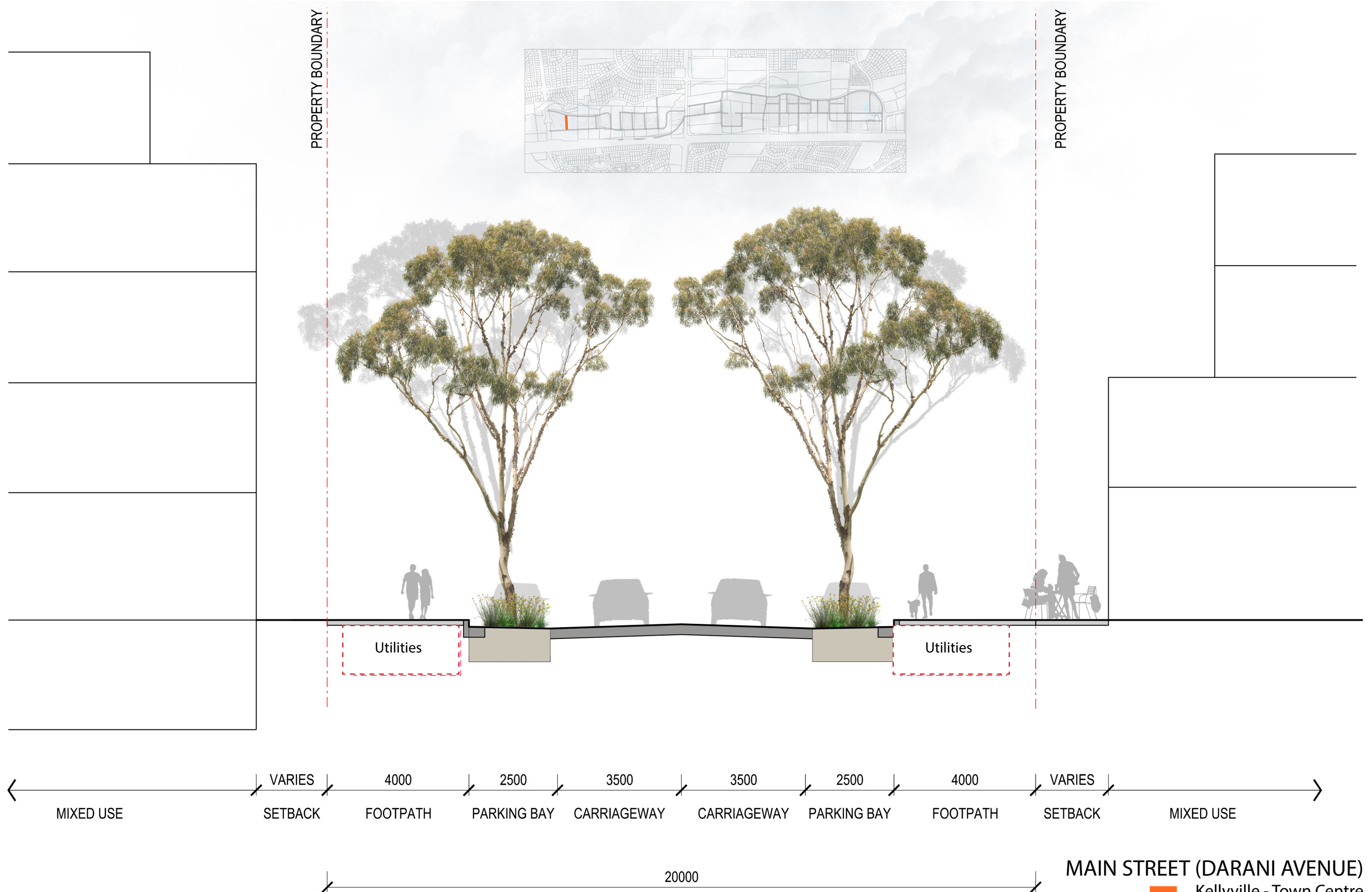


KELLYVILLE AND BELLA VISTA LANDSCAPE MASTER PLAN AND OPEN SPACE STRATEGY

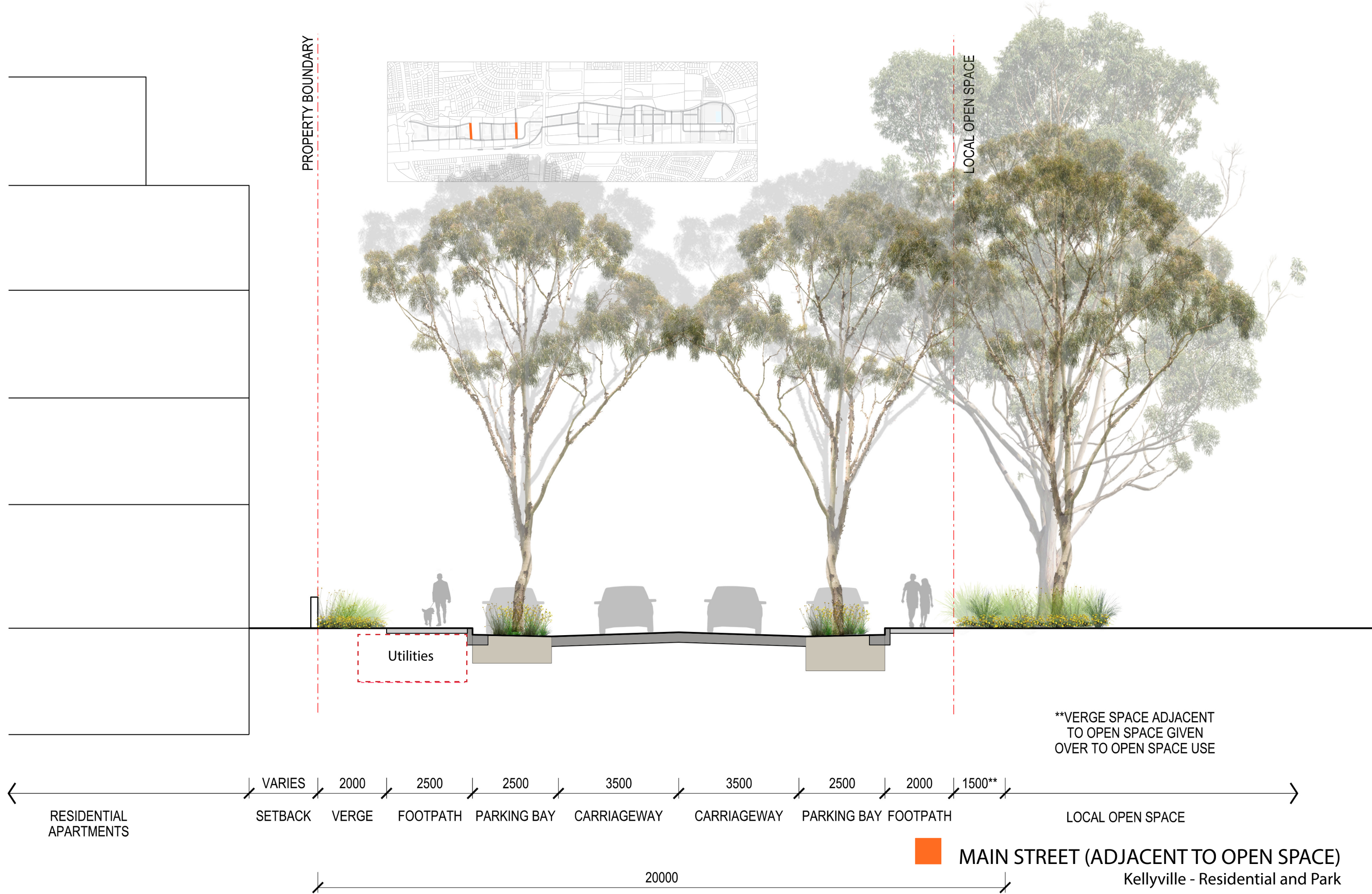
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## MAIN STREET (DECORA DRIVE)

### Kellyville - Riparian



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# 10.0 CONCLUSION

## CONCLUSION

This Landscape Master Plan and Open Space Strategy Report describes and illustrates the proposals for public open space and landscape in the Kellyville and Bella Vista precincts. The proposals are based on current best practice in public realm and landscape planning for urban development precincts of this nature. In summary the highlights of these proposals are listed below:

- the public open space network throughout the two precincts follows a consistent suite of principles while responding to the particular landscapes and development types within each precinct
- the quantum of proposed passive public open space within the SSDA boundaries of the two precincts exceeds baseline provision requirements under best practice metrics
- all residents within both precincts will have access to public open space well within the 200m (higher density) and 400m (lower density) access metrics
- the open space within the precincts is extensively linked to the surrounding locality by a network of paths and bridges
- the proposed shared path along Elizabeth Macarthur Creek is a significant element to connect both precincts to the nature and wider open space networks including Caddies Creek Reserve
- Caddies Creek Reserve is to be redeveloped as a large sporting complex to help serve the sporting needs of the new community
- the proposed public realm includes regularly spaced local parks (of varying setting types), a central district level park and path links to and within the Elizabeth Macarthur Creek corridor on the western boundary
- Elizabeth Macarthur Creek forms a critical ecological and open space corridor that bounds and integrates the two precincts
- the proposed streetscapes in each precinct will be highly walkable, cycle-friendly and extensively shaded by broad canopy street trees
- the network of footpaths and cycleways within the precincts promote recreational opportunities and reduce car dependency by permitting safe active transport access to day-to-day destinations and transport.

Importantly, the integrated public realm of parks, paths, bridges, riparian corridor and streetscapes and their associated plantings has been devised to achieve a suite of complementary outcomes for the residents and users of the precincts, including enhanced health and wellbeing, contact with nature, social connectedness, liveability and climate change adaptation.



11.0 REFERENCES AND APPENDICES

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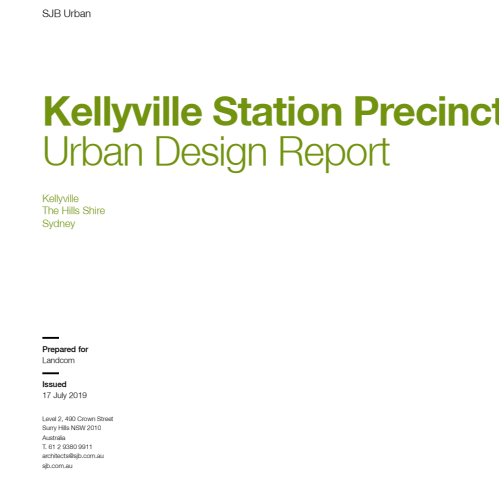
GANSW Greener Places (2018)



RobertsDay Master Plan (2015)



Kellyville Station Precinct Proposal (2015)



Kellyville Urban Design Report (2019)



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