Being a planning matter, the Mayor called for a division to record the votes on this matter

VOTING FOR THE MOTION
Mayor Dr M Byrne
Clr F De Masi
Clr M Blue
Clr Dr M Kasby
Clr J Cox
Clr T Cartwright
Clr R Boneham
Clr I Selvaraj

VOTING AGAINST THE MOTION
None

MEETING ABSENT
Clr A Haselden
Clr J Jackson PSM
Clr S Uno
Clr J Grevtseva
Clr R Jethi

ITEM 5 AMENDMENTS TO THE PLANNING FRAMEWORK FOR NORWEST SERVICE AND HILLS SHOWGROUND STATION PRECINCT IN ACCORDANCE WITH THE NORWEST STRATEGIC CENTRE PRECINCT PLAN (FP224 & FP223)

A MOTION WAS MOVED BY COUNCILLOR DE MASI AND SECONDED BY COUNCILLOR COX THAT the Recommendation contained in the report be adopted.

THE MOTION WAS PUT AND CARRIED UNANIMOUSLY.

179. RESOLUTION

1. A planning proposal be prepared to amend The Hills Local Environmental Plan 2019 in relation to the Showground Precinct as set out in Section 6 of this report.

2. The planning proposal be reported to the Local Planning Panel for advice. Provided the Panel's advice does not warrant any material changes to the planning proposal, the planning proposal then be forwarded to the Department of Planning, Housing and Infrastructure for Gateway Determination.

3. Subject to the issue of a Gateway Determination, draft amendments to The Hills Development Control Plan 2012 (Attachment 1) and the Public Domain Plan for Showground Station Precinct (Attachment 2) be publicly exhibited concurrent with the planning proposal.

Being a planning matter, the Mayor called for a division to record the votes on this matter

VOTING FOR THE MOTION
Mayor Dr M Byrne
Clr F De Masi
Clr M Blue
Clr Dr M Kasby
Clr J Cox
Clr T Cartwright
Clr R Boneham
Clr I Selvaraj

VOTING AGAINST THE MOTION
None

MEETING ABSENT
Clr A Haselden
Clr J Jackson PSM
Clr S Uno
Clr J Grevtseva
Clr R Jethi

ITEM 6 REVIEW OF PLANNING PROPOSAL POLICY (POLICY 22/2021-2024)

A MOTION WAS MOVED BY COUNCILLOR DE MASI AND SECONDED BY COUNCILLOR BLUE THAT the Recommendation contained in the report be adopted.

THE MOTION WAS PUT AND CARRIED UNANIMOUSLY.

180. RESOLUTION

1. Draft amendments to the Planning Proposal Policy (Attachment 1) be placed on public exhibition for a period of 28 days.

2. At the conclusion of that period, if there are any submissions by way of objection a further report will be submitted to Council, otherwise the Policy will be adopted as exhibited.

Being a planning matter, the Mayor called for a division to record the votes on this matter

VOTING FOR THE MOTION
Mayor Dr M Byrne
Clr F De Masi
Clr M Blue
Clr Dr M Kasby
Clr J Cox
Clr T Cartwright
Clr R Boneham
Clr I Selvaraj

ITEM 5	**AMENDMENTS TO THE PLANNING FRAMEWORK FOR NORWEST SERVICE AND HILLS SHOWGROUND STATION PRECINCT IN ACCORDANCE WITH THE NORWEST STRATEGIC CENTRE PRECINCT PLAN (FP224 & FP223)**
THEME:	Shaping Growth
MEETING DATE:	**13 MAY 2025** COUNCIL MEETING
GROUP:	**SHIRE STRATEGY**
AUTHOR:	**SENIOR TOWN PLANNER** DRAGANA STRBAC
RESPONSIBLE OFFICER:	**MANAGER – FORWARD PLANNING** NICHOLAS CARLTON

PURPOSE AND EXECUTIVE SUMMARY

This report recommends that Council progress with amendments to The Hills Local Environmental Plan (LEP) 2019, The Hills Development Control Plan (DCP) 2012 and the Showground Precinct Public Domain Plan in relation to the "Norwest Service" Precinct (also referred to as Showground Station Precinct, comprising the Urban Services and Employment Area along Victoria Avenue and the high density residential areas adjoining the Hills Showground Station).

The amendments implement a number of actions arising from Council's recently adopted Norwest Precinct Plan (Actions C1, C2 and C3) which identified a number of issues with the application of the current planning controls in these areas. These amendments are primarily intended to facilitate more orderly development and improved built form outcomes within these areas by rectifying errors and anomalies contained within the planning framework for this area, which was rezoned by Department of Planning, Housing and Infrastructure in December 2017 (through the Planned Precinct Program for the Showground Station Precinct).

The proposed amendments will ensure greater consistency in the applicable controls, simplify the development assessment process and promote higher quality urban design and built form within the Precinct by:

1. **Amending LEP 2019 to correct a mismatch between maximum Floor Space Ratio (FSR) and Building Height Controls for employment land along Windsor Road and within the high density residential area surrounding Hills Showground Station.** The combination of FSR and height controls put in place by the NSW Government has resulted in development being unable to achieve the maximum permitted FSR whilst also complying with the maximum building height control and other key design criteria within Council's Development Control Plan and the Apartment Design Guide. In practice, this is driving poor built form outcomes as the floor area is compressed downwards, placing pressure on other development controls and resulting in setback non-compliances, reduced building separation, bulky buildings with large floor plates, inadequate landscaped open space, excessive overshadowing and poor solar access for residents.

Internal modelling undertaken as part of the preparation of the Norwest Precinct Plan identified that to enable the maximum FSRs in the LEP to be achieved whilst also complying with the key urban design criteria within Council's DCP, building heights under the LEP need to be increased from between 21m – 40m to between 26.3m - 42m (depending on the FSR applicable to each site).

Importantly, the proposed increase in LEP heights will not change the permissible yield on this land as already established by the existing floor space ratio controls. Rather, it would simply ensure better alignment of the density and built form standards under Council's LEP and encourage developments to achieve more desirable built form and urban design outcomes compared to what can be delivered under the current controls.

The proposed LEP heights (and number of storeys that would be facilitated by this height change) are consistent with the outcomes identified and adopted by Council for this land within the Norwest Precinct Plan.

2. **Amending Part D Section 19 – Showground Precinct of The Hills DCP 2012 in accordance with Council's Norwest Precinct Plan to:**

   a) Reflect the revised building heights proposed to be amended within the LEP;

   b) Remove rear laneway requirements for medium density development, noting that the delivery of these laneways is no longer orderly or feasible due to the fragmented nature of land ownership;

   c) Delete two proposed road links south of Showground Road due to inability for these to be delivered as a result of land fragmentation and strata titling constraints. A pedestrian through-site link is proposed in place of the intended road link between Showground Road and Chapman Avenue to retain pedestrian permeability for this area.

   These DCP amendments align with the changes identified as necessary and desirable for this area within the recently adopted Norwest Precinct Plan.

3. **Amending Part D Section 19 – Showground Precinct of The Hills DCP 2012 to respond to the recent finalisation of Stage 2 of the Government's Low and Mid-Rise Housing Reforms.** These reforms impacted specifically on the R3 Medium Density Residential zoned area located between Showground Road and Kathleen Avenue (north of Showground Road). The proposed changes to the DCP are necessary to extend the application of existing development controls for residential flat buildings to this area, noting residential flat building development (up to 4 storeys in height) is now permitted.

The proposed amendments to LEP 2019 and The Hills DCP are the next step in implementing a number of 'housekeeping actions' as identified within Council's adopted Norwest Precinct Plan as well as responding to recent State Government policy reforms that impact on some residential areas of the Showground Precinct. The proposed amendments will ensure that the planning framework applicable to this area is clear, consistent and provides optimal built form and urban design outcomes.

RECOMMENDATION

1. A planning proposal be prepared to amend The Hills Local Environmental Plan 2019 in relation to the Showground Precinct as set out in Section 6 of this report.

2. The planning proposal be reported to the Local Planning Panel for advice. Provided the Panel's advice does not warrant any material changes to the planning proposal, the planning proposal then be forwarded to the Department of Planning, Housing and Infrastructure for Gateway Determination.

3. Subject to the issue of a Gateway Determination, draft amendments to The Hills Development Control Plan 2012 (Attachment 1) and the Public Domain Plan for Showground Station Precinct (Attachment 2) be publicly exhibited concurrent with the planning proposal.

IMPACTS
Financial
This matter has no direct financial impact upon Council's adopted budget or forward estimates.

Strategic Plan - Hills Future
The outcomes proposed within this Report are consistent with the Strategic Plan as they seek to improve amenity and liveability within the Showground Precinct and ensure that growth targets can be achieved within a high-quality built environment. The amendments to LEP 2019 and The Hills DCP implement actions of Council's recently adopted Norwest Precinct Plan.

LINK TO HILLS SHIRE PLAN
Strategy:
5.1 The Shire's natural and built environment is well managed through strategic land use and urban planning that reflects our values and aspirations.

Outcomes:
5 Well planned and liveable neighbourhoods that meets growth targets and maintains amenity

LEGISLATIVE CONTEXT
The legislative framework for Planning Proposals which amend a Council's Local Environmental Plan is established within Part 3, Division 3.4 of the Environmental Planning and Assessment Act 1979 (the Act) (Clauses 3.31 to 3.37). This report, in part, seeks a decision of Council as to whether or not to prepare and submit a planning proposal to the Department of Planning, Housing and Infrastructure for Gateway Determination in accordance with Sections 3.33 and 3.34 of the Act (following consideration by the Local Planning Panel).

The legislative framework for preparing and amending a Development Control Plan (DCP) is established within Part 3, Division 3.6 of the Environmental Planning and Assessment Act 1979 (the Act) (Clauses 3.41 - 3.46). This report, in part, seeks a decision of Council as to whether or not to progress and publicly exhibit amendments to The Hills Development Control Plan in accordance with Section 3.43 of the Act.

1. BACKGROUND & EXISTING PLANNING FRAMEWORK

a) NSW Government Planned Precincts Program

The Showground Precinct is one of 3 Precincts along the Sydney Metro Northwest corridor that was rezoned by the NSW Government as part of its 'Planned Precinct Program'.

The location and extent of the Showground Precinct is included in the following figure.

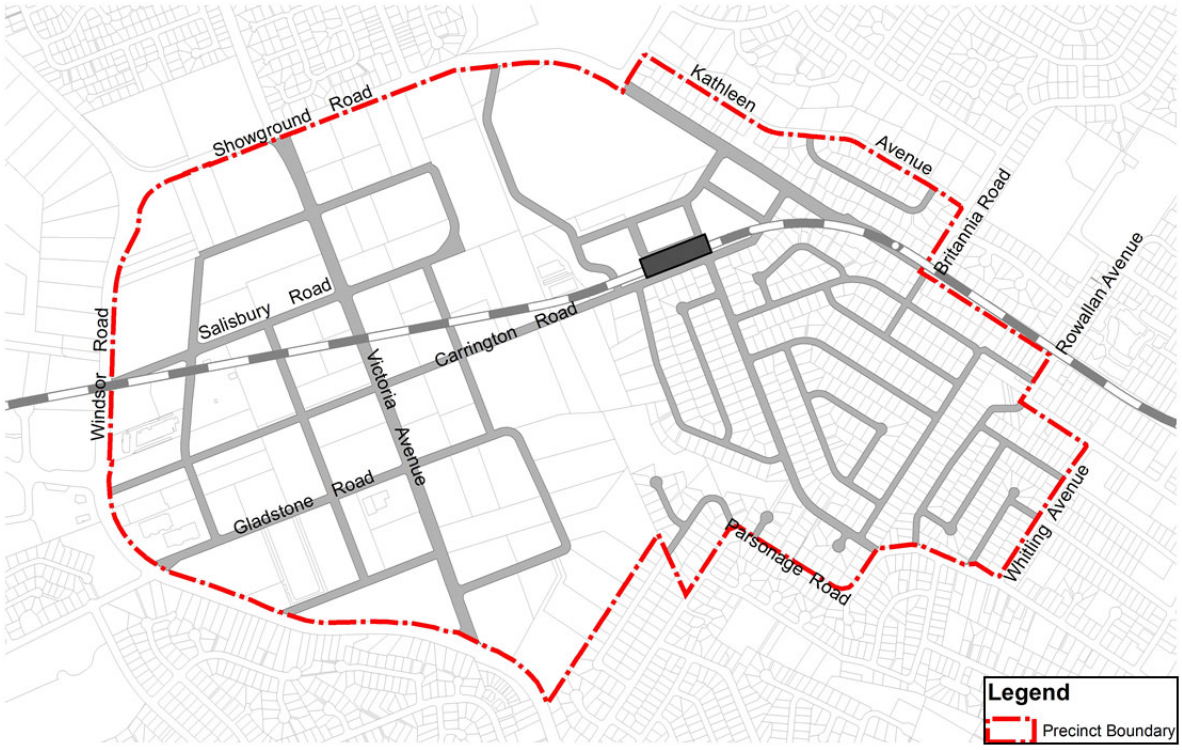

Figure 1
Showground Precinct

The Planned Precinct Program was an extensive planning process, led by the Department of Planning commencing in August 2014.

The Government exhibited the precinct planning package from 7 December 2015 to 28 February 2016. The Precinct was rezoned by the Department of Planning in December 2017 and applied 'base' and 'incentive' FSR standards.

Residential flat building development is eligible to achieve the higher 'incentive' FSR if it meets the following requirements:

- The development site has an area of at least 10,000m^2;
- A minimum of 1 parking space per dwelling;
- A minimum of 1 visitor parking space is provided per 5 dwellings; and
- The development achieves Council's housing diversity provisions as set out in the LEP being:

    - A minimum of 20% 3-bedroom apartments;
    - A maximum of 25% 1-bedroom apartments; and
    - At least 40% of 2- and 3-bedroom apartments being larger.

However, the rezoning plans finalised by Government only included a single maximum height of buildings across each density 'zone', which was intended to facilitate 6, 8 and 12 storey buildings. The current LEP standards for the subject land are shown in Figures 2 and 3 below.

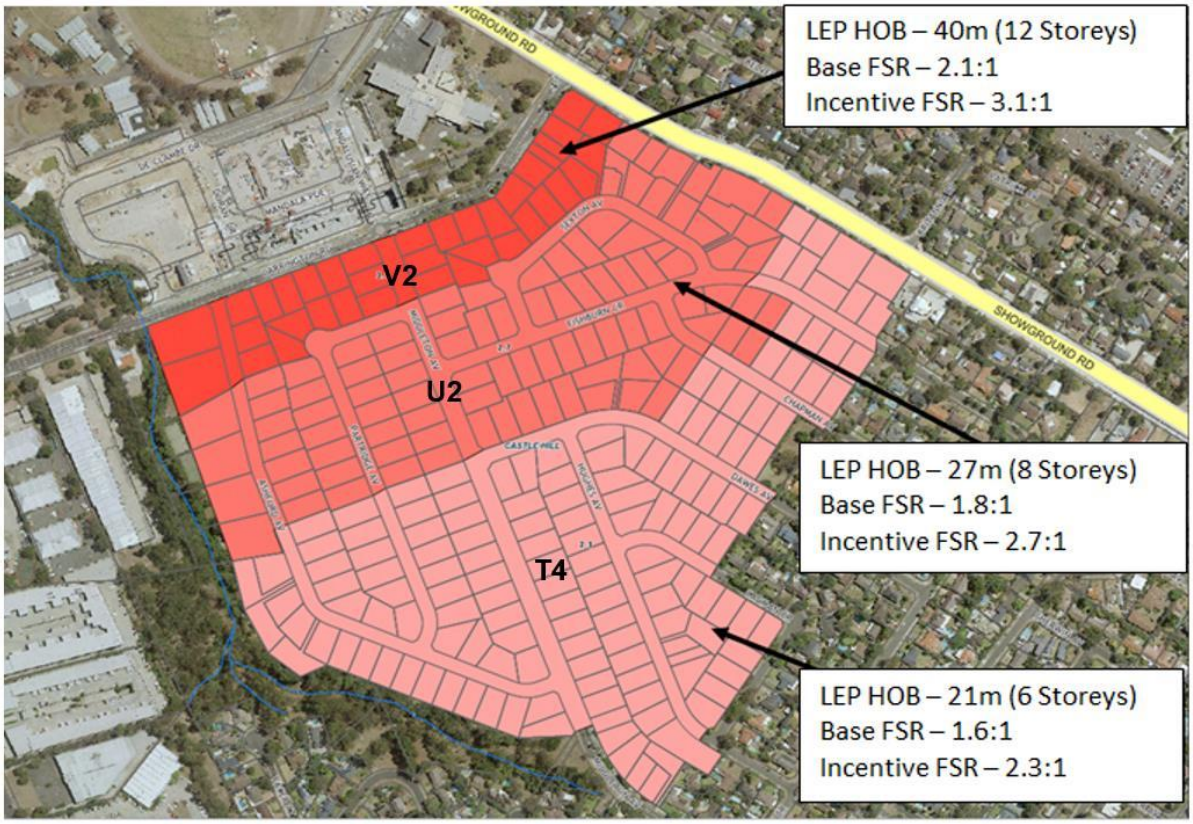

Figure 2
Overview of Maximum Height of Buildings and Base and Incentive FSR
Residential Land in Showground Precinct

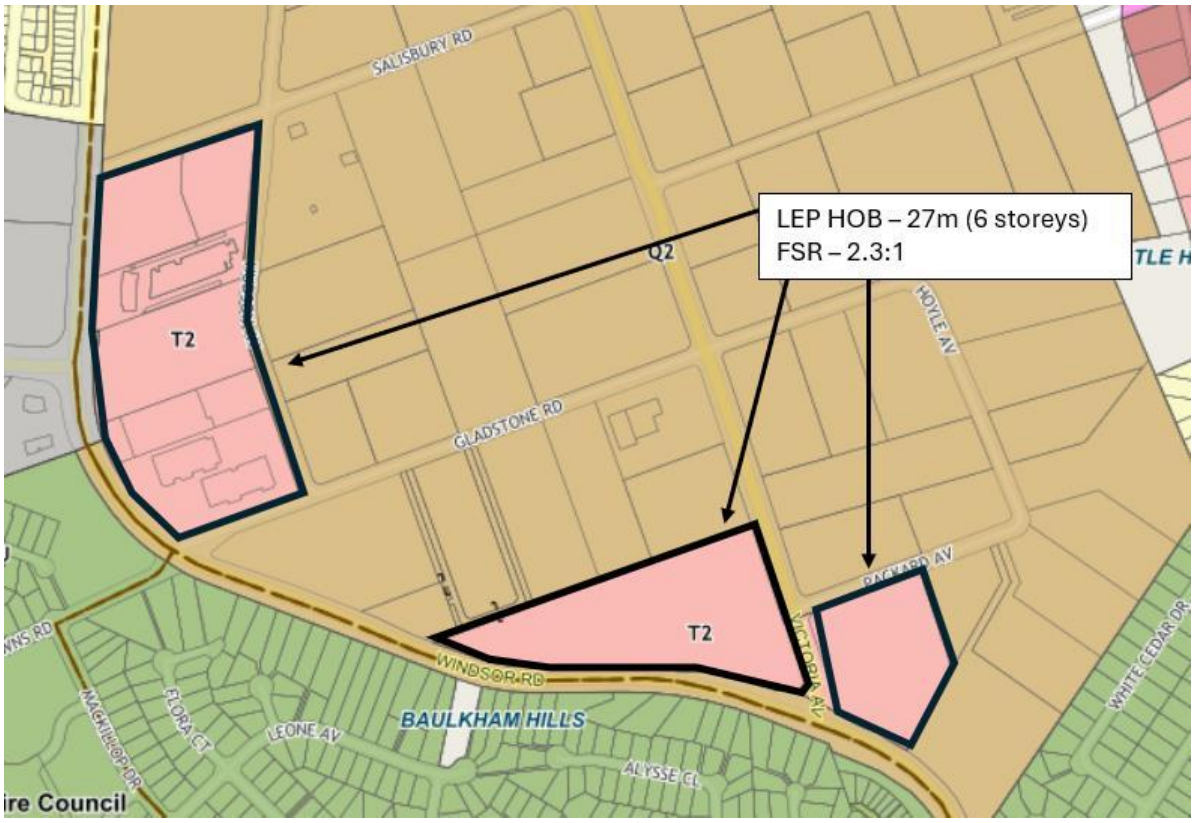

Figure 3
Maximum Height of Buildings and FSR
Employment Land along Hudson Avenue, 1-3 Packard Avenue and 2A Victoria Avenue

b) Development Control Plan

On 28 August 2018, Council adopted a site specific DCP for the Showground Precinct (Part D Section 19 – Showground Precinct) to guide the development outcomes in the Showground Precinct. The DCP includes controls to regulate built form, including setbacks, building length, site coverage, landscaped open space and common open space. It seeks to ensure high quality development outcomes that reflect the intended character for the Precinct as a highly liveable transit centre. The controls also seek to achieve a well-connected pedestrian network, active street frontages, high quality architectural style and character, attractive streetscapes, public realm, common open space and car parking. The indicative height of buildings shown within the DCP reflected the LEP maximum height standards put in place by Government.

The DCP structure plan for the Showground Precinct is shown in Figure 4 below.

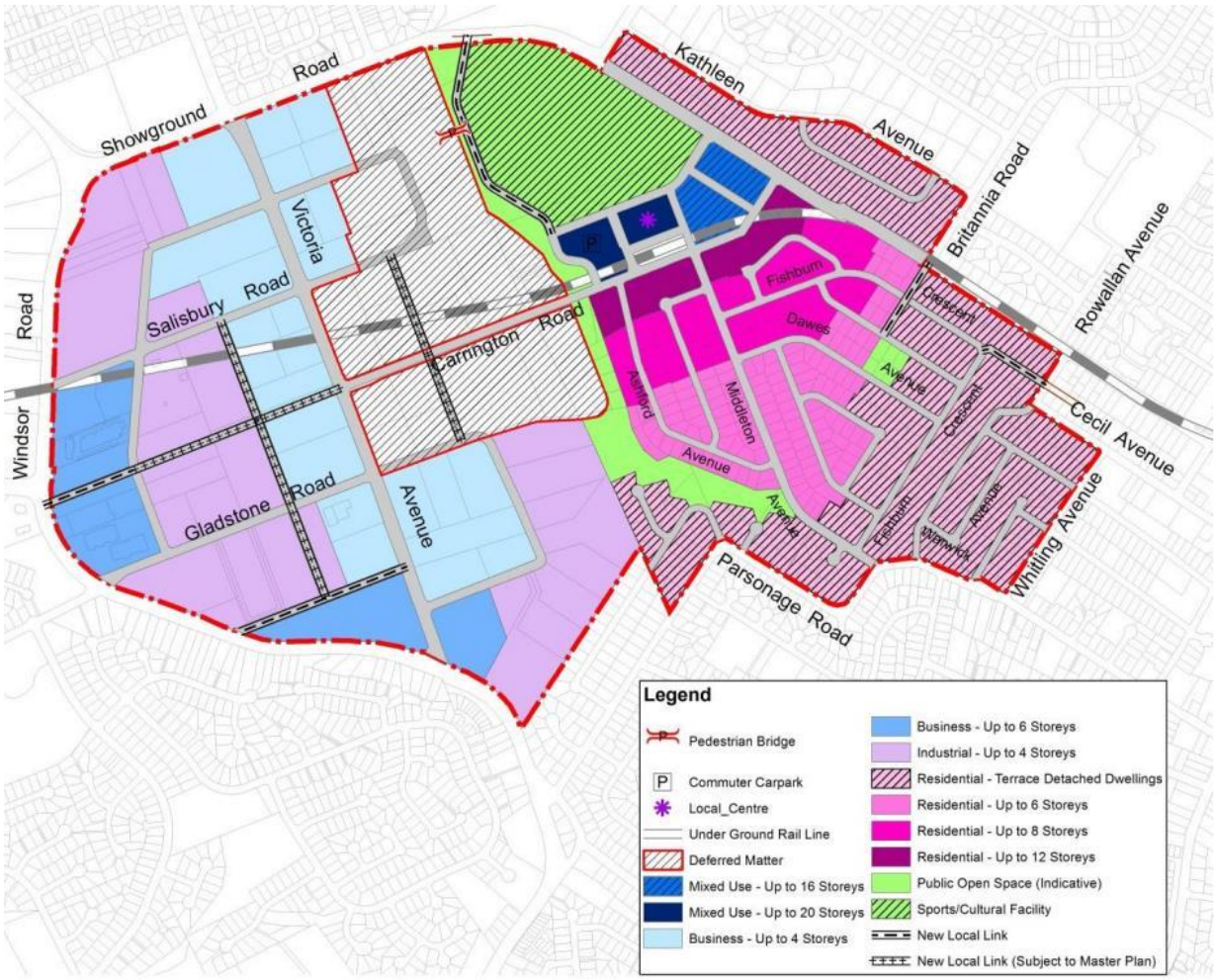

Figure 4
Showground Precinct Structure Plan – The Hills Shire DCP 2012

c) Public Domain Plan

A Public Domain Plan was prepared in conjunction with the DCP controls to provide consistent guidance for the delivery of public domain works throughout the Showground Precinct. This will enhance the image and amenity of the Precinct through the provision of street trees, footpath paving, furniture and landscaping to give the Precinct an urban identity as part of the centre, while complementing the character of the surrounding area.

The Public Domain Plan serves as a manual to guide the planning and design of the public domain. The improvements envisaged in the Plan are to be provided as part of any street frontage work associated with developments in the Precinct and implemented through a condition of any approval.

d) Contributions Plan No.19 – Showground Precinct

Contribution Plan No.19 (CP19) was adopted along with the DCP and Public Domain Plan to identify the local infrastructure required to support the demand generated by additional growth in population and employment floor space within the Precinct. The Contributions Plan identifies what additional infrastructure is required to support the future population, in particular playing fields, expansion and embellishment of open space, stormwater management facilities, village plaza, roundabouts, traffic signals, road widening, pedestrian bridges, community centre and library floor space and other pedestrian facilities. The infrastructure to be delivered under CP19 is shown in the figure below.

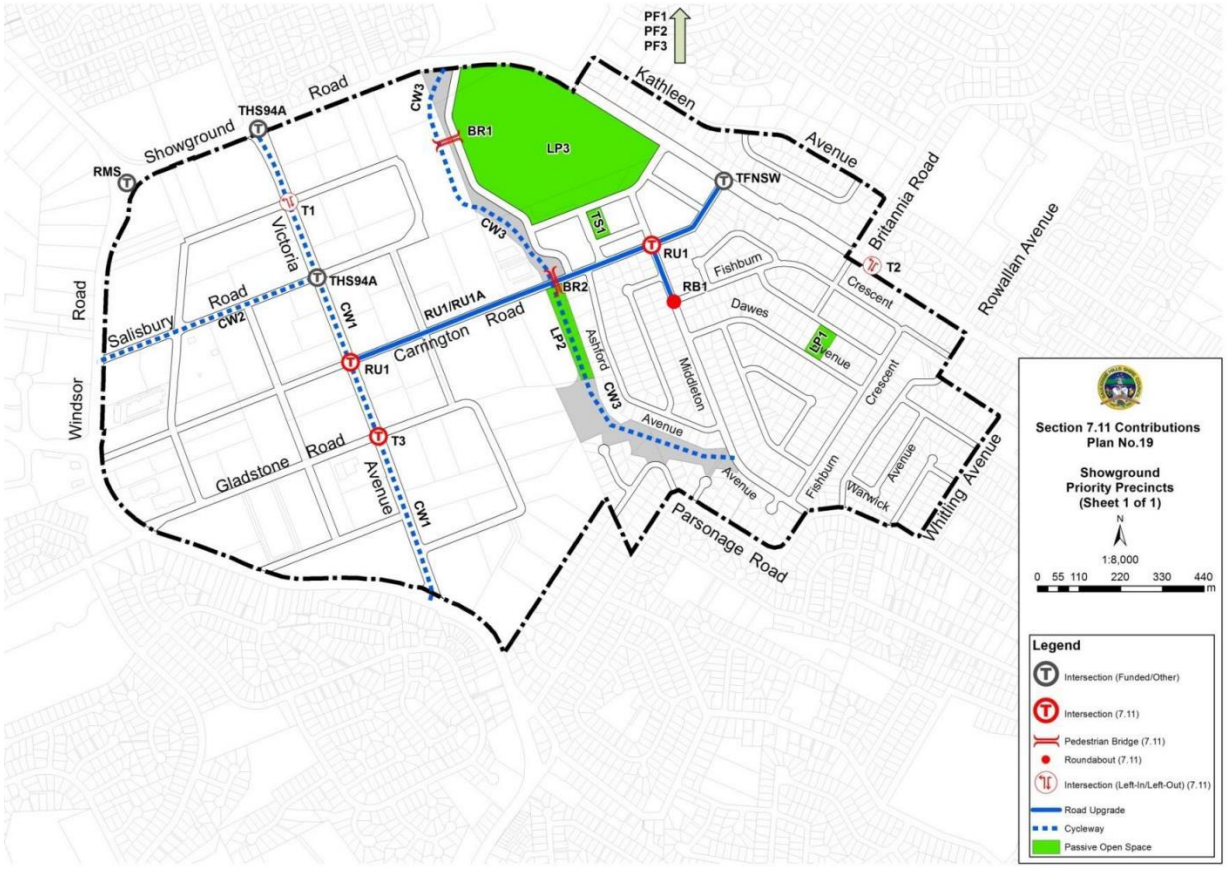

Figure 5
CP19 Work Program Map

e) Norwest Precinct Plan

Council adopted the Norwest Strategic Centre Precinct Plan in July 2024. The Precinct Plan sets a vision for the evolution and development of Norwest over the next 20 years and beyond and identifies anticipated changes across the Strategic Centre to achieve the desired vision and outcomes. The Precinct Plan identifies a number of 'housekeeping amendments' to be carried out by Council that apply to the Norwest Service / Showground Precinct. These are discussed in further detail below:

Action C1: Showground Residential Building Heights

The Precinct Plan highlights a mismatch between the FSR and height of building controls within the LEP for the 6, 8 and 12 storey high density residential areas within the Showground Residential Area (refer to Figure 2 in Section 1a) above).

The Precinct Plan identifies that a Council-initiated planning proposal is required to amend the height of building controls in the Showground Residential area as follows:

- 6 storey areas to instead permit 7 storey buildings.
- 8 storey areas to instead permit 9 storey buildings.
- 12 storey areas will generally remain as 12 storeys, although the height limit (as expressed in metres) should be slightly increased to facilitate higher quality built form outcomes and ensure a 12-storey form can be compliant with the height limit (when calculated in metres).

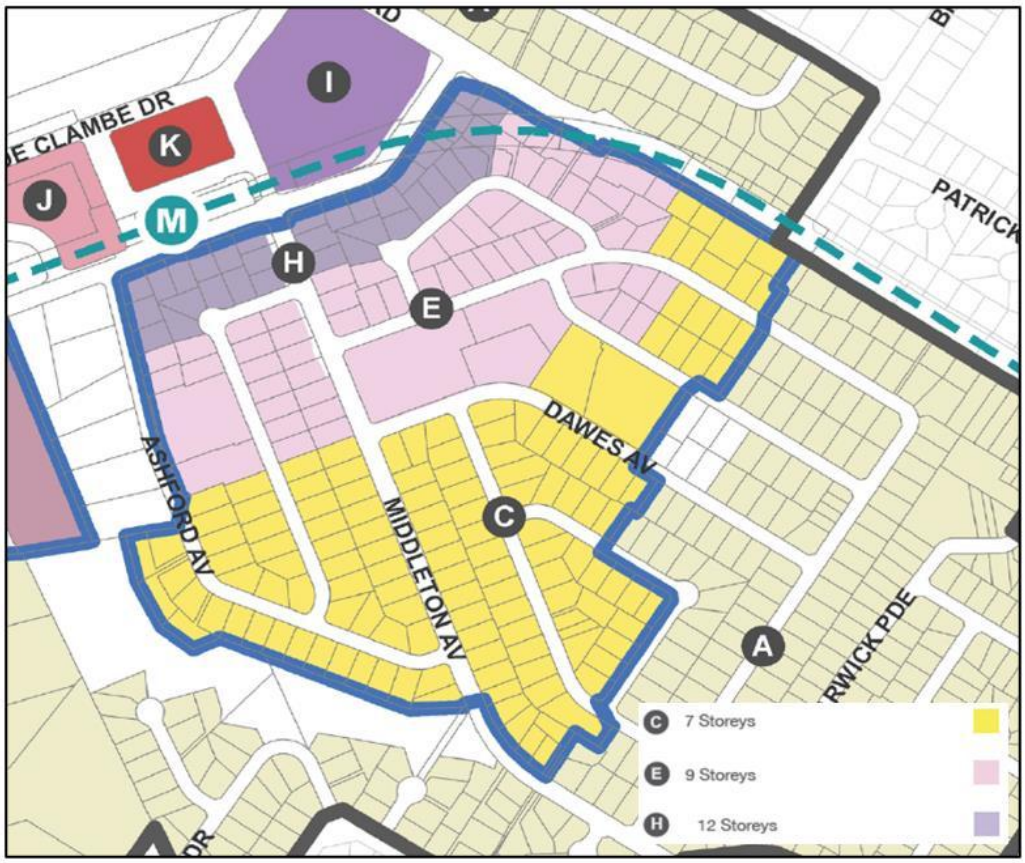

Figure 6
Extract from Norwest Precinct Plan – Proposed Built Form Map – Showground Residential

Action C3: Showground Employment Building Heights

The Precinct Plan also recognises a height mismatch for the high density employment pockets along Hudson Avenue and 1-3 Packard Avenue and 2A Victoria Avenue (identified as Area 'G' in the figure below).

The Precinct Plan recommends a Council-initiated Planning Proposal to increase the maximum height of building control from 27m to 42m (an increase from 6 storeys to 10 storeys), noting

the employment FSR and objectives (2.3:1) for this land would be unable to be achieved within the 27 metres height limit that currently applies.

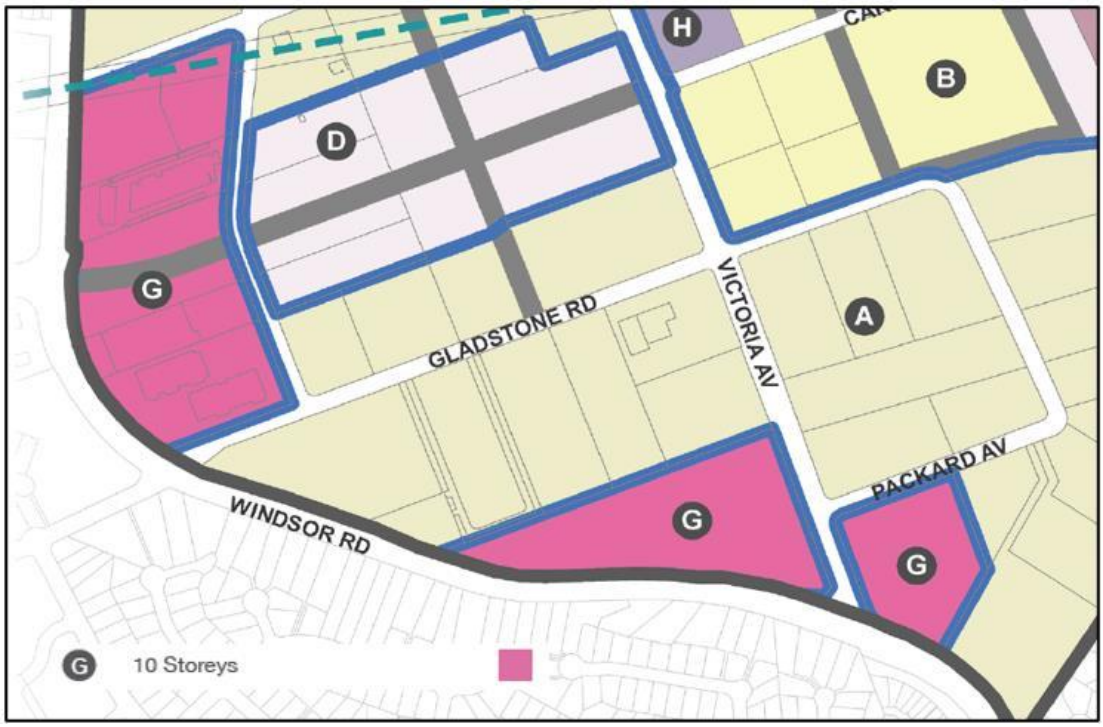

Figure 7
Extract from Norwest Precinct Plan – Built Form Map – Showground Employment

Action C2: Amendments to Local Roads, Rear Laneways and Pedestrian Links

The Precinct Plan identifies the need to amend the road layout identified in the Showground Precinct DCP as follows:

1. Replacement of proposed future road link connecting Chapman Avenue and Showground Road at the junction of Britannia Road with a pedestrian link;

2. Deletion of proposed future road link connecting Chapman Avenue and Cecil Avenue; and

3. Remove the requirement for rear laneways within medium density land.

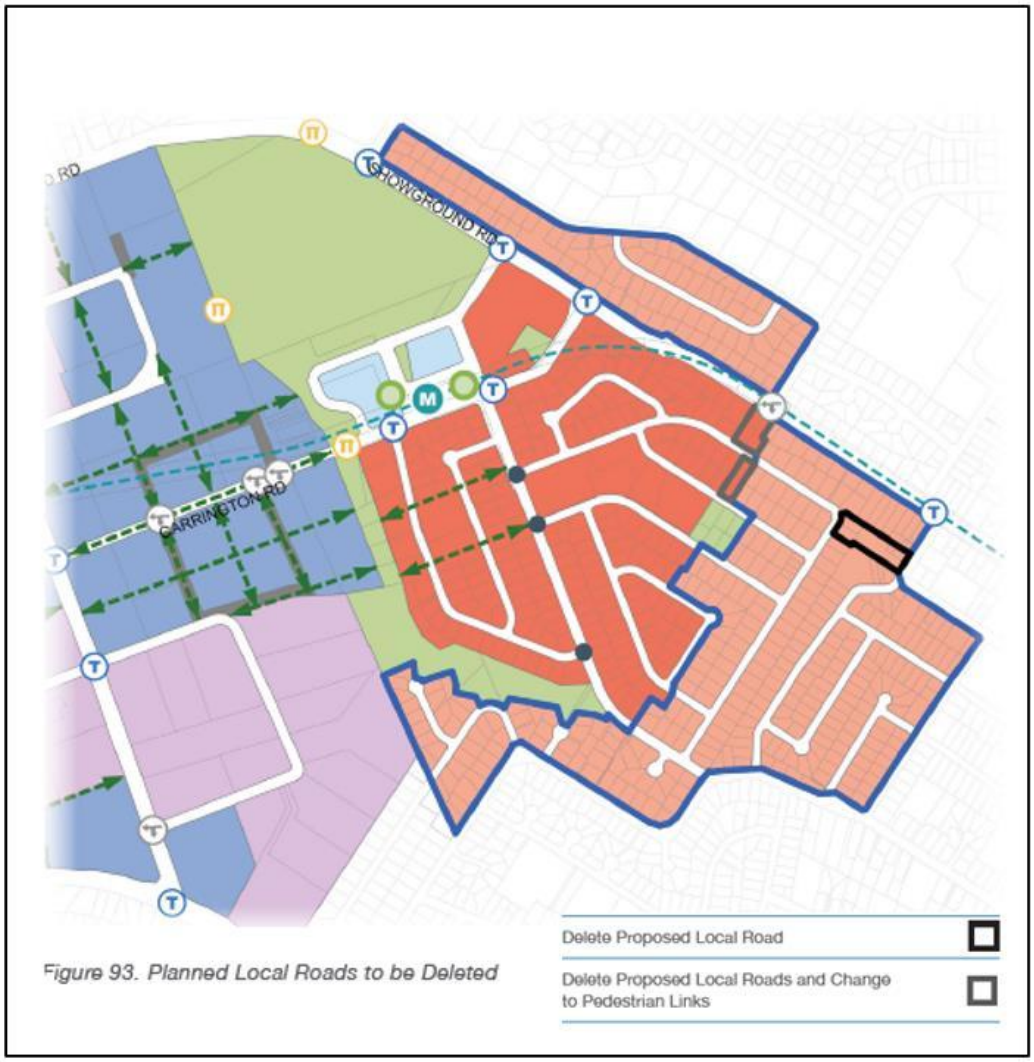

Figure 8
Extract from the Norwest Precinct Plan – Planned Local Roads to be Deleted

f) Housing SEPP

The NSW Government recently implemented reforms to the Housing SEPP relating to low and mid-rise housing. The reforms have been undertaken in two stages:

> **Stage 1** took effect on 1 July 2024 and amended the Housing SEPP to permit dual occupancies and semi-detached dwellings in the R2 Low Density Residential zone across NSW.
>
> **Stage 2** comprises more significant elements of the policy. The amendments are contained in a new Chapter 6 of the Housing SEPP and came into effect on 28 February 2025. It introduces new planning controls to allow dual occupancies, terraces, townhouses, apartments and shop top housing in areas that are defined as a 'low and mid-rise housing area'.

'Low and mid-rise housing areas' are defined in the SEPP as land within 800m walking distance of mapped town centres or the public entrance to a nominated railway, metro or light rail station.

A more comprehensive report on the impacts of the Low and Mid-Rise Housing Reforms across The Hills Shire will be considered by Council separately. However, in relation to the Showground

Precinct specifically, there are significant areas of land currently zoned R3 Medium Density Residential and R4 High Density Residential around the Hills Showground station that fall within 800m walking catchment of the Hills Showground Metro Station, as shown in the map below.

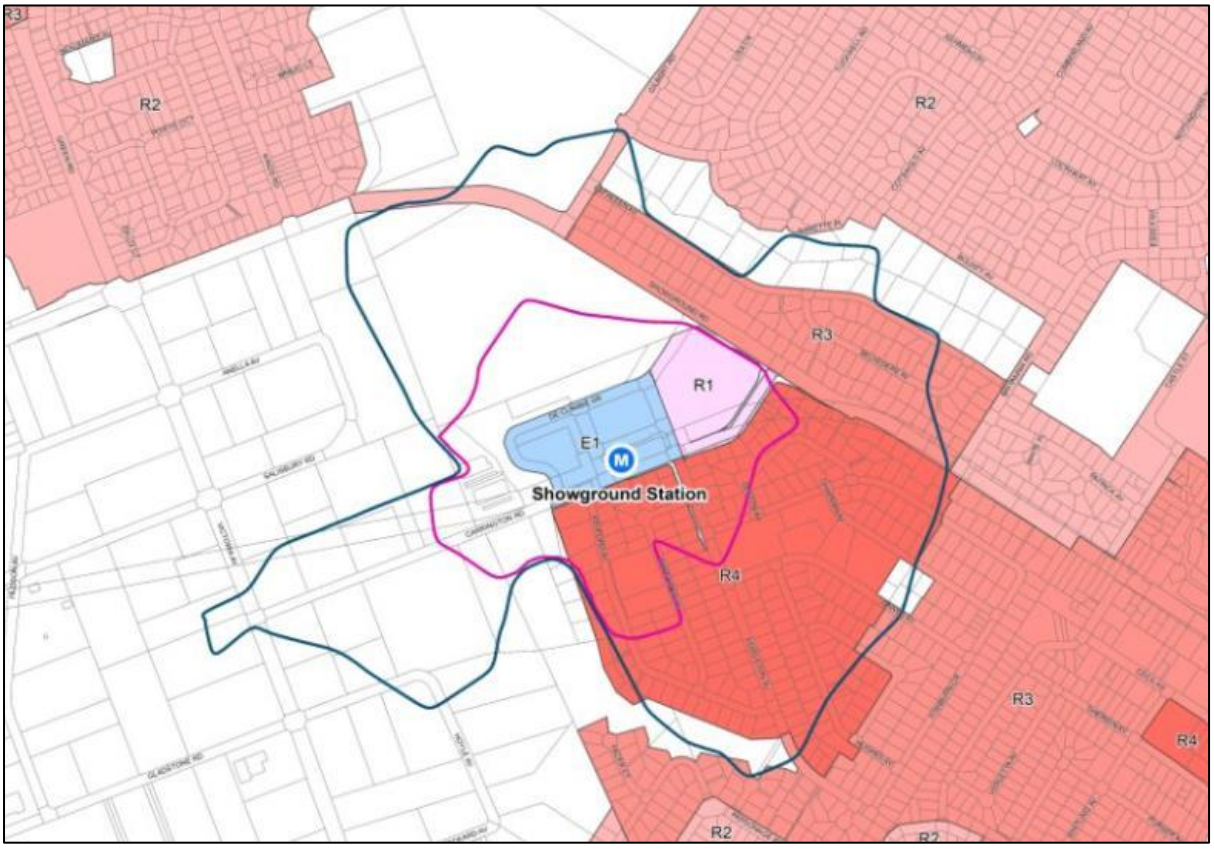

Figure 9
Showground Station - 400m (pink) and 800m (blue) Walkability Catchments

Despite these changes, development on the R4 zoned land within the 400m and 800m walking catchments of Showground station is still expected to develop under the existing planning controls contained in The Hills LEP 2019, noting these allow for a far greater FSR and yield (up to 3.1:1) than the Low and Mid-Rise Housing Reforms.

However, in areas zoned R3 Medium Density Residential within 800 metres of Showground Station (ie, to the north of Showground Road between Showground Road and Kathleen Avenue), residential flat buildings of up to 4 storeys with a maximum FSR control of 1.5:1 are now permissible. This is a greater yield than previously permitted under LEP 2019 or envisaged under the Norwest Precinct Plan, which identified this R3 zoned land as suitable for transition to terraces and townhouses within a landscaped settings on the edges of the Precinct to provide genuine diversity in housing stock.

In light of the reforms, landowners in this area may now seek to utilise the more permissive development controls under the Housing SEPP reforms to facilitate a higher density form of residential development (including residential flat buildings) on their land.

2. HISTORY OF FSR & HEIGHT MISMATCH IN SHOWGROUND PRECINCT

Since the Showground Precinct was rezoned in December 2017, 10 development applications for residential flat buildings seeking to achieve the maximum ‘incentive’ FSR have been approved.

Of these, 9 applications required a Clause 4.6 variation to vary Clause 4.3 Height of Buildings of LEP 2019. The variations ranged from approximately 1m to almost 6m higher than the applicable development standard.

There has not yet been any take up of the employment development opportunities along Hudson Avenue and 1-3 Packard Avenue and 2A Victoria Avenue.

The extent of variations sought as part of Development Applications indicates that the relationship between the maximum Incentive FSR and the maximum height of buildings is not operating harmoniously. The maximum FSR and maximum height of buildings should work together to facilitate more certain and positive development outcomes. The amount of floor space permitted by the FSR standard should fit within the number of storeys facilitated by the maximum height of buildings control. However, in order to achieve the maximum allowable incentivised FSR, development applications are proposing to deliver additional storeys on the development.

It has also been revealed as part of these development applications that the mismatch is resulting in poor built form outcomes as the floor area is being compressed downwards because of the height limit, placing pressure on other development controls in the Development Control Plan and Apartment Design Guide, and resulting in:

- Setback non-compliances;
- Reduced building separation;
- Bulky buildings with large floor plates;
- Inadequate landscaped open space;
- Excessive overshadowing of open space and adjoining sites; and
- Poor solar access for residents.

While variations to the building heights and/or DCP controls have been considered on a case-by-case basis and in some instances result in acceptable outcomes, the experience has generally been that Development Applications present with significant issues relating to bulk and scale and fail to provide exemplary residential amenity.

One theoretical solution to this built form problem would be to reduce the maximum permitted FSRs within the Precinct. However, this approach is highly unlikely to obtain the necessary support and approval from State Government. A reduction in the FSRs would be seen as ‘down-zoning’ of the land, as it would reduce the achievable yield within the Precinct. This would be inconsistent with the current Ministerial Directions in relation to residential land and, given the current policy agenda of Government is to increase and speed-up housing supply, any proposal that seeks to restrict housing supply or reduce the capacity of land to accommodate housing is unlikely to obtain support from the Department of Planning, Housing and Infrastructure. Such a proposal is unlikely to receive Gateway Determination and as a result, the mismatched FSR and height standards would remain an issue within Council’s LEP, perpetuating the poor built form outcomes identified above.

The purpose of the height control within Council’s LEP is not to limit the density of development (this is the role of the FSR control). Rather, the height control is intended to work harmoniously with the FSR control to produce a built form that is aesthetically appropriate, and which minimises the amenity impact on surrounding land. Allowing a small increase in height will result in a more appropriate built form outcome which will in turn reduce perceived building bulk, scale and visual impact by facilitating increased setbacks, building separation and landscaping.

It is also important to note that reducing the FSRs within the Precinct (and resultant yield potential) would have adverse implications in terms of infrastructure funding. Contributions Plan No. 19 currently applies to the Precinct and levies development to fund the delivery of local infrastructure required to support the future population. Given this framework is already now in place and development is being levied, reducing yields marginally within the Precinct would not change or reduce the value or extent of the infrastructure list needed to be provided for this precinct (such as the number of parks, playing fields or road upgrades). Accordingly, reducing the yield potential in the Precinct part way through the development cycle of the Precinct would simply reduce the extent of development which Council could levy to fund the necessary infrastructure, thereby impacting on Council's ability to recoup sufficient infrastructure contributions to fund the work program.

3. FSR & HEIGHT TESTING

Internal testing and modelling of the applicable FSR and height standards was undertaken as part of the preparation of the Norwest Precinct Plan, to analyse the true extent of mismatch between the controls. The results of this analysis are summarised below and further technical details are also provided in Attachment 3 of this report.

Residential Heights

With respect to the Showground high density residential area, the testing firstly found that compliance with the expected DCP storeys cannot be achieved at the heights within the LEP when utilising ADG guidance heights and consideration of roof top services (that is, the LEP height limit in metres does not even allow for achievement of the stated indicative heights in the DCP).

The table below demonstrates the height non-compliance (in metres) that a DA will typically present when trying to achieve 6, 8 and 12 storeys.

FSR Zone	Base FSR	LEP Height	DCP Height in storeys	Incentive FSR	LEP Height	ADG height base (+2m)	ADG Height with roof stair	ADG height with garden + stair	% height non-compliance
T4	1.6	21m	6	2.3	21m	21.2m	24.2m	25.2m	20%
U2	1.9	27m	8	2.7	27m	27.4m	30.4m	31.4m	16%
V2	2.1	40m	12	3.1	40m	39.8m	42.8m	43.8m	9.5%

Table 1
Basic testing of height non-compliances utilising ADG guidance heights

Note: The following accepted heights within Part 2 Developing Controls in the ADG were utilised to test the overall heights of buildings:

- *3.7m Ground floor level (3.3m floor to ceiling plus 0.4m for structure)*
- *3.1m per level for residential levels*
- *2m for topography*
- *3m for roof top stair enclosure for roof access*
- *1m roof top / podium garden*

The testing also considered the minimum height of building that would be required to enable the maximum FSRs throughout the Precinct to be achieved whilst also complying with the key urban design criteria within Council's DCP. The results generally demonstrate that achieving the maximum incentivised FSR within the existing building height control whilst also complying with

all DCP controls is not possible (as also evidenced by the development applications received within this Precinct to date).

Given the findings of the testing, the necessary amendments to existing LEP and DCP height controls are summarised in the table below.

Incentive FSR	Existing Height Limit	Required Height
2.3:1 (T4 Area)	21m (6 storeys)	26.3m (7 storeys)
2.7:1 (U2 Area)	27m (8 storeys)	32.5m (9 storeys)
3.1:1 (V2 Area)	40m (12 storeys)	41.8m (12 storeys)

Table 2
Existing and Recommended Height Standards by Area

The following additional matters were also considered as part of the testing:

- Modifying setback controls to reduce the required setback distance would have minimal impact as the amount of additional FSR generally is greater than what could be accommodated in these areas, and requires at least part of an additional storey. Furthermore, reduced setbacks would result in a worsening of built form and urban design outcomes, especially as experienced from the ground plane and public domain;

- Increasing the maximum site coverage to 55% (rather than 50%) would enable *some* of the modelling scenarios to achieve the maximum incentive FSR. While this would facilitate less technical non-compliances with the controls, it is not a desirable or superior planning and built form outcome as the maximum site coverage of 50% already often results in dense and bulky development. In approaching this issue, it is prudent for Council consider changes which lead to improved built form outcomes, rather than amending the controls to reduce technical non-compliances associated with inferior built form outcomes; and

- Most of the models were able to achieve the desired FSR if the slope of the land was removed and ground level for the entire site was calculated based on the lowest point of the site. However, this is not a realistic scenario as it fails to take into account the impacts of slope and topography and creates issues with overshadowing and solar access. It does however demonstrate the impact and complexity of the topography of this Precinct in designing residential flat buildings.

Importantly, in all scenarios, the density already permitted under the LEP was modelled. An increase in LEP heights would not increase the permissible yield on this land (as established by the existing FSR standard). Rather, it would ensure the envisaged outcomes can achieve more desirable built form and urban design outcomes compared to what could be delivered under the current controls.

Employment Heights

A similar exercise was completed for the commercial pockets of land along Windsor Road that were upzoned as part of the Planned Precincts Program, with the application of slightly different height assumptions of 4.1m per storey plus 1m clearance (noting that commercial developments generally feature higher floor to ceiling heights than residential developments).

It was found that achieving the permitted FSR of 2.3:1 translates to approximately 10 storeys or 42m (rather than 6 storeys or 27m as identified in the applicable LEP and DCP controls).

Further detail on the LEP amendments required to implement the recommendations of the above testing is provided in Section 6 of this report.

4. LOCAL ROADS, PEDESTRIAN LINKS AND REAR LANEWAY CONTROLS

Existing DCP controls for the Showground Precinct require rear laneways to be provided on medium density residential land where terrace outcomes are anticipated. The DCP controls were developed to encourage better design in medium density development to avoid outcomes where there is excessive hard stand areas, 'gun barrel' driveways, undesirable street-address and low quality private open space.

However, further investigations have concluded that the delivery of these rear laneways is unlikely to be orderly or feasible due to the fragmented nature of land ownership. Should one lot not develop in accordance with the street network, it will prevent the provision of a rear laneway outcome for an entire street. It is also noted that some land take is required for the provision of rear laneways, which has historically made terraces a less attractive option for development than townhouses or small lot housing developments. Townhouses and small lot housing are less reliant on lot amalgamation within an urban infill context and do not require part of an amalgamated development site to be developed for laneways.

State Government planning controls also now permit various forms of medium density development as complying development, which would not need to have regard to Council's Development Control Plan or laneway requirements, meaning there are more development pathways available which do not require the provision of this coordinated road network.

A review of the local road network completed as part of the Norwest Precinct Plan also revealed that two proposed road links south of Showground Road are unlikely to be deliverable. Specifically, one of the links (between Fishburn Crescent and Cecil Avenue) is located within the medium density residential area and the additional cost of delivering this road connection, coupled with the reduced yield, will likely render redevelopment economically unviable. The link also crosses an existing strata medium density development which is unlikely to be redeveloped. The second proposed road link between Chapman Avenue and Showground Road includes a dog-leg which will impact on vehicular movement. The original intent was for the road to line-up with Britannia Road. However, this will create an isolated pocket of high-density land and is unlikely to facilitate orderly development.

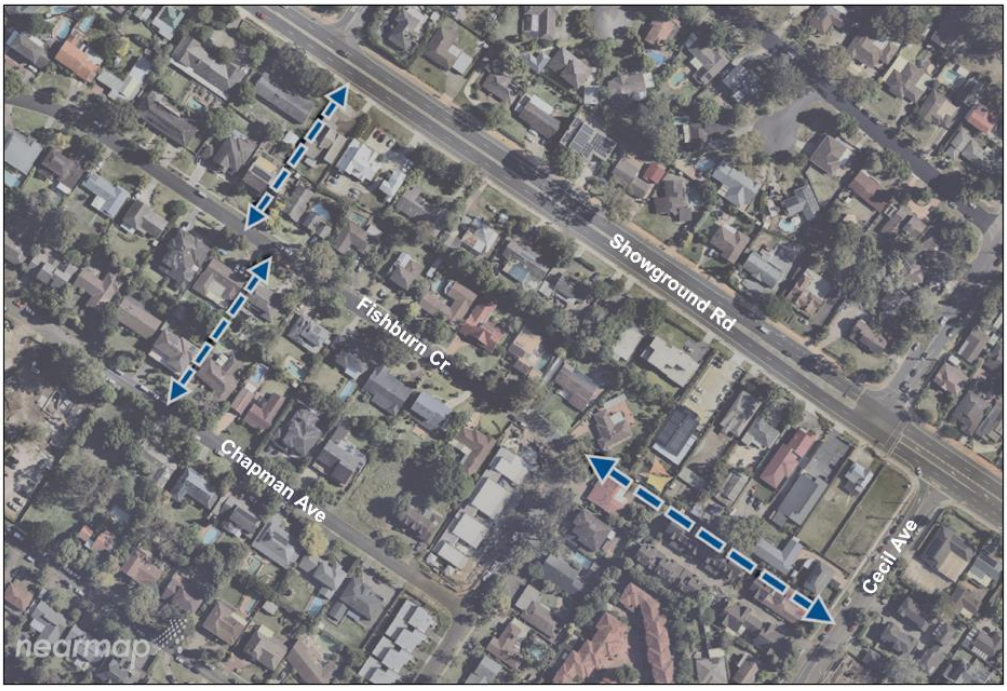

Figure 10
Location of Road Links to be Replaced or Deleted

Given the identified issues, it is recommended that the proposed future road link between Chapman Avenue and Cecil Avenue be deleted and the proposed road link connecting Chapman Avenue and Showground Road be replaced with a pedestrian through-site link. The removal of these proposed links is not anticipated to have an adverse impact on the road network.

Further detail on the DCP amendments is provided in Section 7 of this report.

5. LOW & MID-RISE HOUSING AREA

In light of the recent NSW Government reforms relating to low and mid-rise housing, amendments are proposed to the Showground Precinct section of the DCP to reflect the development outcomes that are now permitted for the R3 zoned area north of Showground Avenue (along Kathleen and Belvedere Avenue) under the Housing SEPP.

The amendments to the DCP would extend the application of existing residential flat building controls to this R3 zoned area (mapped in the figure below) noting that the Housing SEPP now permits residential flat buildings of up to 4 storeys for R3 zoned areas that are within 800m walking catchment of a station. It is important that relevant development controls are applied to this land that relate to the likely development form and outcome, to assist with future development assessment.

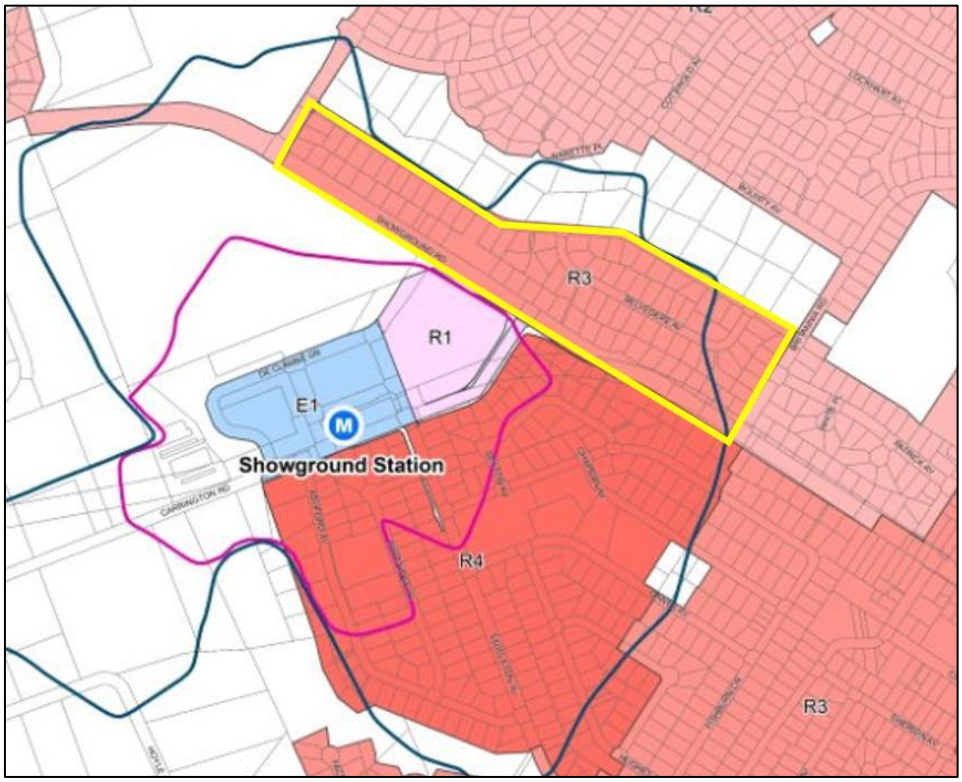

Figure 11
R3 zoned land that falls within 800m walking catchment of Showground Station (outlined in yellow)

Further detail on the proposed DCP amendments to reflect the above outcomes is provided in Section 7 of this report.

6. DRAFT LOCAL ENVIRONMENTAL PLAN AMENDMENTS

This report recommends that Council prepare a planning proposal to amend the Height of Buildings Map under The Hills LEP 2019 as set out in the following figures:

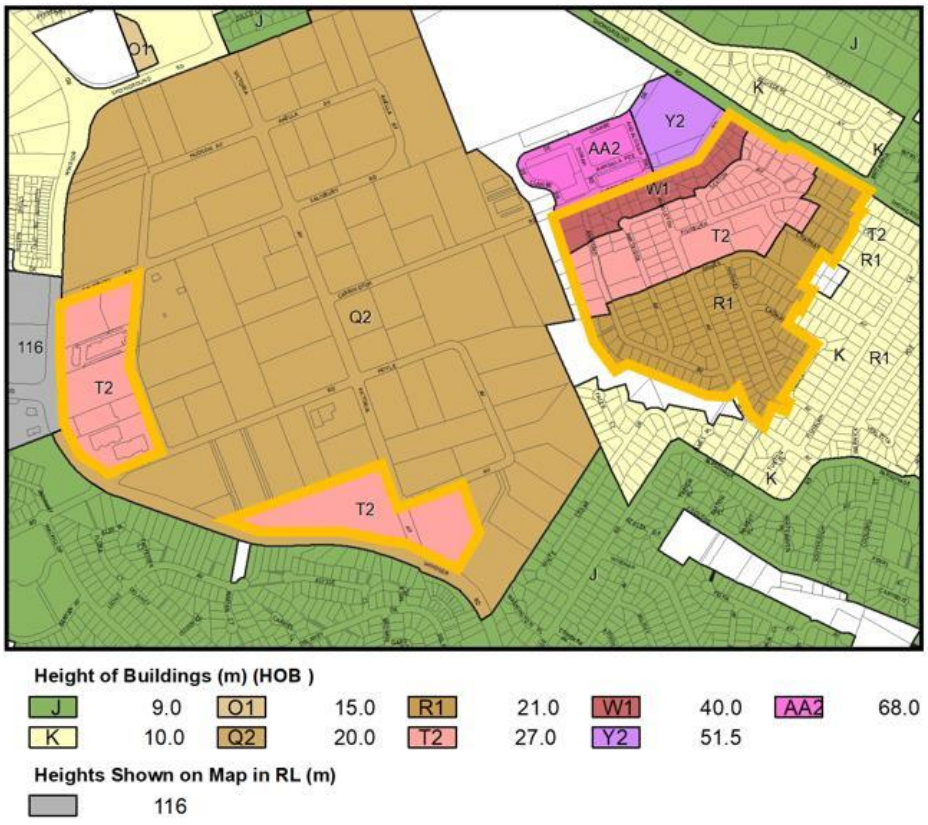

Figure 12
Existing Height of Buildings Map (subject land outlined in orange)

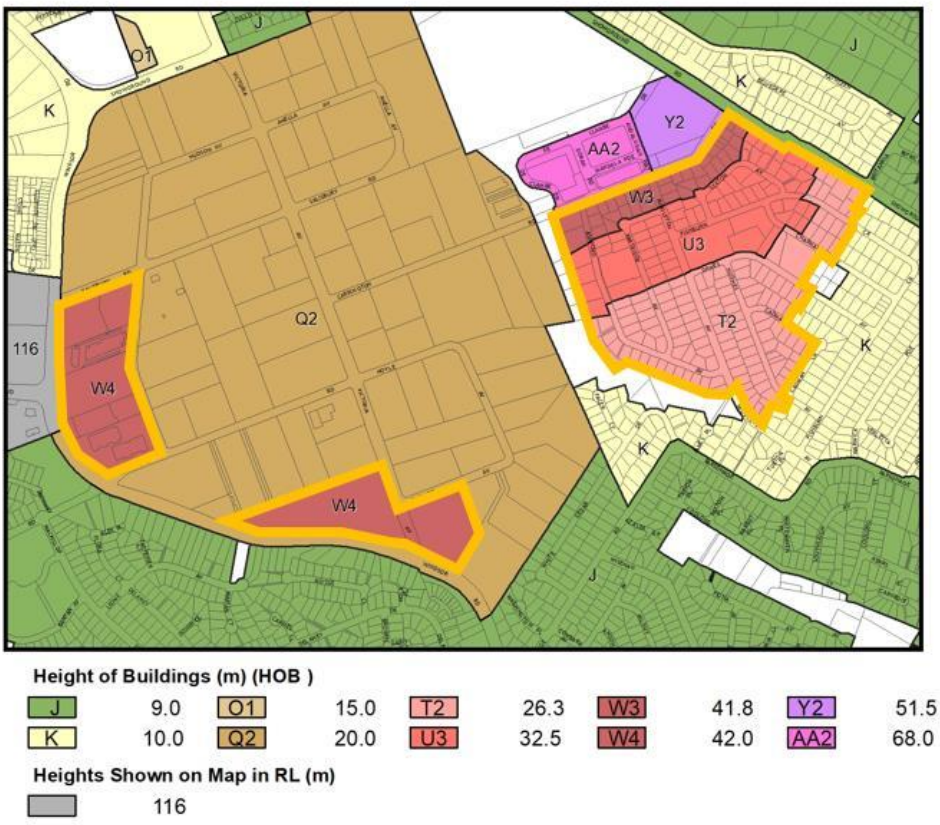

Figure 13
Proposed Height of Buildings Map (subject land outlined in orange)

7. DRAFT DEVELOPMENT CONTROL PLAN AMENDMENTS

The proposed changes to Part D Section 19 – Showground Precinct of The Hills DCP 2012 are summarised below and are shown in full in Attachment 1 of this report:

- Amendments to the structure plan to reference the revised building heights and reflect the proposed changes to the LEP height limits;

- Extend application of street setback and land dedication controls for residential flat buildings to land north of Showground Road (along Belvedere and Kathleeen Avenue), where residential flat buildings are now permitted as a result of the Low and Mid-Rise Housing Reforms.

- Amendments to the road layout within relevant maps to:
  - Replace proposed future road link connecting Chapman Avenue and Showground Road at the junction of Britannia Road with a pedestrian link;
  - Delete proposed future road link connecting Chapman Avenue and Cecil Avenue; and
  - Remove rear laneways within medium density land.

- Removal of controls relating to the provision of rear laneways within medium density land;

- Administrative amendments to update references to outdated legislation and policies.

The proposed draft amendments are displayed in the figures below.

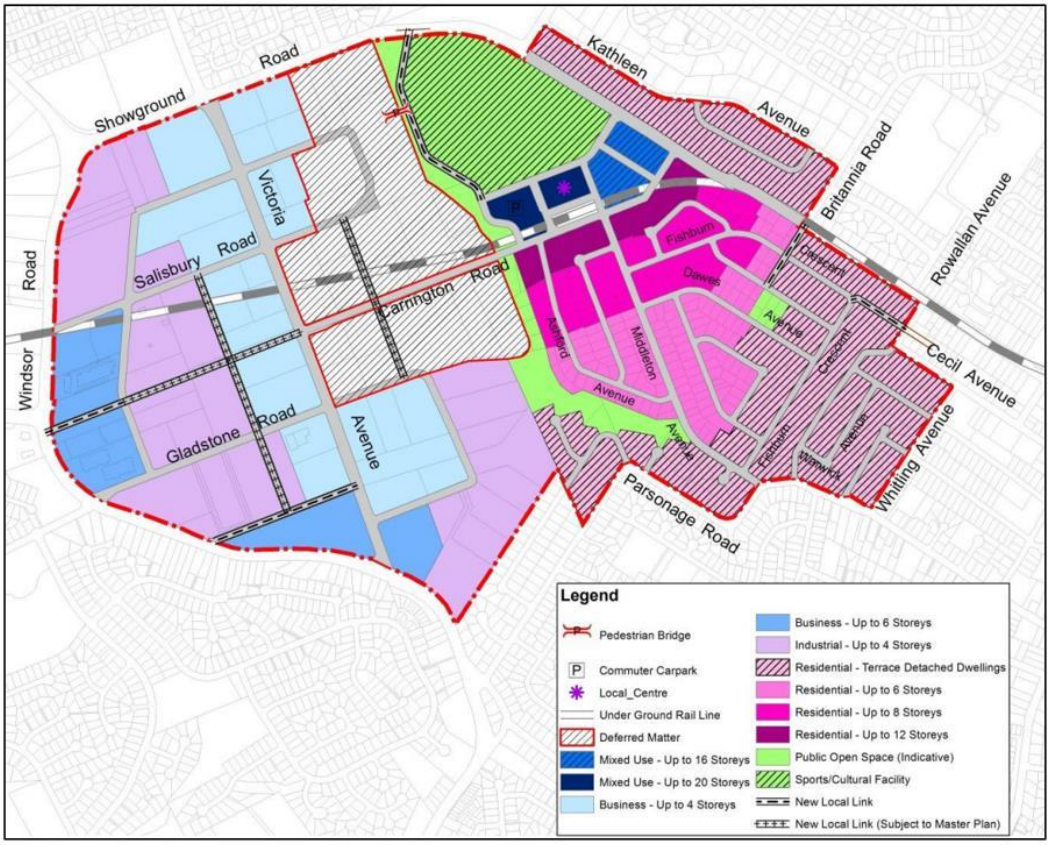

Figure 14
Existing Structure Plan

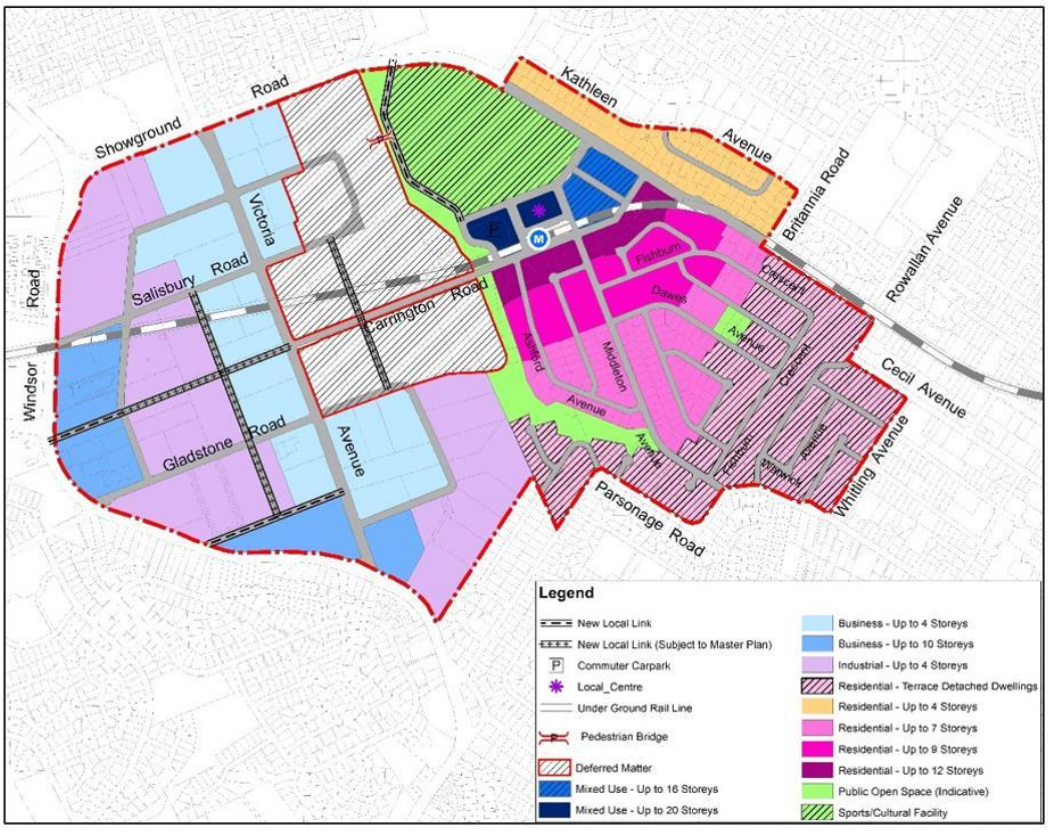

Figure 15
Proposed Structure Plan

8. DRAFT PUBLIC DOMAIN PLAN AMENDMENTS

Associated amendments are proposed to the Showground Precinct Public Domain Plan, as follows:

- Amendments to the road layout within relevant maps to:
  - Replace proposed future road link connecting Chapman Avenue and Showground Road at the junction of Britannia Road with a pedestrian link;
  - Delete proposed future road link connecting Chapman Avenue and Cecil Avenue; and
  - Remove rear laneways within medium density land.
- Extend requirement for 2m land dedication to land north of Showground Road (along Belvedere and Kathleeen Avenue) within the relevant map – reflecting the outcomes applicable in other areas of the precinct where residential flat buildings are permitted.
- Identify the required street trees, paving and lighting type for Belvedere and Kathleen Avenue within relevant maps – reflecting the outcomes applicable in other areas of the precinct where residential flat buildings are permitted.

A copy of the Public Domain Plan with marked up amendments is provided as Attachment 2.

9. CONTRIBUTIONS FRAMEWORK

No changes to the Contributions Framework are considered necessary in association with the proposed amendments. Whilst there will be some additional yield facilitated by the low & mid-rise housing reforms, it is more appropriate that this be considered as part of the upcoming holistic review of CP19 which is underway and will occur as a separate project and reported to an upcoming Council meeting for consideration.

CONCLUSION

The proposed amendments are the next step in implementing a number of 'housekeeping actions' as identified within Council's adopted Norwest Precinct Plan as well as responding to recent State Government policy reforms that will impact the Showground Precinct. The proposed amendments will ensure that the planning framework applicable to this area is clear, consistent and provides optimal built form and urban design outcomes.

ATTACHMENTS

1. Draft Part D Section 19 – Showground Precinct of The Hills Development Control Plan 2012 (88 pages)
2. Draft Showground Precinct Public Domain Plan (73 pages)
3. Technical Detail of FSR and Height Testing for Showground Precinct (9 pages)

ATTACHMENT 1

The Hills Development Control Plan (DCP) 2012

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THE HILLS Sydney's Garden Shire

Part D Section 19
Showground Station Precinct

In Force xxxxx

TO STRIVE FOR BETTER THINGS

Table of contents

1 Introduction

This section establishes a framework and controls to guide development in the Showground Station Precinct (the Precinct).

1.1 Land to which this Section applies

This section applies to the land within the Showground Station precinct (refer Figure 1).

Figure 1 Land to which this Section Applies

1.2 Purpose of this Section

The purpose of this section of the DCP is to guide the future development of the Showground Station Precinct by identifying the vision, development principles, key elements and indicative structure for the future development of the precinct. It seeks to ensure the orderly, efficient and environmentally sensitive development of the precinct to achieve high quality urban design outcomes.

This DCP was developed with consideration to the Apartment Design Guide, which sets minimum requirements for compliance. This DCP builds on these same principles to facilitate the delivery of a distinct local character that aligns with Council's vision for the Precinct.

1.3 Relationship to other Sections of this DCP

This section forms part of The Hills Development Control Plan 2012 (DCP 2012). Development within the Showground Station Precinct will need to have regard to this section of the DCP as well as other relevant controls in DCP 2012. In the event of any inconsistency between this section and other sections of DCP 2012, this section will prevail to the extent of the inconsistency.

2 Vision and Principles

2.1 Vision

The Showground Station Precinct is proposed to become an attractive and well-connected neighbourhood that achieves housing targets, creates vibrant, safe and desirable places, reinforces the garden shire character and lifestyle, and is supported by necessary infrastructure. It is anticipated the Precinct will provide up to 9,000 additional dwellings and 2,300 additional jobs by 2036 (excluding potential growth within the deferred area on the western side of Cattai Creek). In order to meet this vision, future development within the Precinct must achieve the following key principles and strategic priorities.

2.2 Development Principles

To achieve the vision, future development within the Precinct must address the following key principles and strategic priorities of Council:

Housing Diversity

As the population grows there will be greater reliance on higher density development to accommodate future housing demand. The expected characteristics of the Hills Shire population will continue to include a variety of household types including singles, couples and a high proportion of households with children. It will be critical that future high density development provides 'dwelling diversity' to ensure the market caters for the different living needs, expectations and household budgets within the community. This will require the provision of an appropriate mix of one, two and three bedroom apartments which are varied in size.

Apartment buildings are long term building stock so it is very important that if they are to be built, they are resilient over the long term. Unlike detached housing where landowners can choose the style and size of their home, a homeowner wanting an apartment can only choose from what is being provided. Whilst smaller apartments should be provided to meet the needs of a certain demographic within the market, moderate and larger apartments should also be provided to meet the latent demand for this housing option. This will then reduce pressure on smaller, more affordable housing options.

In order to achieve appropriate housing diversity within the Corridor, a floor space incentive provision has been included within The Hills Local Environmental Plan ~~2012~~ 2019 which permits additional floor space for developments that provide the required mix of apartment types and sizes (refer Figure 2). Further information on housing diversity is also provided as Appendix A.

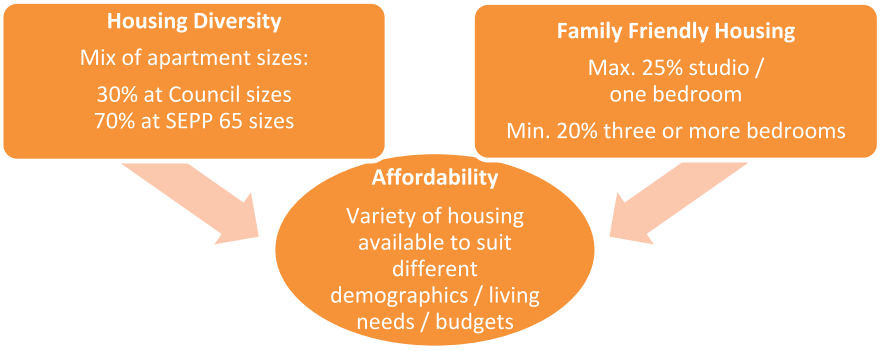


Figure 2 Approach to Housing Diversity

Employment Outcomes

A significant growth in population will require a corresponding increase in employment opportunities to meet demand and provide more jobs close to homes. Sufficient land has been zoned for employment uses to meet the targeted number of new jobs. However, it will be important to ensure that opportunities for jobs growth are protected and that employment potential is not lost due to pressure for residential development in the shorter term.

The Shire's resident labour force is educated and the majority are employed as professionals, managers or clerical and administrative workers. However a high proportion of these residents seek travel outside the Shire to access higher order employment opportunities that meet their skill set and qualifications. Development within the rail corridor presents an opportunity to address the current imbalance between the available jobs and the skills of residents, and ensure that new populations can access high quality professional employment close to where they live.

The rail corridor will be an attractive location for commercial businesses to locate being close to the existing Norwest Business Park, highly accessible by road and public transport and in close proximity to a highly skilled labour force. The planning controls will further attract businesses by facilitating quality spaces and facilities for workers and visitors including active streets that promote commercial, retail and business activity and town squares and plazas that provide spaces for informal meetings, recreation and dining.

Transit Oriented Development

Transit oriented development (TOD) involves the creation of compact, walkable, mixed-use communities around public transport nodes. A key goal of TODs is to increase the number of people who walk, cycle or use public transport as their main form of transport. TODs have densities that result in increased patronage of public transport and provide more opportunities for people to live near the station and reduce their reliance on vehicles.

The need to locate high density housing in centres with good access to services, community facilities and transport is well recognised and will support the on-going operation of the Sydney Metro Northwest. Density at the core allows for a scale and character suitable for pedestrian connectivity. Centres should provide a mixture of residential, retail and commercial activities that are centred around transport and create an environment where services, recreation, entertainment, jobs and housing provide a lifestyle alternative to the traditional suburban context, consistent with the principles of TODs.

This DCP Section supports the provision of TODs by helping to deliver the highest densities in key strategic locations close to centres and existing and proposed transport infrastructure. This will ensure a sensible balance can be achieved between delivering on housing targets whilst ensuring an appropriate transition in residential densities and maintaining residential character.

Infrastructure and Open Space

Public open spaces play an important role in urban areas including provision of recreation, environmental conservation, connecting people with nature and improving social and mental health.

The expected additional population of approximately 20,300 people within the Showground Precinct will increase demand for various public facilities and services (such as roads, community facilities, open space and the like). The future population should be provided with access to open space, recreation and community facilities in line with the lifestyle enjoyed by existing residents.

There is a need to vastly improve open space networks to meet the demands generated by incoming population and ensure appropriate recreational opportunities are provided for the future

population. A number of local and neighbourhood parks are required in key locations that will be connected through dedicated shared ways along all streets providing a high level of amenity for both pedestrian and cyclists. Public plazas and town squares in the areas surrounding the stations and upgrades to open spaces outside of the precincts provide further opportunities for active and passive recreation.

Place Making

Place making will be a key focus in order to provide neighbourhoods that are sustainable, accessible, safe, attractive and well serviced with a unique character and sense of place. The development controls will provide the guidelines to make neighbourhoods liveable including vibrant activity centres, permeable and safe movement networks, generous public spaces, high quality built form and public art and ecologically sustainable development. The provision of quality spaces including streets, parks, buildings, and other public spaces will invite greater interaction between people and foster healthier, more social and economically viable communities.

Public areas such as informal gathering areas within centres will include high quality and durable elements such as seating, shading and lighting to enhance the amenity of these areas. Streets will be well connected incorporating shared pedestrian/cycleways. The precinct will incorporate new public domain treatments including new paving, new street furniture and lighting, improved pedestrian access and dedicated street tree planting.

Quality built form plays a vital role in achieving liveable, productive and resilient environments and creating great places that people want to live, work, visit and invest in. Development which achieves the key principles and meets with the development controls in this DCP will ensure an exemplary standard of design that provides a positive contribution to the public realm. A design excellence clause has also been included within The Hills Local Environmental Plan ~~2012~~ 2019 to require certain buildings to be assessed by a design excellence panel to achieve quality built form outcomes for the precincts.

Figure 3 Activated Pedestrian and Cycleway
(Source: Brent Toderian)

Figure 4 Retail at Ground Level
(Source: Google Streetview)

3 Desired Future Character and Structure Plan

3.1 Desired Future Character

There are four key character areas within the precinct:

Employment Areas
The employment areas will be attractive, walkable and thriving destinations with quality built form, landscaping and enhanced connectivity to the Station. Development adjacent to Cattai Creek will facilitate restoration of the creek corridor and benefit from the natural setting, open space and amenity provided by the area.

The bulky goods spine along Victoria Avenue and light industrial areas in the west of the precinct will generally be retained to provide shopping and services for the incoming population. Opportunities for new commercial development will be provided along Carrington Road and on Windsor Road adjacent to Norwest Business Park.

Carrington Road will be aesthetically enhanced comprising a landscaped median, wide footpaths and mature street trees. Existing bulky goods/light industrial areas will continue to provide quality buildings and large landscaped setbacks. New commercial development will provide opportunities for taller office style buildings up to six storeys in height, with setbacks that incorporate quality landscaping to complement existing areas.

Permeability within the employment areas and connectivity to the station and surrounding residential areas will be enhanced through the provision of through site links, on and off-road pedestrian/cycle links, additional road connections and intersection upgrades.

Mixed Use Areas
A new local centre will be a vibrant and active central focus for the precinct. The centre will provide a range of shops, cafes, restaurants and local services and quality public spaces including wide footpaths and plazas. A main village plaza will connect the new station to Castle Hill Showground. Shops, cafes and restaurants will open onto the plaza with outdoor seating areas. A central lawn area will be provided for workers and visitors to relax or play. Quality mature landscaped areas around the plaza edges will offer pleasant shaded green space year round.

Buildings will have a dense urban character comprising urban active edges, residential development at upper levels and commercial development close to the retail heart of the centre. Upper residential levels will be setback to enhance residential amenity and provide visual interest to buildings. Residential development will promote activity outside of the traditional retail and workday hours and activate streets in the evenings.

Figure 5 Artist's Impression of Local Centre and Main Plaza
(source: Showground Station Precinct Proposal, NSW Department of Planning and Environment)

Figure 6 High Density Residential Built Form, Active Ground Floor and Central Common Open Space, New Acton
(Source: Oculus)

Castle Hill Showground

The Castle Hill Showground will be a regional scale attraction and build upon its significance as a cultural and leisure facility. Future layout and uses will be the subject of a detailed master planning process.

Residential Areas

The residential areas will be green and walkable, providing a lifestyle alternative to the traditional suburban context, focused highly on an appropriate scale and an attractive environment for pedestrians. Built form will be an appealing scale to pedestrians by providing generous street setbacks, variety of materials and colours and green elements to reduce building bulk and add visual interest. The highest density development will be located closest to the station and local centre with more compact urban form and quality building design and finishes. Development will become less dense moving away from the station incorporating more generous landscaped setbacks and central communal open spaces with high quality building design. Residential areas will transition to terraces or townhouses within landscaped settings on the edges of the precinct to provide genuine diversity in housing stock. Green spaces will bring a sense of nature into the neighbourhoods through open spaces, tree lined streets and garden areas within street setbacks.

3.2 Showground Precinct Structure Plan and Key Elements

Objectives

a. To ensure that development occurs in a coordinated manner consistent with the Precinct vision and the development principles of housing diversity, employment opportunities, transit oriented development, quality infrastructure and open space and place making.
b. To provide a mix of housing, retail, employment and services in appropriate and logical locations within the Precinct.
c. To locate higher scale residential apartments and commercial uses closest to the station, the Castle Hill Showground and Cattai Creek corridor to optimise access to station facilities as well as outlook and natural amenity.
d. To develop a local centre and main plaza in the area immediately surrounding the station to provide local shopping, employment opportunities and other services to support the incoming population and establish a vibrant and well-used public domain.

Controls

1. Development is to comply with the desired character in Section 3.1 of this DCP, key elements in Table 1 and the Showground Precinct Structure Plan in Figure 7.
2. Where variations are proposed, development is to demonstrate how the vision, development principles, key elements for the Precinct and relevant specific objectives are to be achieved.

Table 1 Key Elements of the Precinct

Element	Description
Land Use	• A mixed use local centre immediately surrounding the station with shops, cafes, restaurants, plazas, local services and some commercial premises and apartments at upper levels. • Employment areas on the western side of the precinct to generally retain existing bulky goods spine along Victoria Avenue and light industrial areas. • New commercial office development on Windsor Road adjacent to Norwest Business Park. • Residential areas on the eastern side of the precinct to comprise highest density apartment buildings immediately surrounding the station and south of Carrington Road. • Buildings to transition to lower scale apartments further south of Carrington Road. • Medium density housing forms such as townhouses and terraces on the edges of the precinct to Whitling Avenue and Kathleen Avenue.
Open Space & Public Domain	• An upgraded Castle Hill Showground to be the regional and cultural open space facility. • Chapman Avenue Reserve and Cockayne Reserve to be retained and enhanced. • Cattai Creek Corridor to be revitalised with improved access and crossings. • Public plazas around the station providing opportunities for passive recreation and informal community gathering and interaction.

Element	Description

Movement Network	• Precinct is generally bound by arterial roads including Windsor Road to the west and Showground Road to the north and east.
	• Two sub-arterial roads traverse the precinct including Carrington Road (east-west) and Victoria Avenue (north-south).
	• Existing roads to be generally retained with new connections to enhance access and permeability including:
	  ○ new connections surrounding the station;
	  ○ new road between Carrington Road and Showground Road;
	  ○ new roads throughout employment areas including connections between Salisbury and Gladstone Roads and a long term potential connection from Victoria Avenue to Windsor Road; and
	  ○ new roads within residential areas including extension of Fishburn Crescent to Cecil Avenue and new road between Chapman Avenue and Showground Road.
	• New and upgraded shared paths along key routes and new cycleways associated with Cattai Creek and connecting open spaces.

Built Form	• High quality architectural and urban design. • Taller buildings up to 20 storeys around the station on the northern side of Carrington Road. • Lower height apartments on the southern side of Carrington Road ranging between 6 to 12 storeys. • New commercial buildings up to ~~6~~ 10 storeys in height. • Parks and other key public domain areas protected from overshadowing.

Showground Precinct Development Control Plan

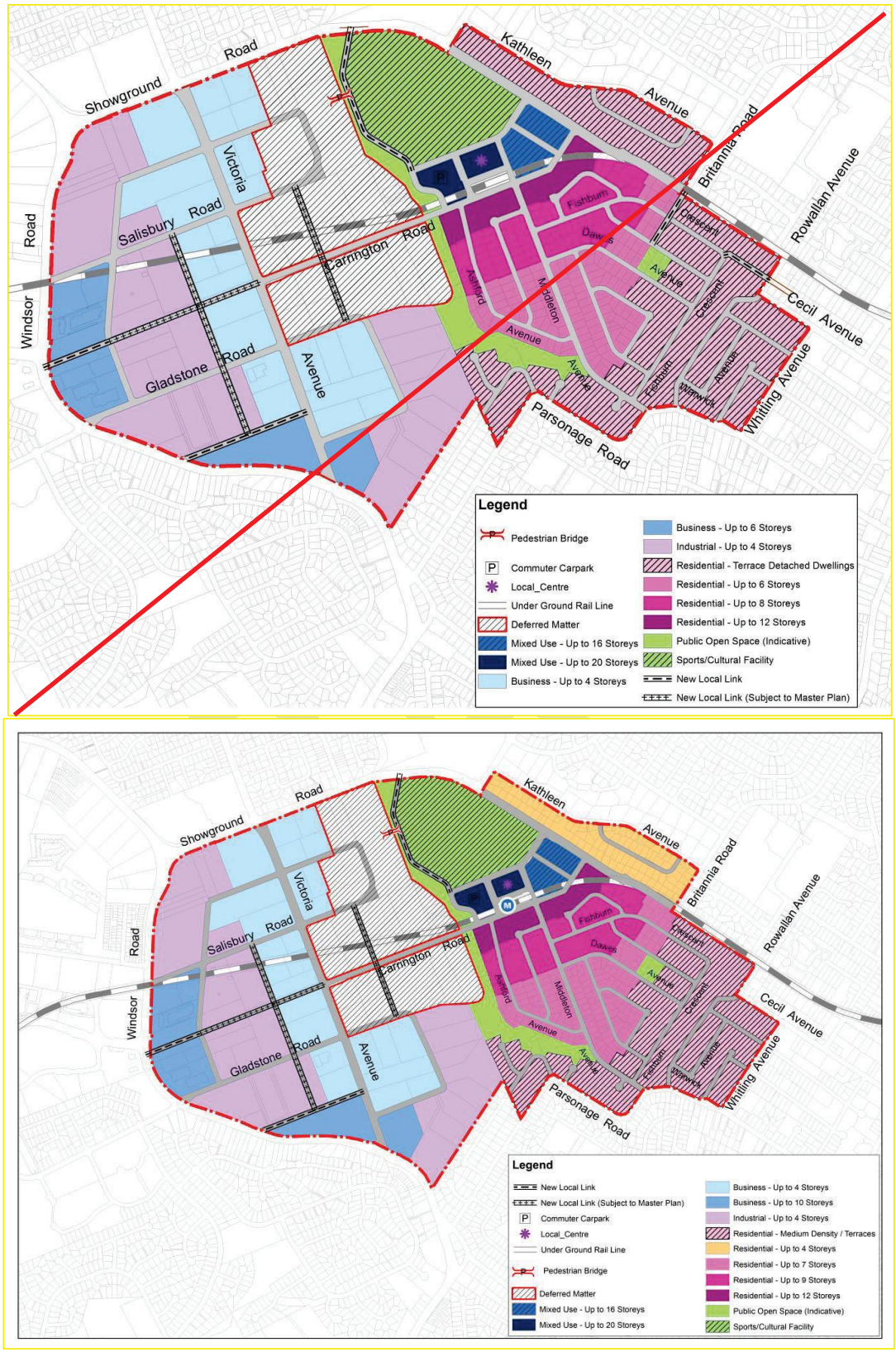


Figure 7 Showground Precinct Structure Plan

4 General Controls

This section of the DCP applies to all development within the Precinct.

4.1 Movement Network and Design

Objectives

a. To encourage residents to walk or cycle to shops, the railway station, recreation areas, community and other facilities by providing for safe and direct pedestrian and cycle connections between key locations.
b. A functional and attractive new street network is provided that facilitates access, safety and convenience for all street and road users and minimises the negative impact of traffic.
c. Carriageways and verge widths are consistent with the identified street hierarchy and profiles to allow streets to perform their designated functions within the street network, enhance functionality and amenity for users and accommodate public utilities and drainage systems.
d. To improve the capacity and function of the road network to support higher density development.

Controls

1. The street network is to be consistent with the indicative street network and hierarchy within Figure 8.
2. Street profiles are to be consistent with the street profiles in Figures 13-21.
3. An appropriate transition and connectivity is to be provided between roads constructed by NRT and the roads constructed by developers.
4. The design and construction of road infrastructure shall comply with Council's Design Guidelines Subdivisions/Developments.
5. Where roundabouts are provided, these are to be appropriately landscaped to ensure visibility for traffic and high quality visual amenity (refer to Figure 11).
6. Infrastructure not funded through a Contributions Plan is to be constructed to Council's specifications and dedicated to Council at no cost.
7. The cycleway network is to be generally consistent with the existing and proposed cycleway network in Figure 9.
8. Where alternative access to a development site is available from the existing and indicative street network, no vehicle access to/from Carrington Road will be permitted.
9. In order to facilitate increased densities along local streets, land identified on the 'Local Street – Land Dedication Plan' (Figure 10) shall be dedicated to Council at no cost. The land to be dedicated shall have a width of 2 metres measured from the existing property boundary. The land dedicated will facilitate intended parking on one side of the local street (refer to road 'Profile 1 – Local Streets'. Floor space potential of land to be dedicated shall be transferred to the remainder of the development site.
10. Future pedestrian links shall be provided in accordance with Figure 8 and shall have regard to the guidelines contained under section '4.3 Public Domain' of this section of the DCP.

Showground Precinct Development Control Plan

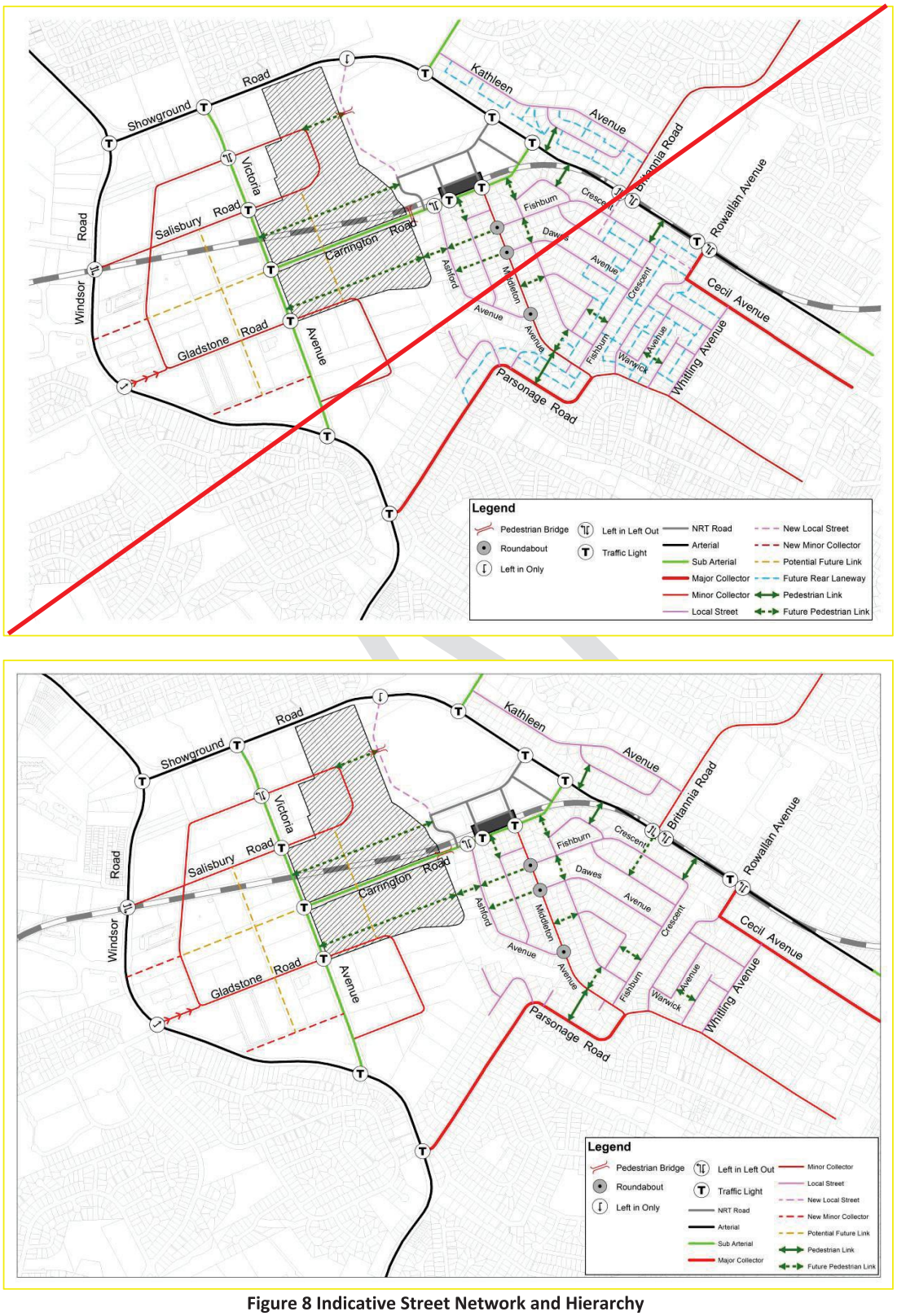


Figure 8 Indicative Street Network and Hierarchy

(Note: Land within the Deferred Area will be subject to further Master Planning)

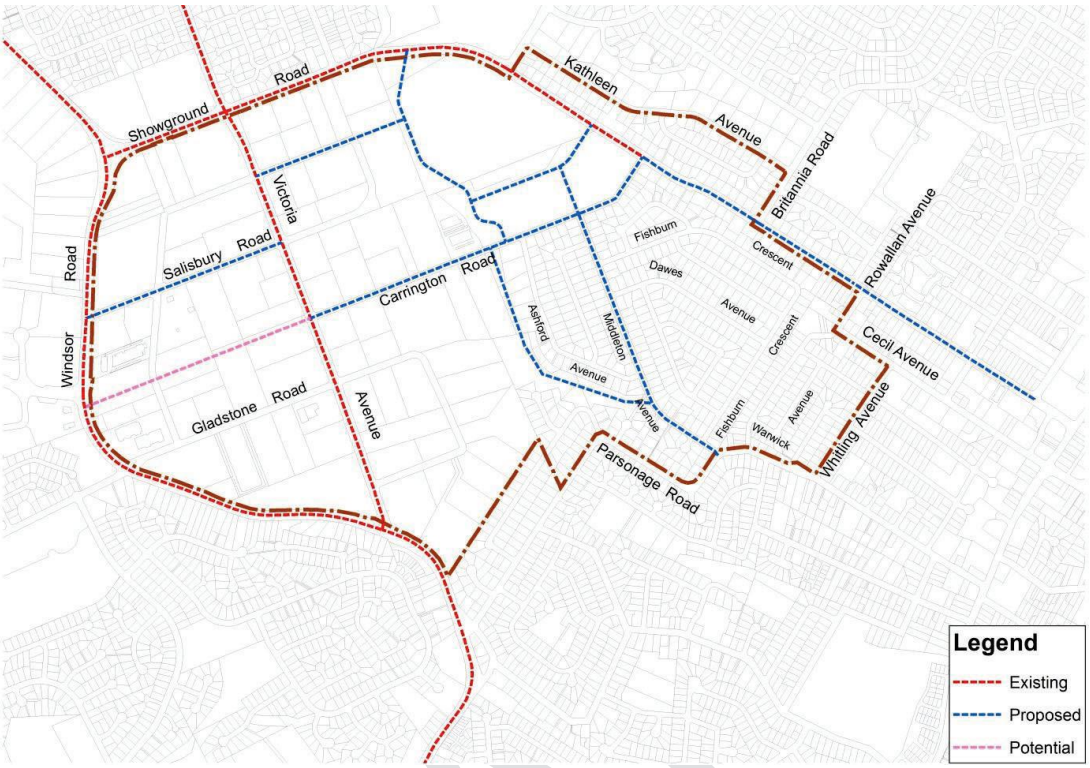


Figure 9 Existing and Proposed Cycleway Network

Showground Precinct Development Control Plan

Figure 10 Local Street – Land Dedication Plan

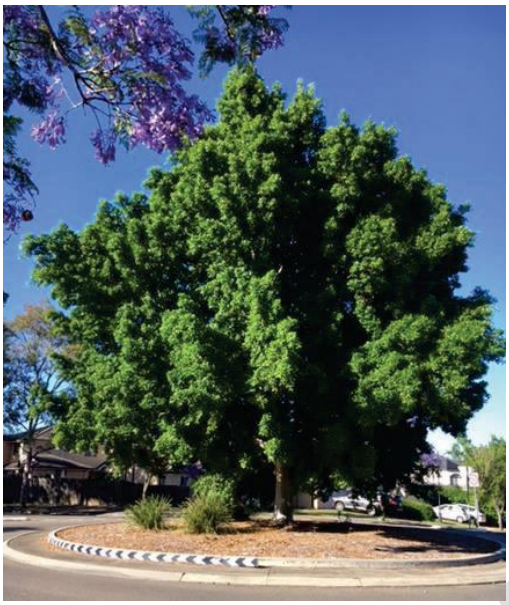
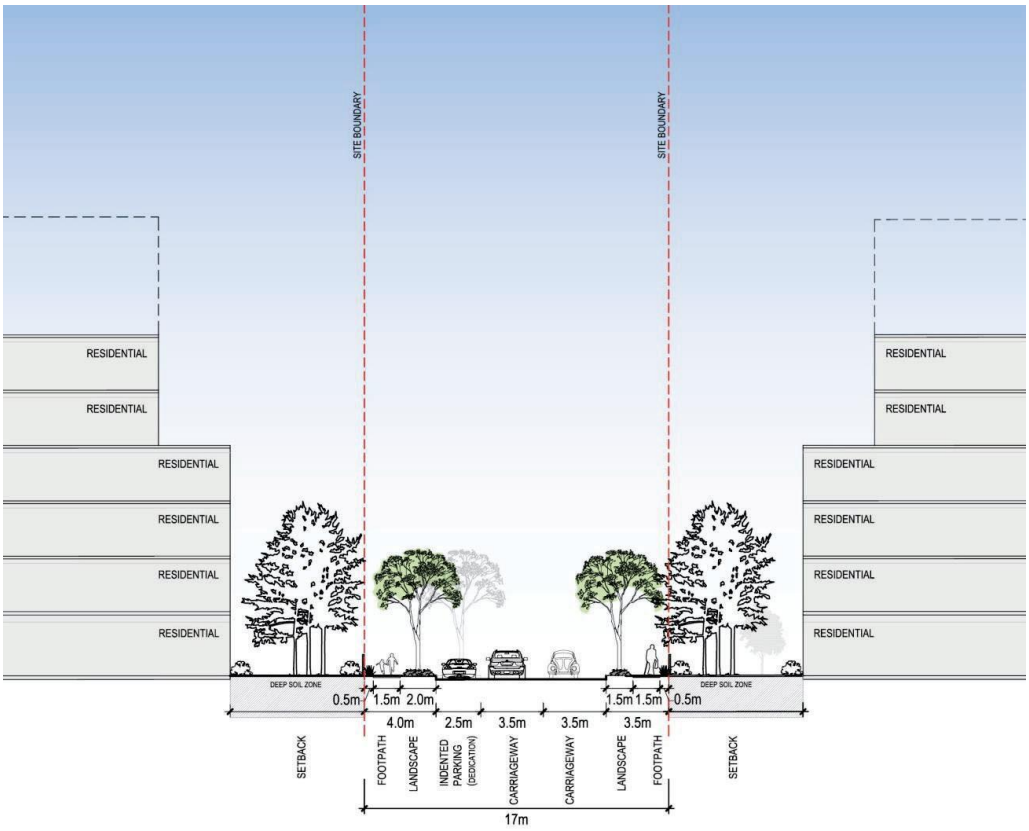


Figure 11 Landscaping in Roundabout

Figure 12 Landscaped Median

Showground Precinct Development Control Plan



PROFILE 1 LOCAL STREET SECTION & PLAN

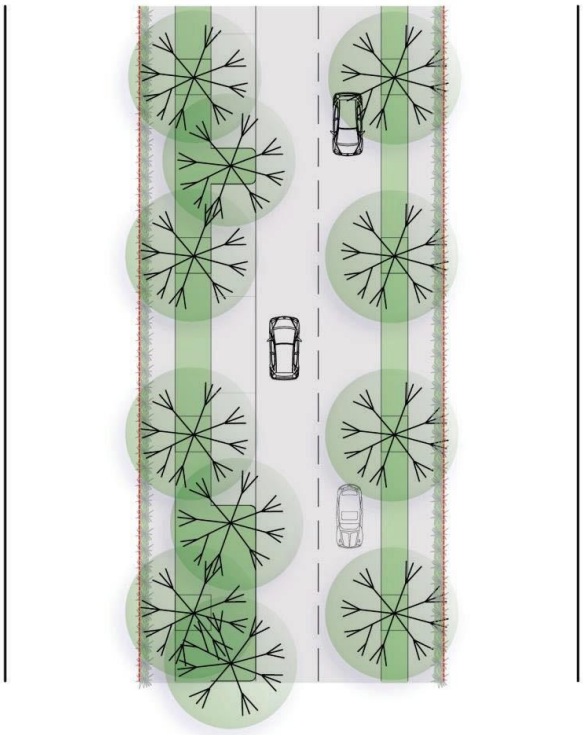
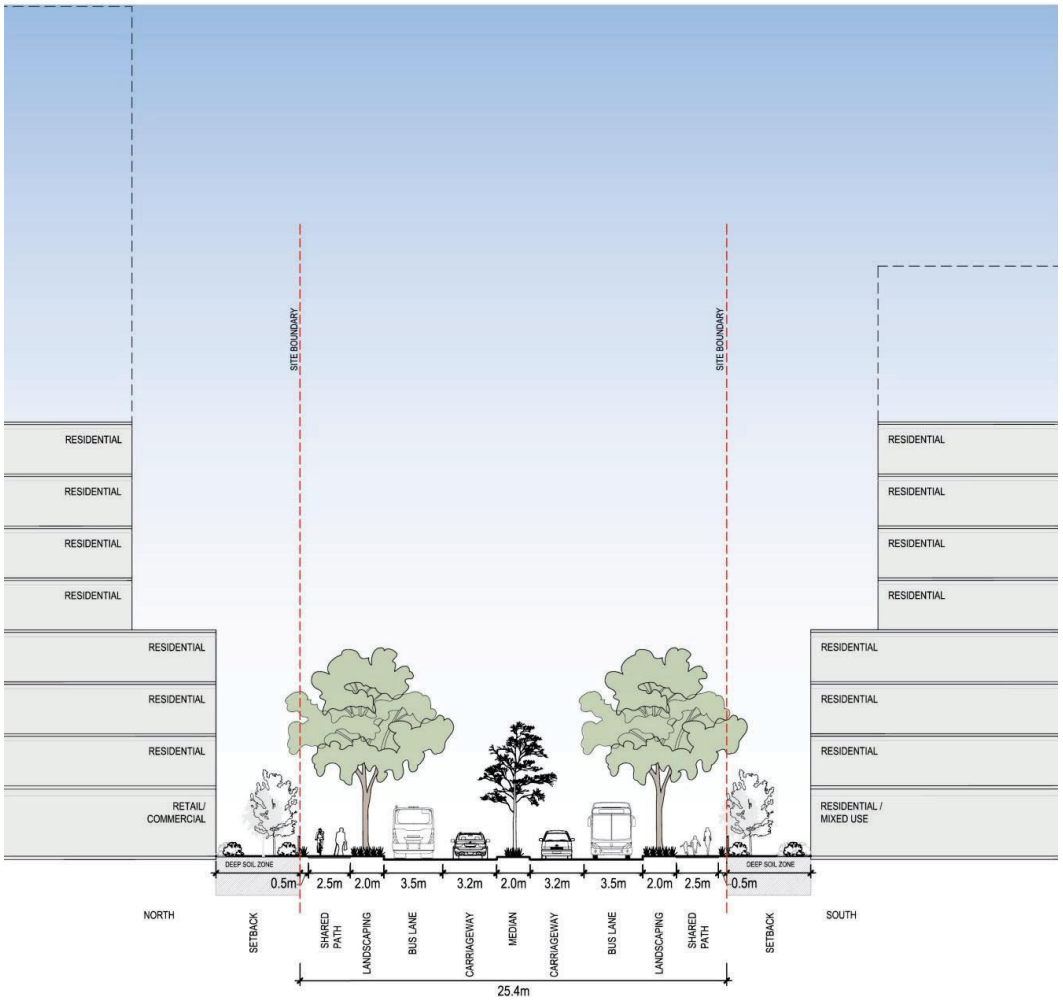


Figure 13 –Local Street

Showground Precinct Development Control Plan



PROFILE 2 CARRINGTON ROAD (from Showground Road to Middleton Avenue) STREET SECTION & PLAN

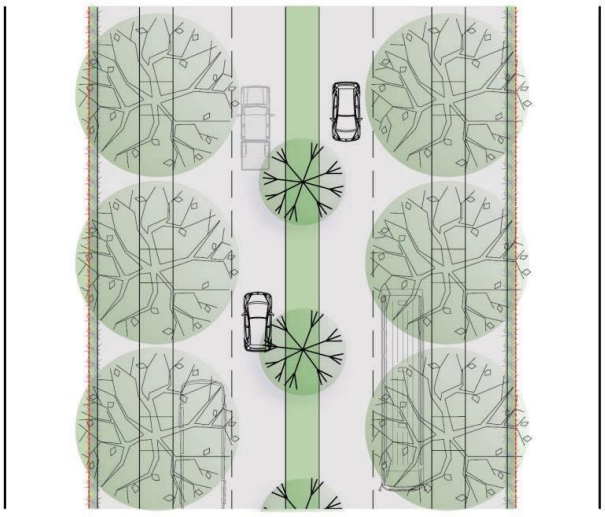


Figure 14 – Carrington Road (from Showground Road to Middleton Avenue)

Showground Precinct Development Control Plan

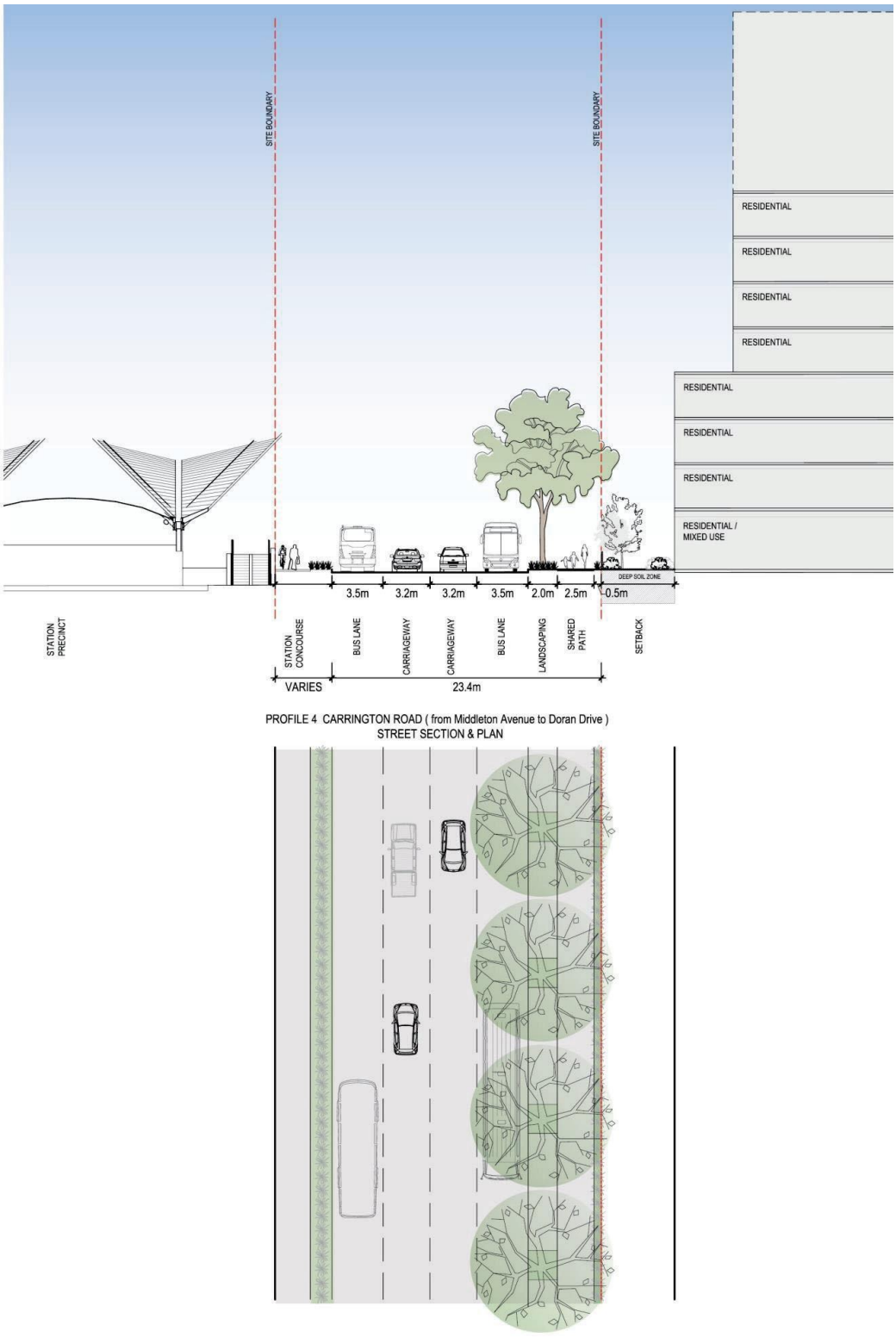


Figure 15 – Carrington Road (from Middleton Avenue to Doran Drive)

Showground Precinct Development Control Plan

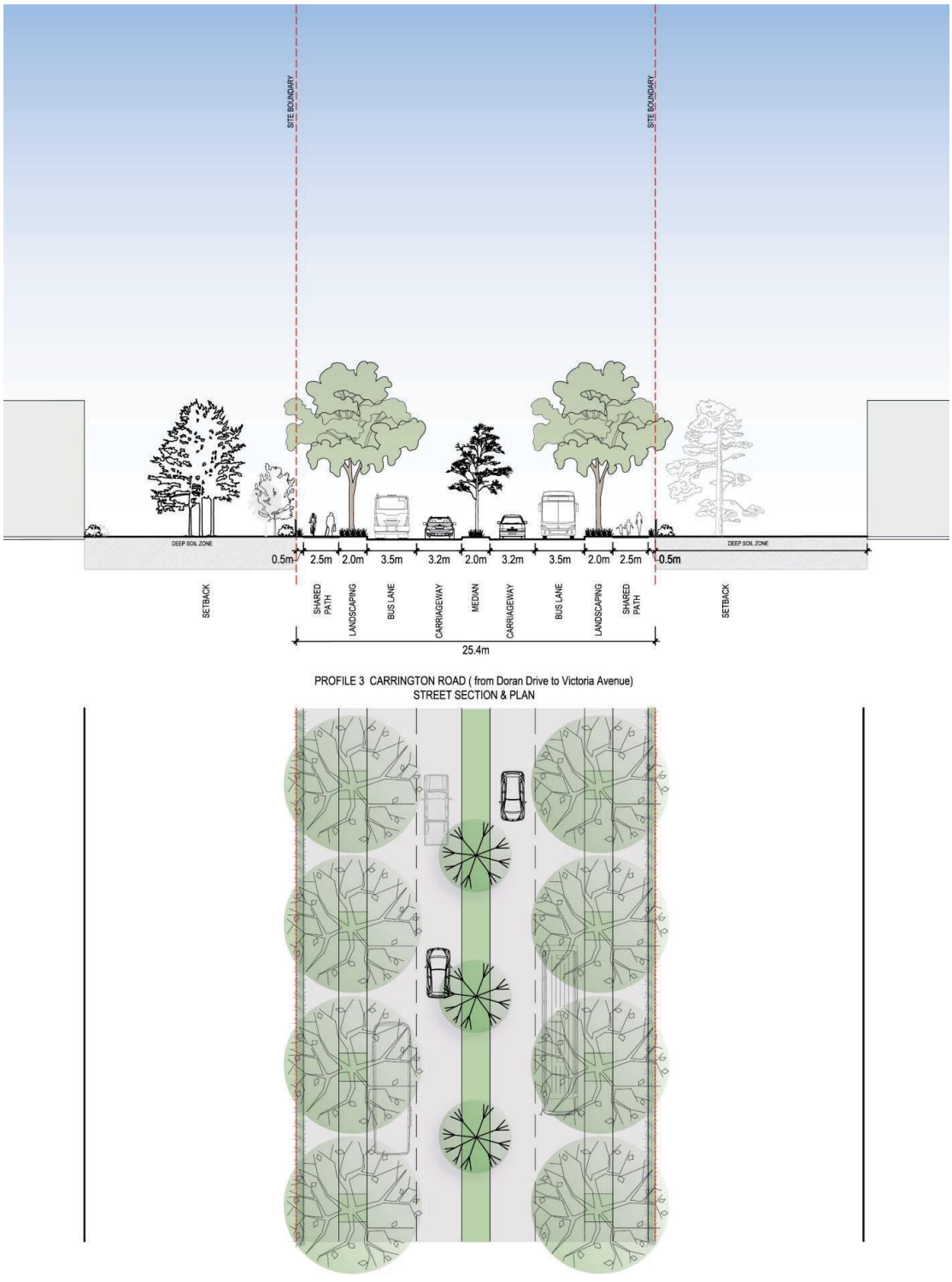


Figure 16 – Carrington Road (from Doran Drive to Victoria Avenue)

Showground Precinct Development Control Plan

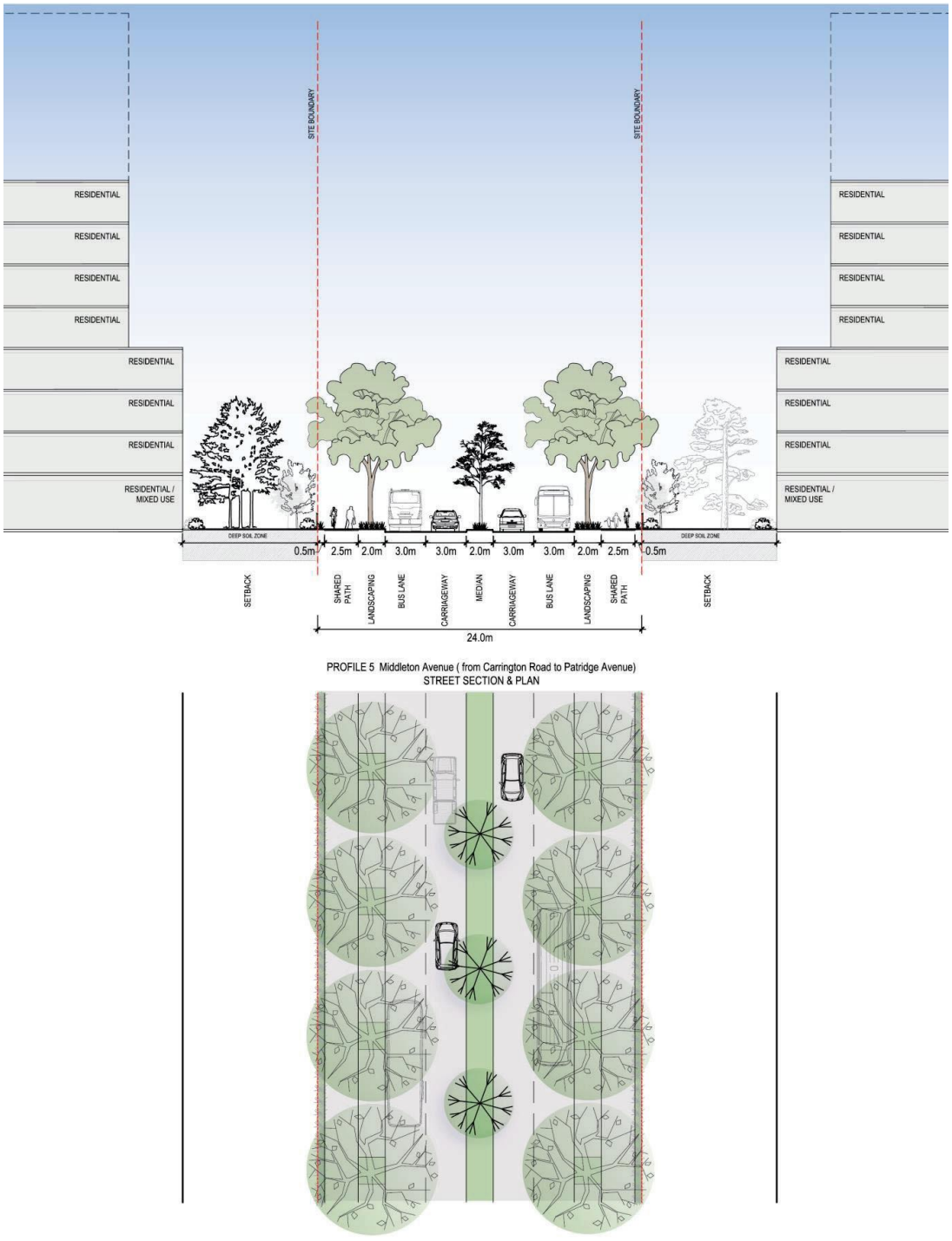


Figure 17 – Middleton Avenue (from Carrington Road to Partridge Avenue)

Showground Precinct Development Control Plan

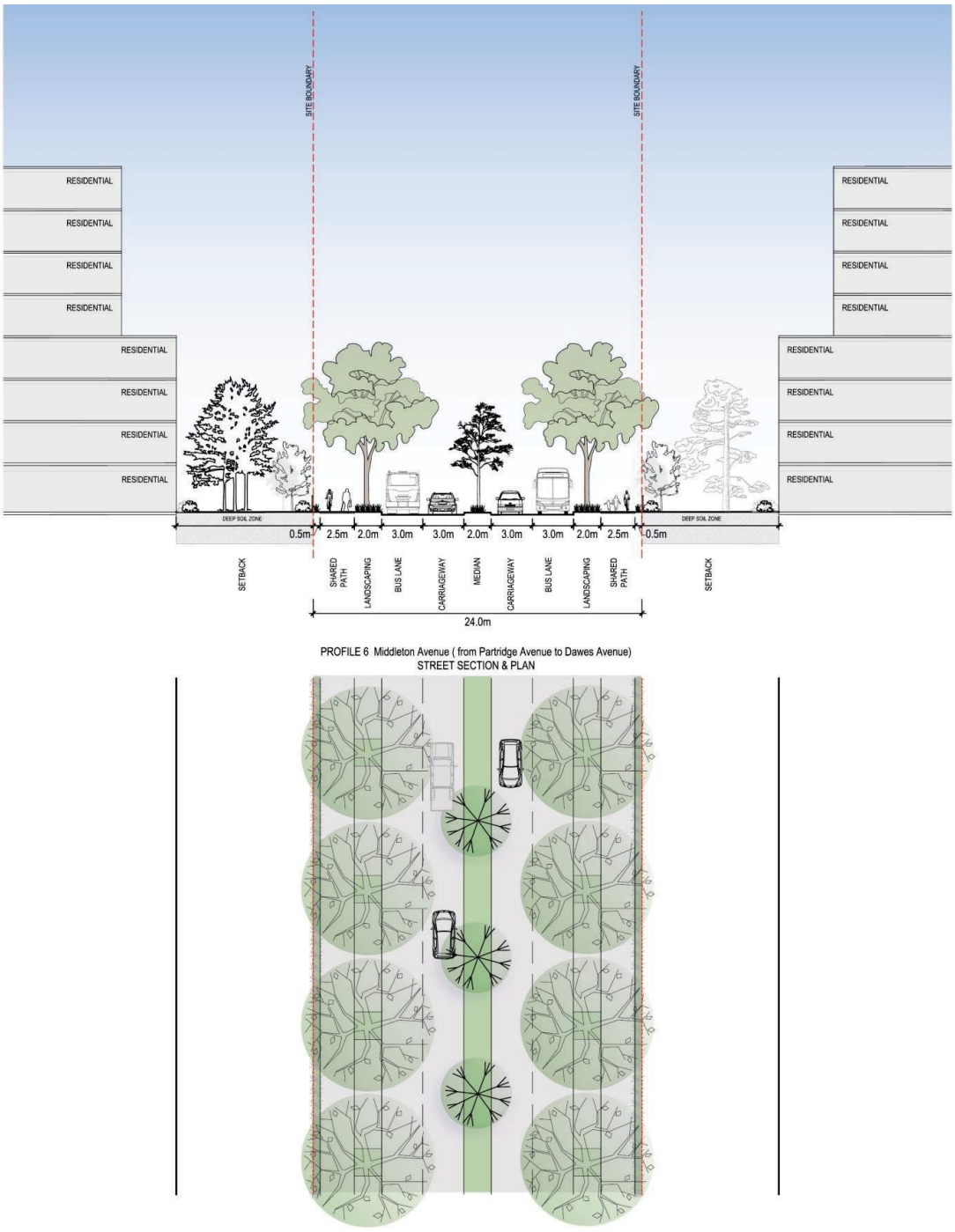


Figure 18 – Middleton Avenue (from Partridge Avenue to Dawes Avenue)

Showground Precinct Development Control Plan

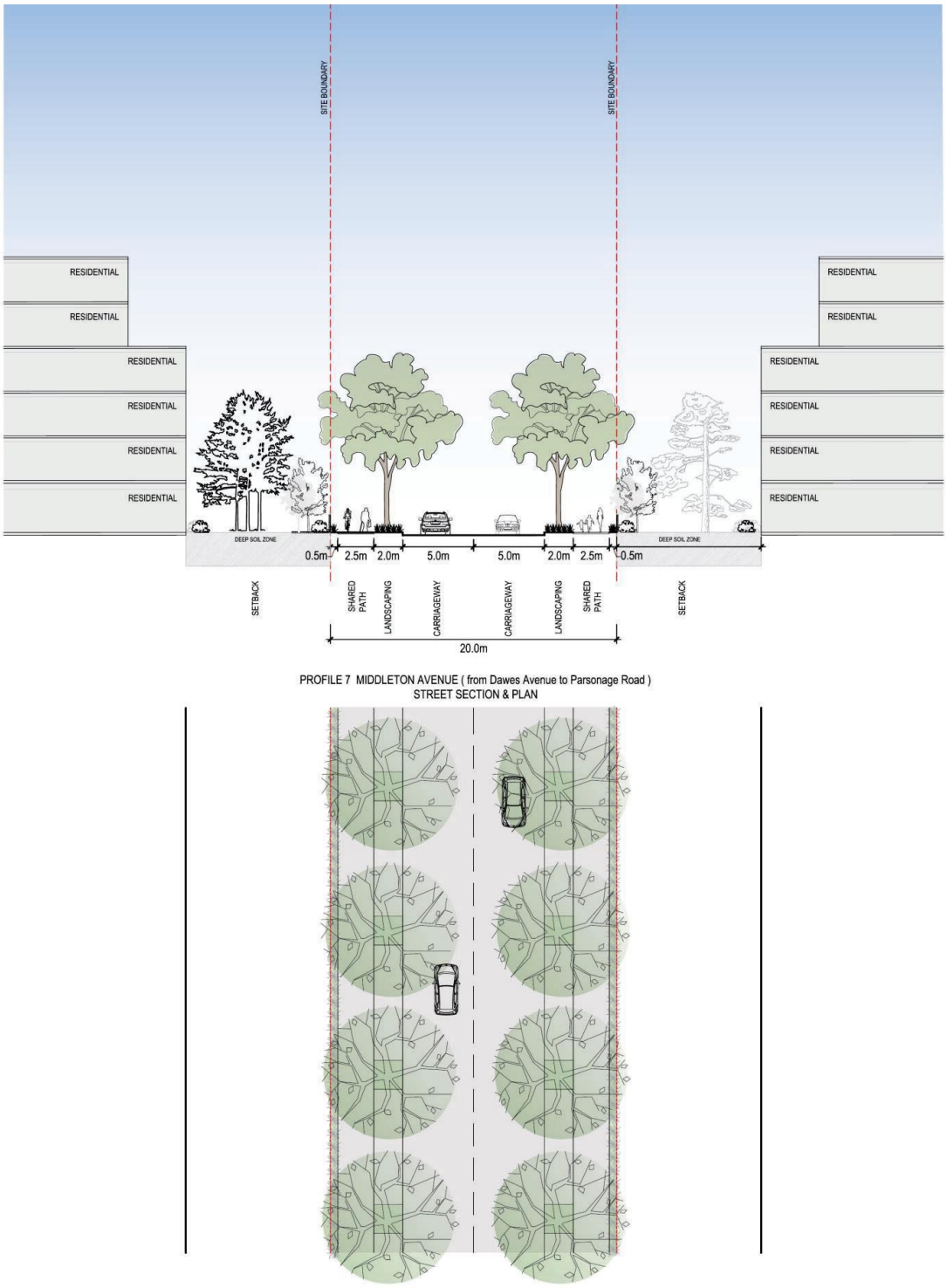
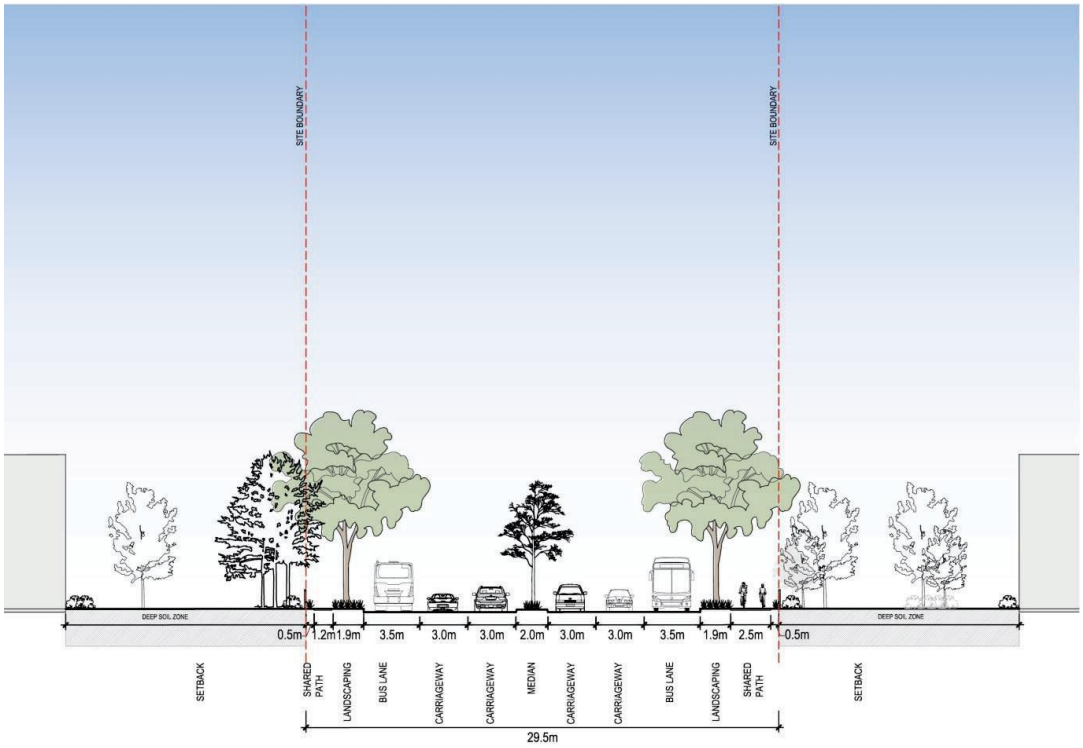


Figure 19 – Middleton Avenue (from Dawes Avenue to Parsonage Road)

Showground Precinct Development Control Plan



PROFILE 8 VICTORIA AVENUE STREET SECTION & PLAN

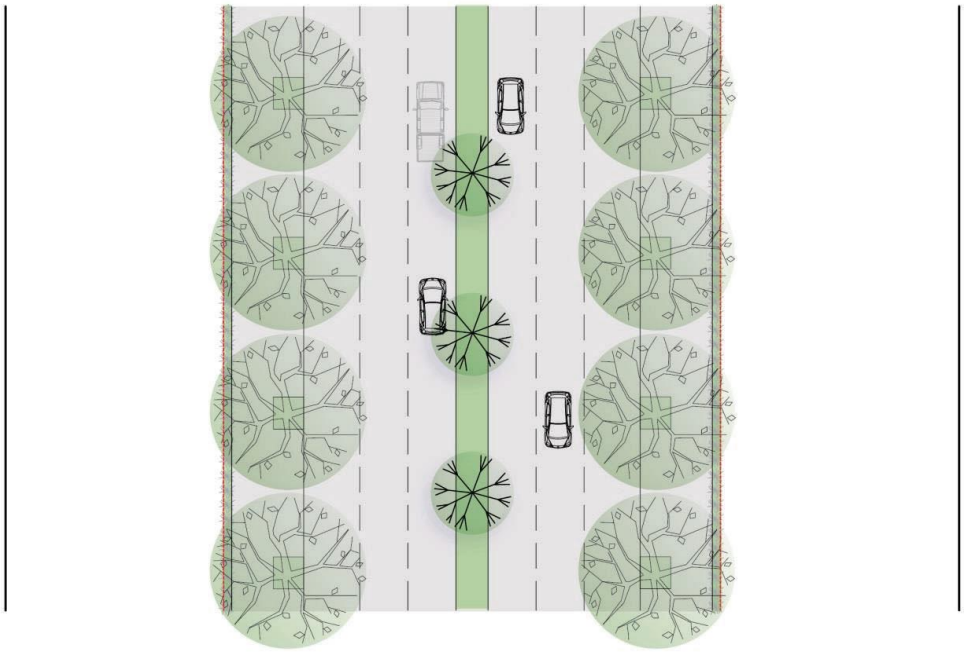
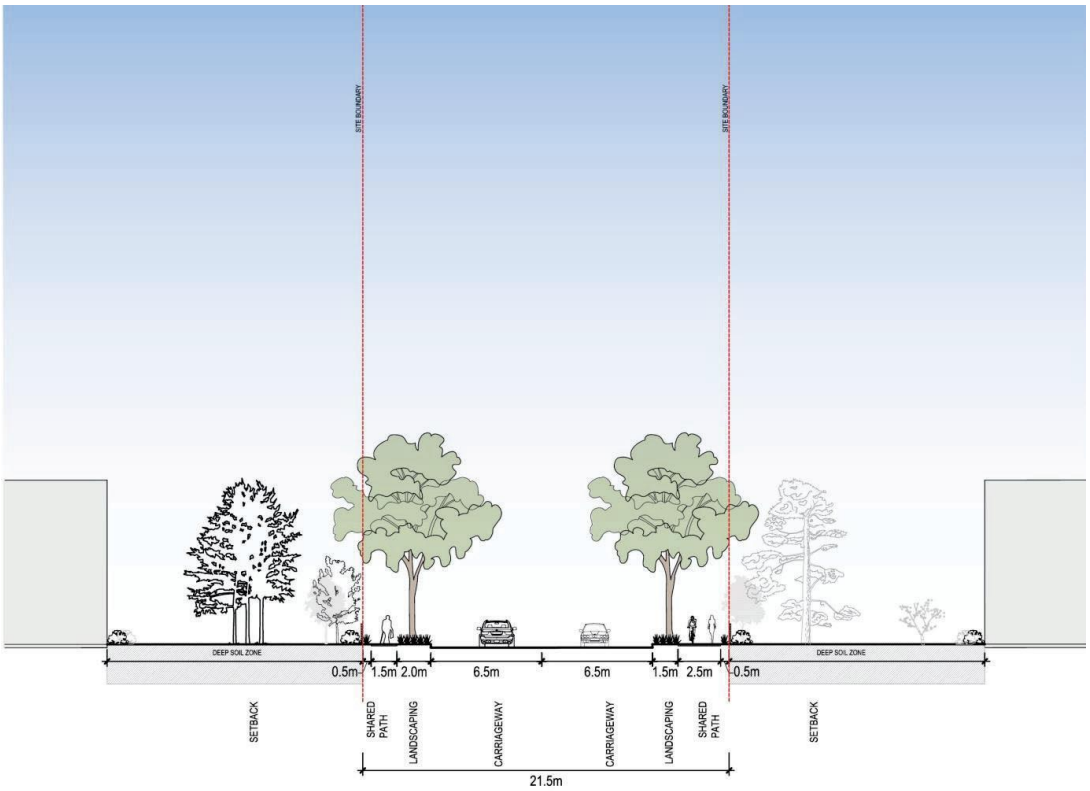


Figure 20 – Victoria Avenue

Showground Precinct Development Control Plan



PROFILE 9 FUTURE EMPLOYMENT ROADS STREET SECTION & PLAN

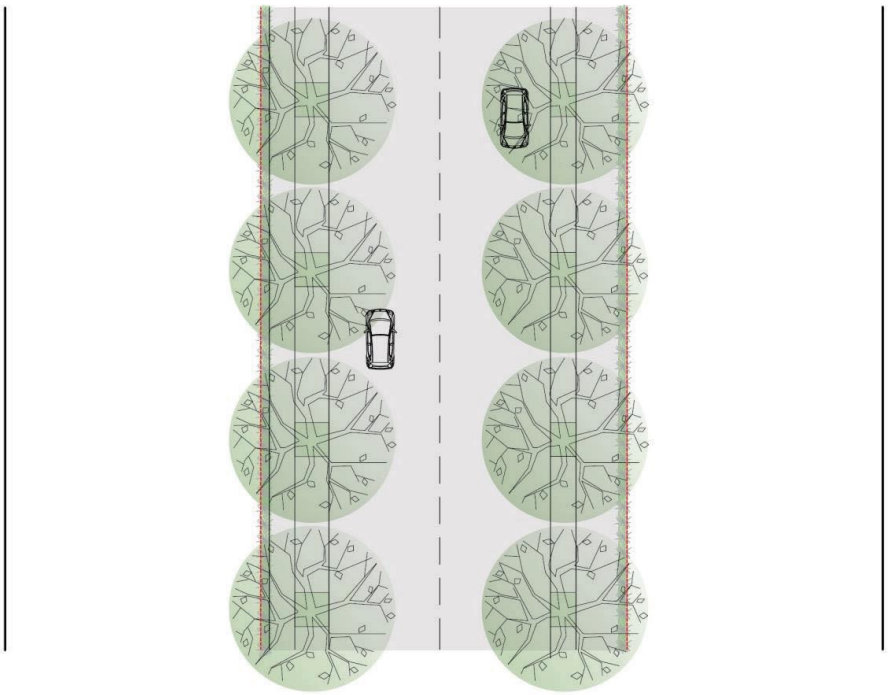


Figure 21 – Future Employment Road

4.2 Open Space Network

Objectives

a. To provide a range of quality public spaces to support new residential and employment uses, including parks, civic squares and places for community gatherings and events.
b. To provide an integrated open space network that links existing open spaces within and outside the Precinct.
c. To improve the amenity, facilities and usage of existing parks and public spaces.
d. To provide a range of open spaces with high quality landscaping that will accommodate the diverse recreational needs of existing and future residents and workers, as well as visitors to the area.
e. To contribute to the enhancement and protection of ecological values.
f. To maximise public access along Cattai Creek and throughout the Castle Hill Showground.

Controls

1. Land identified for open space, but not listed within an applicable development contributions plan shall be dedicated to Council by the developer at no cost.
2. The open space network is to be consistent with the minimum areas and features identified in the table below.

Table 2 Open Space Requirements

Park/Plaza	Minimum Area	Requirements
Chapman Avenue Reserve Extension	6,280m² total • Existing: 2,221m² • New: 4,059m²	• Park to be enlarged and embellished to create a central neighbourhood park. • A range of new children's play spaces, open lawn areas, seating and barbecue areas, shade structures and other facilities. • Existing and new trees and vegetation. • High quality, robust and low maintenance landscaping materials.
Riparian Corridor Park	7.9 hectares • 4.3ha new open space • 3.6ha existing open space Cockayne Reserve	• An open space corridor is to be provided along Cattai Creek which will enable restoration of the creek corridor, while enhancing pedestrian and cyclist access throughout the Precinct, in particular linkages to existing open

Park/Plaza	Minimum Area	Requirements
		space and the Castle Hill Showground. • Restoration and revitalisation of natural bushland/landscape along Cattai Creek. • Shared pedestrian and cycle paths connecting to local centre/station, the Castle Hill Showground, Fred Caterson Reserve, Cockayne Reserve and adjacent residential and employment areas. • Embellishment of Cockayne Reserve as appropriate.
Station Plazas	3,000m^2 approx.(total) • Village Plaza alongside Doran Drive) approx. 1,150m^2 • Station concourse plazas approx. 1,950m^2 (delivered through the Sydney Metro Northwest construction)	• Open lawn for recreation (as appropriate). • Open paved areas (as appropriate). • High quality, durable paving and landscape finishes. • Feature planting bed. • Sufficient shade tree planting to provide shade and greenery. • Seating and other street furniture to optimise use of the space • Water features • Public Art
The Showground	Subject to a Master Plan.	Subject to a Master Plan.

Figure 22 Artist Impression of Open Space along Cattai Creek
(Source: Showground Station Precinct Proposal, NSW Planning and Environment)

Figure 23 Example Children's Play Facilities, Green Square
(Source: THSC)

4.3 Public Domain

Objectives

a. To improve the quality and appearance of the public domain to reflect the transitioning of the Showground Precinct into a Transit Oriented Community with an improved pedestrian experience.
b. To provide a range of quality public spaces to support new residential and employment uses.
c. To ensure the provision of high quality, functional and attractive informal spaces for community interaction and play.

d. Undergrounding of power lines to improve the appearance and liveability of the Precinct and to facilitate increased space within road reserves to install public domain improvements.

Controls

1. Development applications shall comply with the Showground Precinct Public Domain Plan and demonstrate how high quality elements (driveways, footpaths, street trees, street furniture etc.) will be incorporated into future development.
2. Attractive, high quality outdoor spaces for children to play shall be integrated into the public domain within centres where appropriate. Such spaces should allow for interactive play and include seating and shading.
3. Council requires underground electricity reticulation and telecommunications for all urban development. Council will require as a condition of any development consent that any existing aboveground electricity reticulation service be relocated underground with the exception of main transmission lines.
4. Pedestrian and through-site links shall have regard to the following:
    a. be publicly accessible;
    b. have a width of 4-5 metres;
    c. include a minimum of 500mm of landscaping (maximum height of 800mm) along each side of the pedestrian link is desirable;
    d. be clearly identifiable as a publicly accessible pedestrian link;
    e. encourage pedestrians to move along the link and not linger;
    f. maintain the privacy of ground floor apartments which adjoin the link;
    g. ensure adequate passive surveillance is provided;
    h. have adequate lighting to improve safety; and
    i. building setbacks to the pedestrian links are to be assessed on their merits.

Figure 24 Example Town Square, Rouse Hill
(Source: www.hdrinc.com/portfolio/rouse-hill-town-centre)

Figure 25 Public Space for Workers & Visitors, Basal (Source: Peter Walker)

Figure 26 Public Space for Workers & Visitors, Rhodes (Source: The Urban Developer)

4.4 Wind

Objectives

a. To allow for cooling summer breezes to move through the Precinct.
b. To ensure the built form does not provide adverse wind conditions which will impact upon the amenity of pedestrian comfort in streets and public and private open spaces.

Controls

1. Built form is to demonstrate that the passage of cooling summer breezes will not be impacted.
2. Buildings 8 or more storeys in height (or over 25 metres) require wind tunnel testing, irrespective of whether they are built to the street frontage or not, which demonstrates the following:
    a. In open areas to which people have access, the annual maximum gust speed should not exceed 23 metres per second;
    b. In walkways, pedestrian transit areas, streets where pedestrians do not general stop, sit, stand, window shop and the like, annual maximum gust speed should not exceed 16 metres per second;
    c. In areas where pedestrians are involved in stationary short-exposure activities such as window shopping, standing or sitting (including areas such as bus stops, public open space and private open space), the annual maximum gust speed should not exceed 13 metres per second;
    d. In areas for stationary long-exposure activity, such as outdoor dining, the annual maximum gust speed should not exceed 10 metres per second; and
    e. The report is to be prepared by a suitably qualified engineer.

4.5 Integrated Water Management

Objectives

a. To control stormwater runoff and discharge impacts on adjoining properties and into natural drainage systems before, during and after construction.
b. To ensure that proposed development does not adversely affect the operation capacity of the downstream stormwater system.
c. To encourage reuse, recycling and harvesting of stormwater to reduce demand on potable water

supply.

d. To encourage and create an urban form where risks to life and property, as a result of either minor or major flooding, are minimised.
e. To maximise opportunities for a best practice Water Sensitive Urban Design approach at the individual lot, overall development and regional scales.
f. To reduce the impacts typically associated with urbanisation on receiving waterways, including a reduction in streamflow erosion potential and pollutant loads.

Controls

1. Owners of properties adjoining the Cattai Creek riparian corridor and overland flow paths as well as properties identified as Flood Control Lots are required to confirm the 100 year Average Recurrence Interval flood extent and associated flood levels from Cattai Creek prior to the lodgment of development and subdivision applications.
2. Development on land identified as Flood Control Lots and adjoining Cattai Creek or overland flow paths are to apply the provisions of Council's Flood Controlled Land DCP. In applying these provisions consideration is to be given to the type of development, the application of controls according to the Flood Planning Level associated with the property, car parking, flood compatible building materials and land filling.
3. A Stormwater Management Plan is to be prepared for each development application that considers sustainable water management practices and minimal development impact.
4. Stormwater runoff must be treated on the development site before it discharges to a public drainage system.
5. All stormwater drainage designs are to comply with the most up to date revision of Council's Design Guidelines Subdivision/Developments and Contribution Plan No.19 – Showground Station Precincts.
6. All developments are to implement an Erosion and Sediment Control Plan, prepared in accordance with 'Managing Urban Stormwater – Soils and Construction, to minimise land disturbance and erosion and control sediment pollution of waterways.
7. With the exclusion of detached residential dwellings, all developments within the Precinct are required to manage the pollutant loads from each separate allotment to ensure compliance with the performance objective listed in Table 3 prior to discharge to any adjoining drainage system.
8. Water quality modelling undertaken to support development proposals within the Precinct shall utilise the latest version of MUSIC and be in line with the Draft NSW MUSIC Modelling Guidelines, Sydney Metropolitan Catchment Management Authority, 2010, utilising the modelling parameters in Tables 4 and 5.
9. For developments generating oils and grease, the additional objective of no visible oils for flows up to 50% of the one-year Average Recurrence Interval peak flow shall be achieved.
10. A Water Sensitive Urban Design strategy is to be prepared for all development that provides for sustainable and integrated management of land and water resources, taking into account water quality and stream erosivity objectives, together with attenuating flow rates and runoff volumes to acceptable levels following urban development. Water management performance objectives are set out in Table 3.
11. Water Sensitive Urban Design elements are to be designed and constructed in accordance with the following publications:
    - Adoption Guidelines for Stormwater Biofiltration Systems – Cities as Water Supply Catchments, Sustainable Technologies (CRC for Water Sensitive Cities, 2015 or later)

- Australian Runoff Quality (Engineers Australia 2005)
- Water Sensitive Urban Design Technical Guidelines for Western Sydney (NSW Government Stormwater Trust and Upper Parramatta River Catchment Trust, May 2004)

12. As part of a Water Sensitive Urban Design strategy, residential, employment and commercial developments are to install rainwater tanks for water supply demand such as outdoor use, laundries and toilets. With the exception of detached residential dwellings, a water balance assessment is to be undertaken for the development and rainwater tanks appropriately sized to cater for the water use demand. The following provisions apply:

    Detached residential dwellings
    - Minimum 3,000 litre rainwater tank for toilet flushing and external uses is required. Larger tanks and use for filling of swimming pools is permitted.

    Multi dwelling housing
    - Minimum 3,000 litre rainwater tank per proposed dwelling or as defined by a detailed water balance assessment for the development is required.
    - Rainwater tanks may be connected to toilets, laundries and external uses including the filling of swimming pools.

    Residential flat, mixed use and commercial buildings
    - The required rainwater tank volume is to be determined by a detailed water balance assessment.
    - Rainwater tanks are to be used for external uses and other purposes such as wash down bays and laundry facilities.
13. Rainwater tanks are to be provided with potable water trickle top-up with a back flow prevention device, complying with Sydney Water requirements.
14. In accordance with the recommendations made in the publication “Guidance on the Use of Rainwater Tanks” (enHealth, Commonwealth Government 2004), diversion of the “first flush” of up to 180 litres is to be incorporated into the design of the rainwater tank and associated plumbing based on a minimum first flush of 1L/m^2 of roof area.
15. Any discharge to, or construction within the Cattai Creek riparian corridor may require the approval of NSW Office of Water, under the Water Management Act 2000.
16. The natural form, characteristics and function of waterways, including riparian land, are to be retained, restored, protected and enhanced wherever possible.
17. Waterway rehabilitation and construction works are to apply ‘Best Practice’ combination of soft and hard engineering techniques establishing a water sensitive, geomorphically stable, diverse and functional waterway corridor that addresses urban influences and considers the immediate waterway corridor and aquatic systems both upstream and downstream of a subject site.

    As a minimum, waterway design and construction ought follow the principles and guidelines in the Constructed Wetlands Manual (Department of Land and Water Conservation, NSW 1998) and A Rehabilitation Manual for Australian Streams (Cooperative Research Centre for Catchment Hydrology, 2000).

Table 3 Water Quality and Stream Erosivity Performance Objectives

	Water Quality % Reduction in Pollution Loads				Environmental Flows Stream Erosion
	Gross Pollutants (>5mm)	Total Suspended Solids	Total Phosphorus	Total Nitrogen	Post Development Duration of above 'Stream Forming Flow' Natural Duration of Above 'Stream Forming Flow'[1]
Stormwater Management Objective	90	85	65	45	3.5 – 5.0:1
Ideal Stormwater Outcome	100	95	95	85	1:1

1. *For the purposes of these objectives, the 'stream forming flow' is defined as 50% of the 50% AEP flow rate estimated for the catchment under natural conditions.*
2. *This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.*

Source: Managing Urban Stormwater: Environmental Targets, Department of Environment and Climate Change NSW, 2007

Table 4 Soil / groundwater parameters recommended for adoption in MUSIC modelling

	Units	Urban	Non-urban
Impervious area parameters			
Rainfall threshold	mm/day	1.4	1.4
Pervious area parameters			
Soil storage capacity	mm	170	210
Initial storage	% of capacity	30	30
Field capacity	mm	70	80
Infiltration capacity coefficient – a		210	175
Infiltration capacity coefficient – b		4.7	3.1
Groundwater properties			
Initial depth	mm	10	10
Daily recharge rate	%	50	35
Daily baseflow rate	%	4	20
Daily deep seepage rate	%	0	0

Table 5 Recommended Stormwater Quality Parameters for MUSIC modelling

Land use	Storm Flow						Base Flow					
	TSS		TP		TN		TSS		TP		TN	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
	(all values expressed as log_{10} mg/l)											
General urban Residential Industrial Commercial	2.15	*0.32*	-0.60	*0.25*	0.30	*0.19*	1.20	*0.17*	-0.85	*0.19*	0.11	*0.12*
Roads	2.43	*0.32*	-0.30	*0.25*	0.34	*0.19*	---	---	---	---	---	---
Roofs	1.30	*0.32*	-0.89	*0.25*	0.30	*0.19*	---	---	---	---	---	---
Forest/Natural	1.60	*0.32*	-1.10	*0.25*	-0.05	*0.19*	0.78	*0.17*	-1.52	*0.19*	-0.52	*0.12*

Note: SD = standard deviation, TSS = total suspended solids, TP = total phosphorus and TN = total nitrogen

4.6 Subdivision and Earthworks

Objectives

a. To minimise topsoil and vegetation removal and "land-shaping" on land where residential subdivisions are being constructed.
b. Subdivisions provide a landform that is capable of supporting a range of residential, business and industrial uses.
c. To ensure development visually integrates with the surrounding environment.

Controls

1. Earthworks shall be minimised to locations where the construction of roads require earthworks to be undertaken or filling adjacent to Cattai Creek (refer to Integrated Water Management and Cut and Fill Sections of this DCP).
2. All proposed public open space areas are to be fenced and are not to be disturbed or used for any purpose during the construction of a subdivision.
3. Subdivision applications must provide a plan showing the existing pre-development and proposed finished ground levels to enable an assessment of the extent of earthworks proposed and assessment of the relationship between the finished road levels and proposed building platform levels.
4. Perimeter roads along the edge of the Cattai Creek Riparian Corridor shall be in accordance with the Street Network Layout and Hierarchy (Figure 8) and relevant road profile (Figures 11-19).

4.7 Cut and Fill

Objectives

a. To minimise the impact of earthworks on the stormwater regime, salinity and groundwater.
b. To ensure the extent of cut and fill required for large scale development does not detract from the appearance and design.
c. To ensure development visually integrates with the surrounding environment.

d. To minimise the risks and associated impacts of contaminated land and to ensure land is appropriately stabilised and retained.
e. To ensure that cut and fill does not encroach within, or adversely affect the efficiency, integrity and stability of any open space area.

Controls

1. The filling of land adjacent to the Cattai Creek Riparian Corridor may be required to facilitate the urban development of the Precinct and will only be permitted after consultation with NSW Office of Water and to the subsequent levels provided. Justification for any proposed changes to land levels provided is required and is to be supported by a flood assessment that takes into account the cumulative impact of flooding behaviour, and associated risks caused by individual developments.
2. In the areas of fill relevant provisions of Council's Flood Controlled Land DCP are to be applied, with reference to the Integrated Water Management Section of this DCP.
3. A Fill Plan must be prepared.
4. All cut and fill works shall be in accordance with Council's Design Guidelines Subdivisions/Developments and Works Specification Subdivisions/Developments.
5. All landfilled areas must comprise clean material free from contamination. Imported material shall be certified "Virgin Excavated Natural Material (VENM)".
6. Landfilled areas must be suitably compacted and stabilised with density tests to verify that compaction was achieved in accordance with Council requirements.
7. Embankment batters shall have a maximum slope of 1:6.
8. Embankment batters and retaining walls are to be landscaped to reduce erosion and provide a suitable screen. They should be vegetated preferably with native ground covers and small native trees with mature height of up to 10m.
9. Development shall comply with the provisions of State Environmental Planning Policy No. 55 – Remediation of Land.
10. Development shall comply with the Acid Sulfate Soils provisions of LEP ~~2012~~ 2019.

4.8 Ecologically Sustainable Development

Objectives

a. To ensure building design is innovative and sustainable to reduce the reliance on, and consumption of, fossil fuels and potable water supplies.
b. Development adapts to climate change.
c. Development contributes to improved quality of life, health and well-being of the community.
d. The design, construction and operation of development minimises adverse impacts on the natural environment.
e. Use landscape treatments to improve amenity for people using open space.

Controls

1. Residential flat buildings, townhouses and terraces built as a development lot should achieve a minimum 5 star NatHERS energy rating for each dwelling unit.
2. Development other than residential should achieve a minimum 5 star Green Star Design and as Built rating, respectively.

3. Building operation should achieve a minimum 4.5 star base building and tenancy NABERS Energy rating, where applicable.
4. The incorporation of green walls and roofs into the design of commercial and residential buildings is encouraged. Where suitable, building facades should incorporate vertical landscaping features to soften the visual bulk of buildings and to improve streetscape appeal.
5. Canopy trees are to be planted within street verges and medians to provide shade and reduce pavement surface temperatures. Understorey planting and permeable surfaces should also be provided where possible to reduce the extent of paved areas and to enhance the amenity of the streetscape environment.
6. Buildings are encouraged to incorporate a tri-generation facility that provides energy-efficient power, heating and air conditioning for use on site.
7. Building designs are to:
   - Maximise the use of natural light and cross ventilation;
   - Reduce the reliance on mechanical heating and cooling through the use of eaves, awnings, good insulation and landscaping;
   - Include energy efficient light fittings and water fittings; and
   - Allow for separate metering of water and energy usage for commercial and multi-unit tenancies.

Green roofs *can help to decrease heat absorption, reduce the ambient temperatures of buildings, and improve air quality and building efficiency. They can also provide a habitat for urban ecology and have amenity and recreational benefits for a building's occupants.*

Green walls *are plant systems that are grown on the vertical façade of a building and are often a striking and attractive design feature. Benefits include reducing the radiation of absorbed heat from buildings, they provide insulation from noise and heat, and make public spaces more appealing for the community to use and enjoy.*

Figure 27 Green Roofs to Individual Flats
(Source: Bill Dunster)

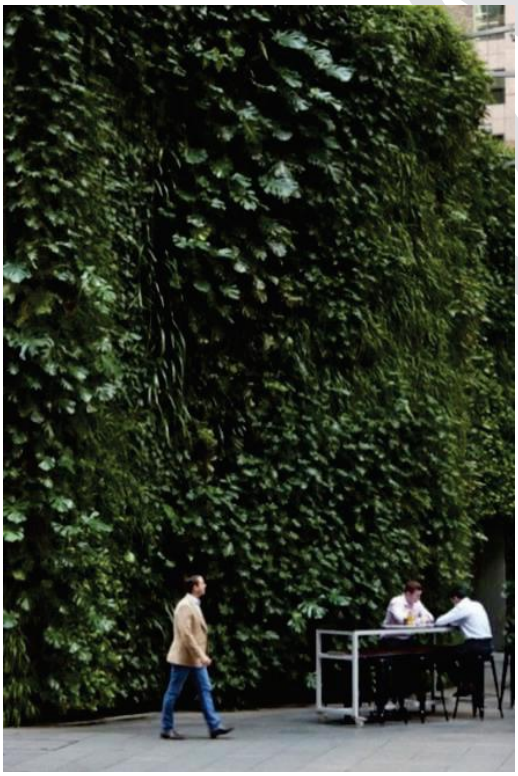


Figure 28 Green Wall, Bligh Street, Sydney
(Source: City of Sydney)

Figure 29 Green Wall at 'The Met', Thailand
(Source: WOHA Design)

4.9 Ecology and Riparian Corridors

Objectives

a. To protect and enhance areas of significant native vegetation.
b. To protect and enhance wildlife habitat.
c. To protect and enhance the integrity and environmental functionality of the Cattai Creek Riparian Corridor.

Controls

1. Wherever practical, development within the Precinct should be sited to minimise impacts on the existing vegetation and avoid removal of significant trees.
2. Provide green roofs and walls wherever practical to mitigate the loss of green canopy and vegetation as a result of development.
3. A site specific Vegetation Management Plan (VMP) is to be prepared and implemented for Cattai Creek and Cockayne Reserve. This plan is to be lodged with development applications for development on land adjoining the Cattai Creek corridor as identified in Figure 34, and approved prior to the commencement of construction works in this land.
4. The VMP is to be prepared in accordance with relevant guidelines and based on standard vegetation management actions including:
   - Collection of seed from any native vegetation proposed to be cleared at the site;
   - Weed control;
   - Management of fire for conservation;
   - Management of human disturbance;
   - Retention of regrowth and remnant native vegetation;
   - Replanting or supplementary planting where natural regeneration will not be sufficient;
   - Retention of dead timber;
   - Erosion control; and
   - Retention of rocks.
5. The VMP is to ensure the rehabilitation and regeneration of Cattai Creek and Cockayne Reserve vegetated riparian corridor (being 30m wide on either side of the creek measured from top of bank).
6. The VMP is to provide for a minimum 2 year monitoring and maintenance period for the rehabilitated riparian area and other revegetation following final planting.

Showground Precinct Development Control Plan

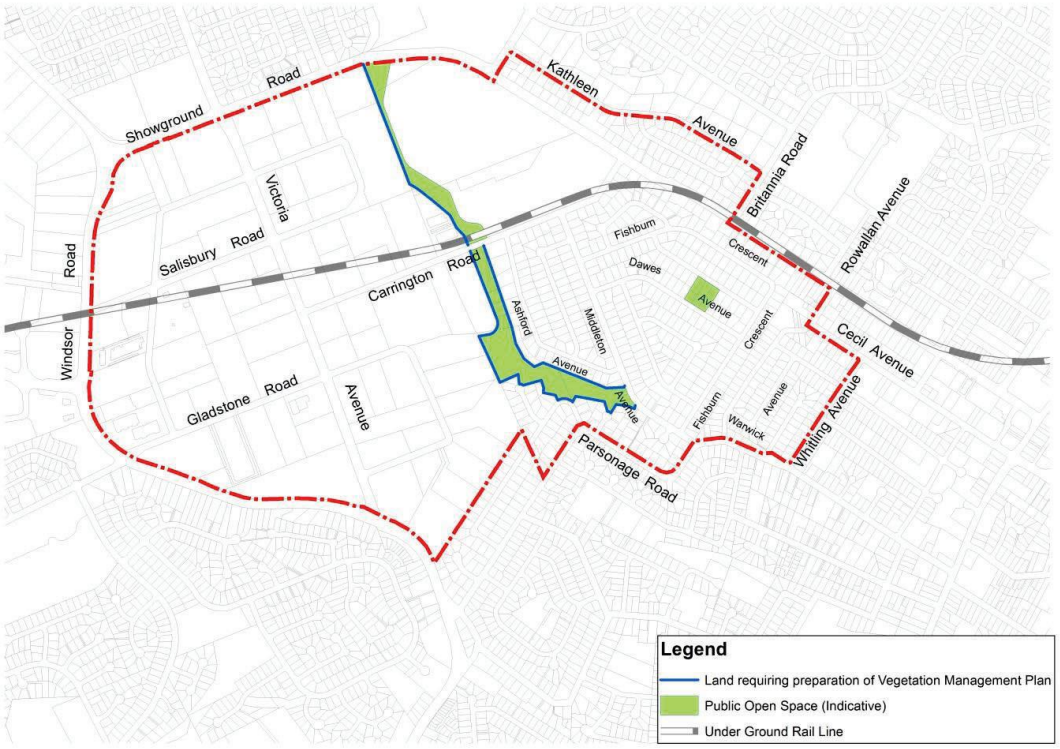


Figure 30 Land Requiring Preparation of a Vegetation Management Plan

Figure 31 Greened Residential Flat Building, Bosco Verticale
(Source: Stefano Boeri Architects

Figure 32 Green Roof in the City
(Source: Susanne Jespersen)

Figure 33 Green Roof to Residential Flat Building
(Source: THSC)

Figure 34 Green Roof to Library
(Source: THSC)

4.10 Development Adjoining the Cattai Creek Riparian Corridor

The Riparian Corridor will provide a focus for passive and active recreation along the creek corridor. The Riparian Corridor will provide a direct pedestrian link across the Showground Precinct linking residents from the southern periphery to the northern boundary adjacent the Showground in the form of a shared pedestrian cycleway. The Riparian Corridor will be fronted by retail and residential land uses and built form which will define the edge, provide passive surveillance and encourage an activated cross link during the day and night.

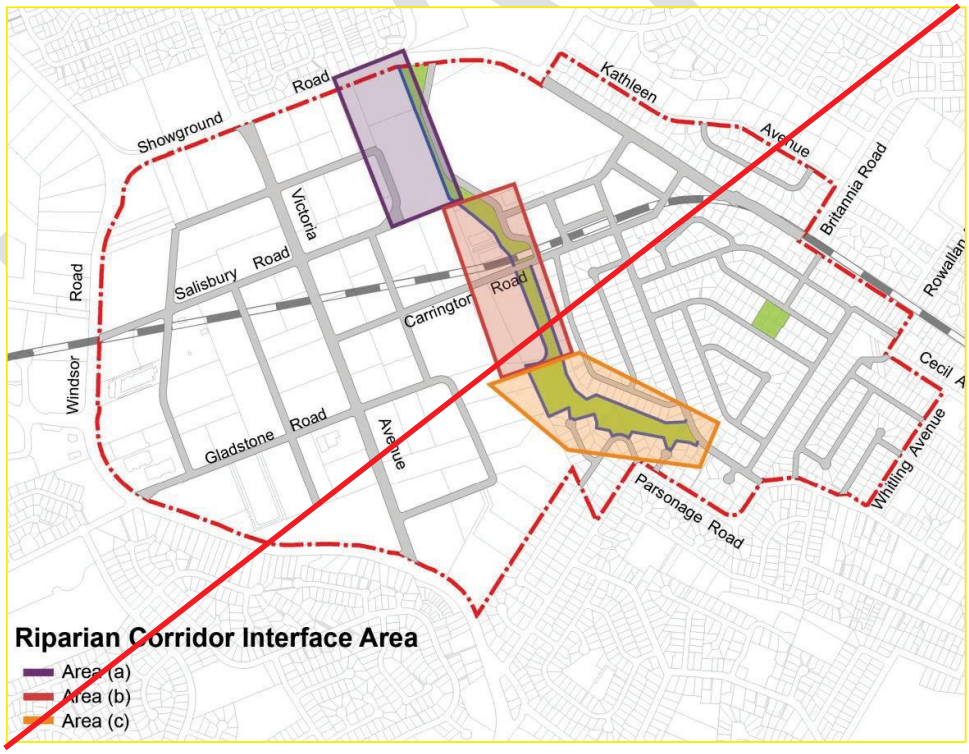


Figure 35 Riparian Corridor Interface Area Map

Objectives

a. To enhance, reinstate and manage a unique environmental setting which can enable a continuous pedestrian link across the Showground Precinct.
b. To encourage built form elements and uses that will enable a vibrant interface with the riparian corridor and shared pedestrian cycleway.
c. Future development uses and built form will provide an appropriately scaled and attractive interface with the riparian corridor.
d. The public domain shall provide an attractive setting and desirable location for new development.

*Controls – Urban Edge – **Interface Area (a)** (refer to Figure 35 – Riparian Corridor Interface Area Map)*

1. All development shall address the riparian corridor. Retail and commercial uses must have an address to, and be accessible directly from the riparian corridor.
2. Entry ways to and from retail, commercial and residential land uses must be clearly visible and provide direct sight lines to the riparian corridor.
3. A tiered open landscape treatment to the riparian corridor from the frontage addressing the riparian corridor is encouraged if direct at grade access cannot be achieved.
4. Ground floor residential apartments are to be elevated from the pedestrian walkway / at grade level by a minimum of 300mm and a maximum of 600mm subject to flood control levels.
5. A minimum 5m built form setback shall be provided to the riparian corridor. Note: the riparian corridor is 20m from the 'top of bank' on each side of the creek within Interface Area (a).

6. Built form setbacks to be established as part of the Cattai Creek West Master Planning Process for the land identified as the 'deferred area' under LEP ~~2012~~ 2019.

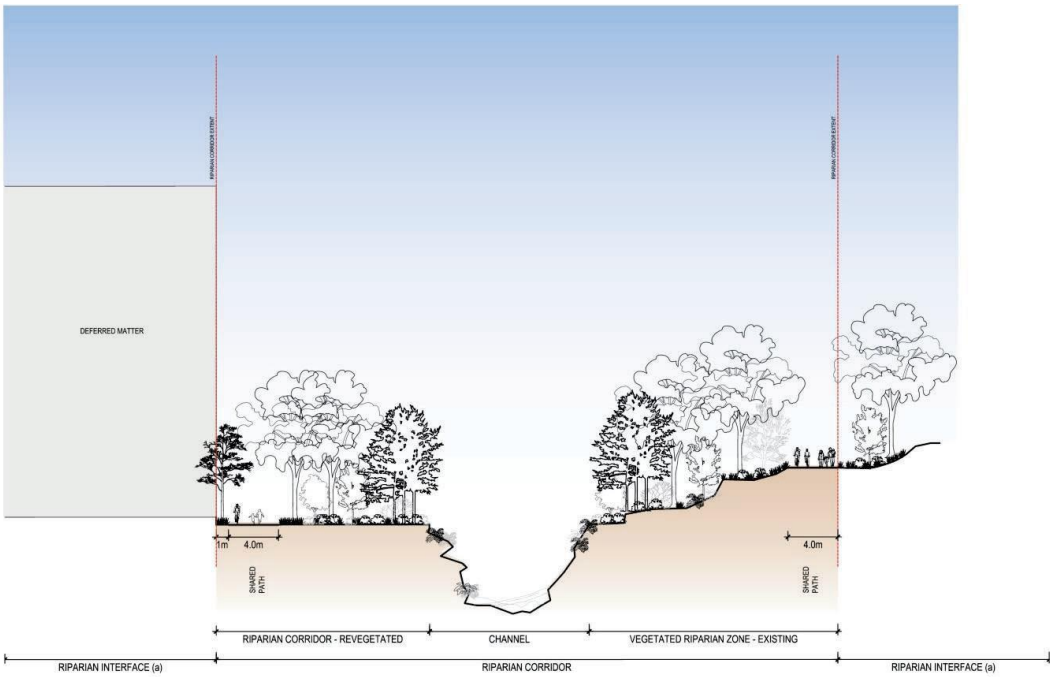


Figure 36 Profile - Riparian Corridor Interface (a)

*Controls – Landscaped Urban Edge – **Interface Area (b)*** (refer to Figure 35 – Riparian Corridor Interface Area Map)

7. All development shall address the riparian corridor. All ground floor apartments must have an address to, and be accessible directly from the riparian corridor.
8. Entry ways to and from residential land uses must be clearly visible and provide direct sight lines to the riparian corridor.
9. A tiered open landscape treatment to the riparian corridor from the frontage addressing the riparian corridor is encouraged if direct at grade access cannot be achieved.
10. Ground floor residential apartments are to be elevated from the ground level by a minimum of 300mm and a maximum of 600mm subject to flood control levels.
11. A minimum 7.5m built form setback shall be provided to the riparian corridor. Note: the riparian corridor is 20m from the 'top of bank' on each side of the creek within Interface Area (b).
12. Underground car parking is not permitted within 5m of the riparian corridor boundary.
13. A podium height of 4 storeys shall be provided.
14. Levels above the 4th storey shall be setback 6m behind the building line addressing the riparian corridor.
15. Developments with residential ground floor uses are to adopt a two storey terrace house appearance to present a fine grain articulation to the riparian corridor frontage.
16. Blank retaining walls or landscape treatments greater than 600mm in height addressing the riparian corridor are not permissible.
17. Ground floor residential fences are to be no more than 1.2m in height with a minimum 60% transparency. Contemporary palisade fence designs in a dark recessive colour are encouraged.

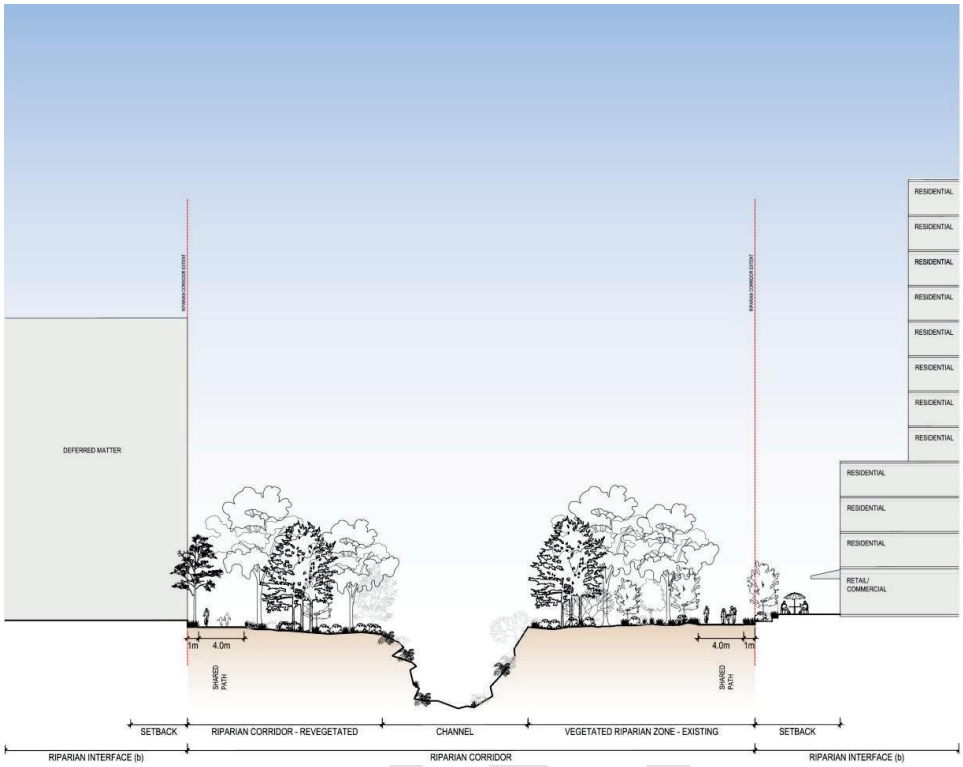


Figure 37 Profile - Riparian Corridor Interface (b)

*Controls – Landscaped Urban Edge – **Interface Area (c)** (refer to Figure 35 – Riparian Corridor Interface Area Map)*

18. Entry ways to and from all land uses must be clearly visible and provide direct sight lines to the riparian corridor. Development sites that also address public parks are to give consideration to addressing the park frontage in addition to addressing the riparian corridor.
19. A tiered open landscape treatment to the riparian corridor from the built form primary frontage is permissible if direct at grade access cannot be achieved.
20. Ground floor residential apartments are to be elevated from the street level by a minimum of 300mm and a maximum of 600mm subject to flood control levels.
21. A minimum 7.5m built form setback shall be provided to the riparian corridor. Note: the riparian corridor is 10m from the 'top of bank' on each side of the creek within Interface Area (c).
22. A minimum 4.5m setback shall be provided to a public open space such as a pocket park.
23. A maximum height of six storeys shall be provided, with the first two storeys clearly articulated to be the main feature in the façade.
24. Levels above the 4th storey shall be setback 3m behind the building line addressing the riparian corridor and open space.
25. A minimum 3m setback shall be provided to all public open space interfaces for designated terrace type dwellings as per the structure plan.

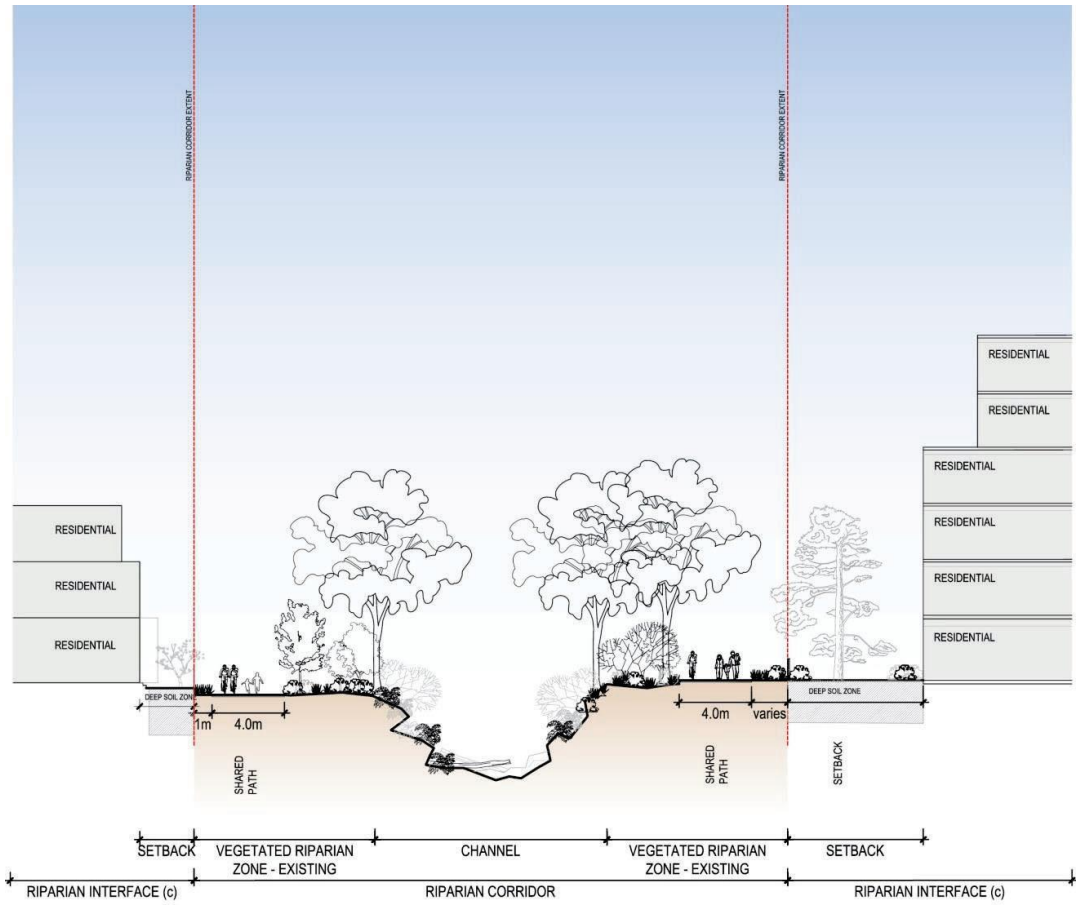


Figure 38 Profile - Riparian Corridor Interface (c)

4.11 Safety & Security

Objectives

a. To provide high levels of property safety as well as personal comfort and safety.
b. To minimise opportunities for criminal and anti-social behaviour through urban design.

Controls

1. Development is to address the principles of Crime Prevention Through Environmental Design.

Note: Consideration shall also be given to The Hills Shire Council's Policy Designing Safer Communities, Safer by Design Guidelines (June 2002).

4.12 Heritage (Aboriginal and European)

Objectives

a. Development is designed and located to protect Aboriginal sites and archaeological relics by minimising the likelihood of disturbance.
b. Development is appropriately designed with regard to sensitive and direct interfaces with heritage sites.
c. Development is sited to minimise adverse impacts on the significance of the heritage items.

Controls – Aboriginal Heritage

1. An Aboriginal Due Diligence Report is required for each major development site/subdivision and must be prepared in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW.*
2. Where a Due Diligence Report identifies the presence or likely presence of any Aboriginal sites or relics on or near the subject development site, further Aboriginal Cultural / Archaeological Assessment by a suitably qualified person must be undertaken. Where a site is identified as significant, a letter from the relevant Aboriginal Lands Council is required to be submitted expressing support or recommendations for the subdivision proposal.
3. The report prepared by GML Heritage titled "NWRL Showground Station Precinct, Indigenous Heritage Assessment" dated August 2015 is to guide any future site-specific Aboriginal heritage assessments and management of Aboriginal heritage sites, values, objects and/or places within the boundaries of the Showground Precinct.

Controls – European Heritage – Cottage at 128-132 Showground Road, Castle Hill

4. Development at, or within the vicinity of the heritage cottage at 128-132 Showground Road must have regard to Part C Section 4 – Heritage of DCP 2012.
5. The curtilage of the heritage item is to be established through a heritage impact assessment prepared by a suitably qualified heritage consultant.
6. The curtilage of the heritage item is to be maintained and protected.
7. Development on sites adjoining and adjacent to the heritage item should consider locating landscaped areas and common open space areas between future building elements and the heritage site to assist in providing greater separation between the heritage item and future development.
8. Development within the vicinity of the heritage item shall ensure that significant view lines to and from the heritage item are appropriately maintained.
9. Development on sites adjoining the eastern and western boundaries of the heritage item should be appropriately sited to ensure that the heritage building is not affected by overshadowing.

Controls – European Heritage – Federation House at 107 Showground Road, Castle Hill

10. Development at, or within the vicinity of the heritage cottage at 107 Showground Road must have regard to Part C Section 4 – Heritage of this DCP.
11. The curtilage of the heritage item is to be established through a heritage impact assessment prepared by a suitably qualified heritage consultant.
12. The curtilage of the heritage item is to be maintained and protected.
13. Development on sites which interface the eastern, western and southern boundaries of the heritage item shall be designed to have a maximum height of four (4) storeys or no more than 13 metres in height, whichever is the lesser.
14. Development on sites adjoining and adjacent to the heritage item should consider locating landscaped areas and common open space areas between future building elements and the heritage site to assist in providing greater separation between the heritage item and future development.
15. Development within the vicinity of the heritage item shall ensure that significant view lines and from the heritage item are appropriately maintained.
16. Development on sites adjoining the eastern, western and southern boundaries of the heritage item should be appropriately sited to ensure that the building is not affected by overshadowing.

Figure 39 Non-Indigenous Heritage Items

5 Local Centre (B2 Local Centre and R1 General Residential Zone)

5.1 Desired Layout and Character

Objectives

a. A range of employment and services are located close to transport connections and high quality open space.

b. Centres located around the stations are attractive, pedestrian focused, convenient and walkable, providing shops, cafes, restaurants, community facilities and jobs.

Controls

1. Development within centres and business zones shall be generally consistent with the following indicative layout plan (Figure 40).

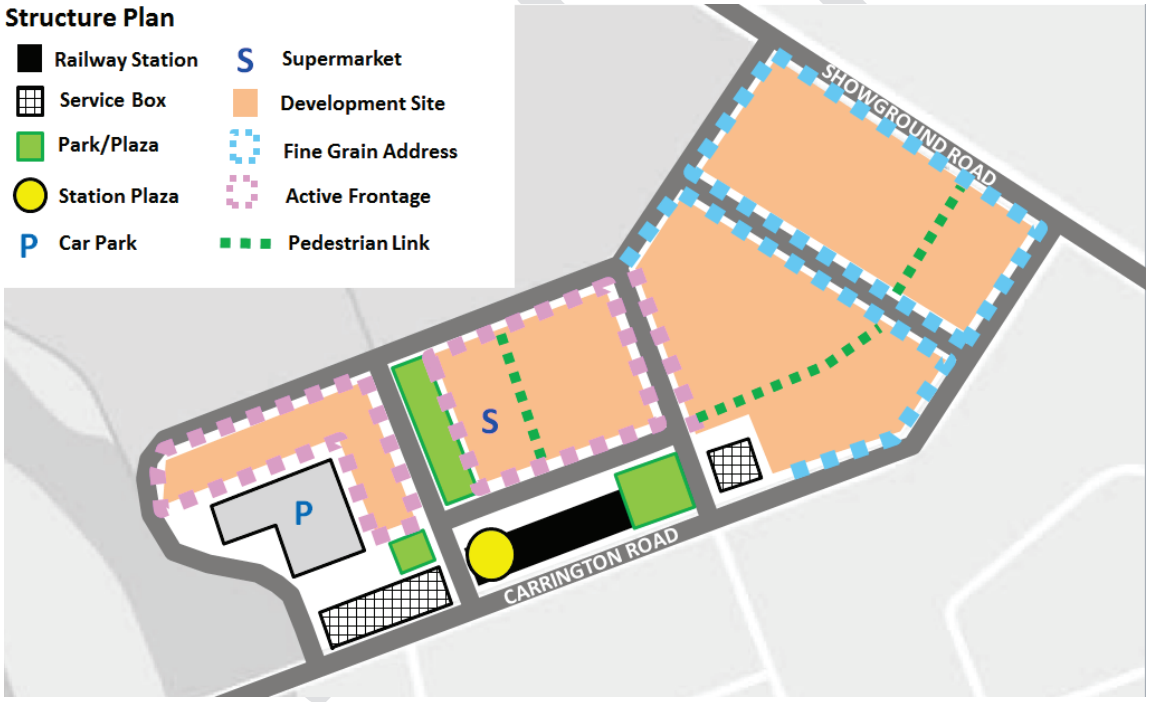


Figure 40 Indicative Layout Plan - Local Centre

Siting the Development

5.2 Site Requirements

The Hills LEP ~~2012~~ 2019 Clause 9.1 (Minimum lot sizes for residential flat buildings and shop top housing) specifies the minimum lot size for residential flat buildings in the R1 General Residential and B2 Local Centre zones.

Objectives

a. To provide sufficient space for landscaping that will complement the building form and enhance the landscape character of the street.
b. Development sites provide sufficient area for adequate access, parking, landscaping, building separation and space for recreation and use by residents.

Controls

1. Development sites within the R1 General Residential Zone shall have a minimum road frontage of 30m.
2. Development sites within the R1 General Residential Zone shall have a minimum site depth of 40m.
3. Residential flat buildings and shop top housing are to have a frontage (address) to the street.
4. The siting of dwellings should take advantage of any views to open space, public reserves and bushland to promote natural surveillance and to enhance the visual amenity of residents.
5. The site coverage of future development within the R1 General Residential zone shall not exceed 50% of the site area (excluding land to be dedicated or acquired or a public purpose).

5.3 Setbacks (Building and Upper Level)

Objectives

a. To provide strong definition to the public domain and create a consistent streetscape.
b. To set taller building elements back from the street to reduce building scale and bulk and enable adequate sunlight access to the public domain.
c. To provide articulation zones to complement building mass and emphasise key design elements such as entrance points and respond to environmental conditions including solar access, noise, privacy and views.
d. To ensure adequate separation between buildings on different sites to alleviate amenity impacts, including privacy, daylight access, acoustic control and natural ventilation.
e. To facilitate a landscaped streetscape that can accommodate larger trees.

Controls

1. Buildings are to comply with Figure 41 Street Setbacks, Figure 42 Upper Level Setback, Figure 43 Podium Height maps and Table 6 Building Setbacks.
2. Buildings on street corners are to address both street frontages, with corners emphasised by appropriate architectural treatment.

Figure 41 Street Setbacks (R1 General Residential and B2 Local Centre)

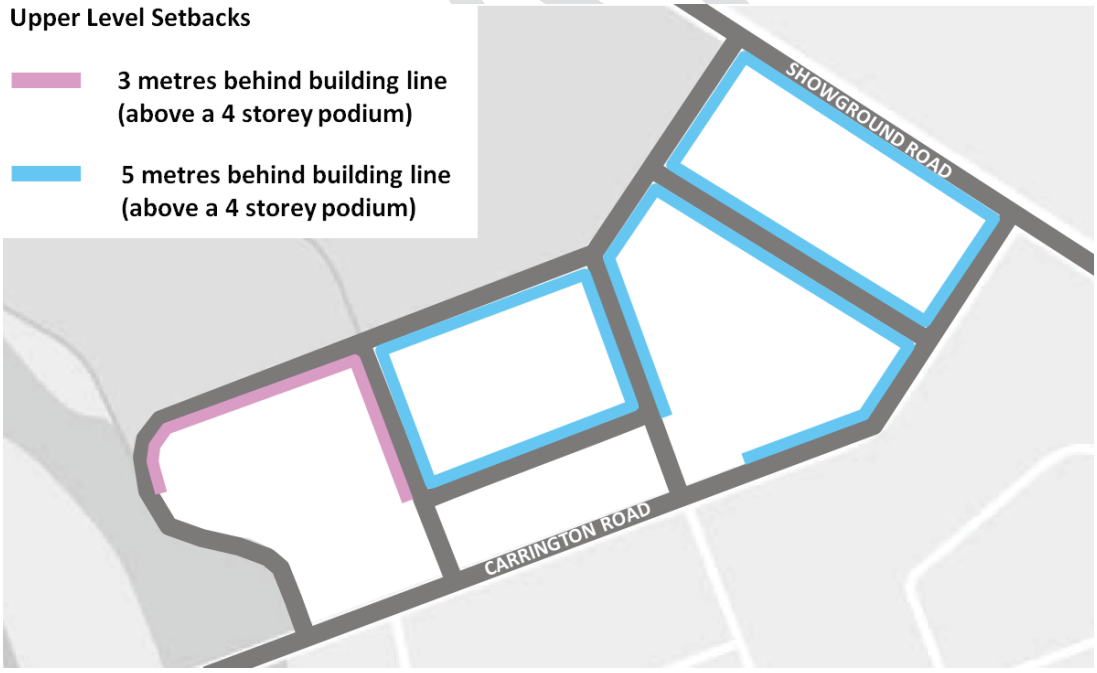


Figure 42 Upper Level Setbacks (R1 General Residential and B2 Local Centre)

Figure 43 Podium Heights (R1 General Residential and B2 Local Centre)

Table 6 Building Setbacks

Setbacks – B2 Local Centre Zone	
Setbacks to Waterways	• Refer to setback controls contained within 4.10 'Development Adjoining Cattai Creek Riparian Corridor'.
Front Setbacks	• Refer to Figure 41 Street Setbacks.
Upper Level Setbacks	• Refer to Figure 46 Upper Level Setbacks.
Podium Height	• Refer to Figure 47 Podium Heights.
Side and Rear Setbacks	• Where adjoining or adjacent to residential development: 6m or to comply with SEPP 65 whichever is the greater (to be used exclusively for landscaping).
Balconies	• Balconies shall not protrude into the setback area.
Setbacks – R1 General Residential Zone	
Setbacks to Classified Roads	• 10m (note: noise attenuation requirements may require a greater setback distance).
Front Setbacks	• Refer to Figure 41 Street Setbacks. • Development adjoining any road not identified on Figure 41 shall be setback 5m from the property boundary. • Underground car parking shall not intrude into the primary setback.
Upper Level Setbacks	• Refer to Figure 46 Upper Level Setbacks. • Development facing any road not identified on Figure 42 shall be setback 5m behind the front building line (above a 4 storey podium).
Podium Height	• Refer to Figure 47 Podium Heights.

	• Development facing any road not identified on Figure 43 shall include a 4 storey podium element.
Rear Setback	• 8m or to comply with SEPP 65 whichever is the greater.
Side Setback	• 6m or to comply with SEPP 65 whichever is the greater.
Balconies	• Balconies shall not protrude into the setback areas.

Figure 44 Podium Addresses Public Domain, Jackson's Landing
(Source: e-architect.co.uk)

Figure 45 Podium Integrated with Public Domain, New Action
(Source: THSC)

5.4 Open Space and Landscaping

Objectives

a. To maximise opportunities for landscaping, including the retention and/or planting of trees within deep soil areas to ensure a high level of amenity.
b. To assist with the management of water quality.
c. To provide communal open space for the enjoyment of residents.
d. Communal open spaces:
   - Are accessible, usable and safe;
   - Enhance the attractiveness of the development;
   - Provide opportunities for social interaction; and
   - Create pleasantly shaded outdoor areas.
e. To ensure development sites have sufficient space for landscaping that will complement the building form and enhance the landscape character of the street.

Controls

Landscaping

1. For Land zoned R1 General Residential, a minimum of 50% of the site area (excluding building footprint, roads, access driveways and parking) shall be landscaped. Terraces and patios within 1m of natural ground level shall be included in the calculation of landscaped open space.
2. For land zoned B2 Local Centre, landscaped open space should be provided where possible.

3. Landscaped areas are to have a minimum width of 2m. Areas less than 2m in width will be excluded from the calculation of landscaped area.
4. Native ground covers and grasses are to be used in garden beds and path surrounds (turf is to be confined to useable outdoor areas).

Roof Gardens and Planting on Structures

5. Green walls are encouraged on podium walls along active frontages to soften the interface between future development and the public realm.
6. Rooftop gardens must be adequately enclosed and accessible to occupants of the development.
7. The design of exterior private open spaces such as roof top gardens is to address visual and acoustic privacy, safety, security, and wind effects.
8. Where roof gardens and green walls are provided, consideration should be given to the Urban Green Cover in NSW – Technical Guidelines, published by the Office of Environment and Heritage.

Communal Open Space

9. A minimum of 10m^2 per dwelling shall be provided as communal open space.
10. A minimum of 25% of the required communal open space must be located at ground level in a singular large parcel.
11. External (outside) common open space areas are to be capable of accommodating substantial vegetation and are to be designed to incorporate active and passive recreation facilities (such as seating, shade structures, BBQs and children's play equipment).
12. External (outside) common open space areas are to be located and designed to:
    - Be seen from the street between buildings;
    - Provide for active and passive recreation needs of all residents;
    - Provide landscaping;
    - Present as a private area for use by residents only;
    - Include passive surveillance from adjacent internal living areas and/or pathways;
    - Have a northerly aspect where possible; and
    - Be in addition to any public thoroughfares.
13. Internal open space areas are to provide opportunities for larger communal gathering and/or active recreation (i.e. kitchen facilities, tables and chairs, small-scale gymnasium or health studio).
14. Plant species appropriate to the context and the specific microclimate within the development are to be selected to maximise use of endemic and native species and opportunities for urban biodiversity.
15. Drought tolerant plant species, and species that enhance habitat and ecology, are to be prioritised.
16. Landscape design is to be integrated with water and stormwater management.

Designing the Building

5.5 Built Form Design

Objectives

a. To ensure development creates a positive streetscape and achieves a high quality architectural design that promotes commercial, retail and business activity.
b. To establish streets with a high quality pedestrian friendly retail strip.
c. To provide a mix of residential flat types and sizes to accommodate a range of household types and to facilitate housing diversity.
d. To encourage podiums that reinforce the intended neighbourhood character and enhance the pedestrian experience.
e. To ensure that towers:
   - Include slender design so as to not overwhelming in bulk and scale;
   - Allow for solar access to units within the development and on adjoining sites;
   - Create an open, attractive and distinct skyline;
   - Create small, fast moving shadows;
   - Allow for view corridors between nearby towers.
f. Roof design and roof features are provided which integrate telecommunications, service structures, lift motor rooms and mechanical plants, contributing to an attractive and interesting skyline of the precinct.

Controls

General

1. The façade design of a development is to utilise large expressed elements to relate to passing motorists and articulate the key components of the building such as entries, showrooms and the like. Finer detail to identify individual tenancies and different building levels are to be used to add richness to the architectural design.
2. The design and layout of any building adjoining landscaped spaces or pathways shall ensure there is natural surveillance of the pathway to protect the security and amenity of users. Solid fences will not be permitted along the boundary of a pathway as they will restrict passive surveillance over the pathway.
3. Sun shading is to be provided appropriate to orientation for glazed portions of facades.
4. Development shall be designed to incorporate clearly defined ground floor street zone, podium and upper level elements. The podium element of any development is to be articulated as shown in Figure 46.

Figure 46 Street façade articulation

Source: THSC

5. On streets with a road reserve of less than 20m the width, the length of the façade shall not exceed 40m. On streets with a road reservation of 20m or greater in width the street frontage shall not exceed 65m.
6. Buildings are to have a maximum length of 65m. Where a building has a length greater than 30m it is to be separated into at least two parts by a significant recess or projection.
7. Where a building has a length greater than 40m it shall have the appearance of two distinct building elements with individual architectural expression and features.
8. The entry to the development is to be visually identifiable from the street frontage with clear sight lines. Separate entrances are required for commercial / retail and residential uses.
9. Street corners must be addressed by giving visual prominence to parts of the building façade, such as a change in building articulation, material or colour, roof expression or height. Buildings on street corners are to address both street frontages.
10. Services such as for fire protection, water and power distribution are not to intrude upon the pedestrian right of way, visually detract from the appearance of the development, and are to be screened from the street frontage with materials which are integrated with architectural expression of the development.
11. Waste management shall comply with the waste management controls contained within Part B Section 5 - Residential Flat Buildings of DCP 2012.

Figure 47 Artist's Impression of Quality Building Design
(Source: www.collinsandturner.com/architecture/barangaroo-r7)

Apartment Mix

12. No more than 25% of the total number of dwellings (to the nearest whole number of dwellings) contained in the development are to be studio or 1 bedroom dwellings, or both, and
13. At least 20% of the total number of dwellings (to the nearest whole number of dwellings) contained in the development are to be 3 or more bedroom dwellings.

Podium Design

14. Podium heights shall be in accordance with Figure 43 Podium Heights.
15. Podium heights shall frame adjacent park land and on-site open space.
16. Podium facades shall avoid blank, featureless walls by patterning high quality architectural elements such as window bays, canopies and fenestration.

Figure 48 Podium Addresses Public Open Space
(Source: THSC)

Figure 49 Podium Interfaces with Street, Rhodes
(Source: THSC)

Tower Form and Design

17. The tower floor plate (floors above the 8th storey) is limited to 750m² gross floor area per storey.
18. Tower forms are to provide a unique profile when compared to nearby existing and proposed towers of similar height.

19. Tower form is to be coordinated to offset with adjacent towers to ensure:
    - Prominent tower views to natural features are not obstructed; and
    - Views of the sky and access to sunlight from the public realm and private open space areas are maximised.
20. Tower form is to be orientated to:
    - Reduce the perceived mass of the building; and
    - Provide privacy for both communal and private open space areas.
21. Tower facades are to be:
    - Articulated to manage passive solar gain in summer;
    - Well-glazed with functional windows where possible to reduce reliance on artificial cooling;
    - Designed with high-quality sustainable materials and finishes that promote building longevity; and
    - Varied in design and articulation to promote visual interest.

Roof Design and Features

22. Where building height creates an identifiable protrusion in the skyline the following are provided:
    - A signature cap strengthening the building's identity as a landmark; and
    - Decorative lighting that highlights key architectural features.
23. Roof features shall be designed to generate an interesting skyline and enhance views from adjoining developments and surrounding areas.

5.6 Active Street Frontages

The Hills LEP ~~2012~~ 2019 specifies locations for active street frontages.

Objectives

a. To encourage active street frontages in suitable locations.
b. Active street frontages cater or a diverse range of activities.
c. Active street frontages provide energetic, safe and vibrant pedestrian environments.
d. The public domain encourages activity outside of commercial business hours.

Controls

1. Active frontages are to be provided in accordance with the active street frontages identified on the Indicative Layout Plan (Figure 40).
2. Active frontages may include one or a combination of the following:
    - Shop front;
    - Café or restaurant if accompanied by an entry from the street;
    - Community and civic uses with a street entrance; and
    - Recreation facilities with a street entrance.
3. An active street frontage is not required for any part of a building that is used for any of the following:
    - Entrances and lobbies (including as part of mixed use development);
    - Access for fire services; and
    - Vehicular access.
4. Retail and commercial uses at ground level are to be designed so that the ground floor for at least part of the premises is at the same level as the finished footpath level of the adjacent street and/or open space.

5. Awnings are to be provided over commercial and residential entries. Continuous awnings are to be provided above retail uses and the full length of Active Frontages.
6. Development is to provide awnings which are a minimum width of 1.5m over the pedestrian access/footpath.
7. Footpath awnings shall be designed to complement and integrate with the façade and the streetscape.
8. Where an active frontage is required, a minimum of 80% of the building frontage is to be transparent (i.e. windows and glazed doors). Clear glazing is to be provided to windows and doors.
9. For larger developments, building entrances should be provided on each street frontage.
10. Loading docks are not permitted on active frontages.
11. Security grilles may only be fitted internally behind the shopfront. They are to be transparent and fully retractable.

Figure 50 Active Street Frontage, Cafe
(Source: THSC)

Figure 51 Active Street Frontage, Retail Uses
(Source: THSC)

5.7 Residential Uses on Ground and First Floors

Objectives

a. To provide residential activation to streets.
b. To provide for residential identity and legibility.
c. Encourage the provision of housing for a diversity of dwelling types and users.
d. To introduce a fine grain built form and architectural diversity within a street block and/or building development.
e. To provide for future flexibility in use.

Controls

1. Higher density development with residential ground and lower floor uses is to adopt a two storey terrace house appearance to present a fine grain articulation to the street frontage.
2. Residential ground floor units are to have individual gates and entrances accessed directly from the street.
3. Ground floor residential apartments are to be elevated from the street level by a minimum of 300mm and a maximum of 600mm.
4. Ground floor residential fences are to be no more than 1.2m in height with a minimum 50% transparency. Contemporary palisade fence designs in a dark recessive colour are encouraged.
5. Soft landscaping to the front of the terrace is to be a minimum of 40% of the setback area, contiguous, and a minimum of 2m in any direction.

6. Small trees suitable for the landscaped area provided are encouraged.
7. Underground car parking is not to intrude into the primary setback by more than 500mm.

Figure 52: Terrace style housing with access to street

Figure 53: Entry detail

Figure 54: Elevated entries allow for surveillance and privacy

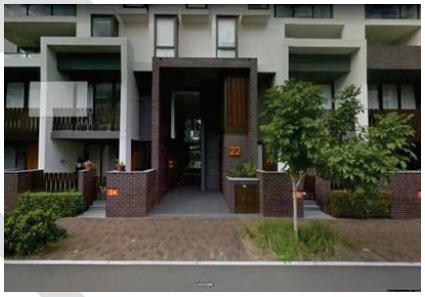


Figure 55: Elevated entries allow for surveillance and privacy (Google maps)

5.8 Solar Access and Overshadowing

Objectives

a. To provide adequate solar access to common open spaces and the open space of adjoining properties, so as to ensure a high level of amenity is achieved for both future and adjoining residents.
b. To ensure that overshadowing from new development does not result in significant loss of sunlight and diminish the enjoyment of public and private open spaces.
c. To protect, and where possible, increase the level of sunlight to public and private open spaces during the times of the year when outdoor spaces are most commonly used.
d. To facilitate the equitable sharing of future impacts of new development on the public domain.

Controls

1. Development is to ensure that at least 50% of the landscaped open space of adjoining properties receives a minimum of 4 hours of sunlight between the hours of 9am and 3pm on 21 June.
   Note: Where these areas already receive less than the minimum 4 hours, the proposed development shall not further reduce the level of solar access.
2. Development shall achieve direct sunlight to the principal usable part of the communal open space within the development site for a minimum of 2 hours between 9am and 3pm on 21 June.
3. The development shall not create additional overshadowing, of land identified for public open space, between the hours of 11am-2pm on 21 June. This includes public open spaces outside and adjacent to the precinct.

4. Solar access to future dwellings within the development shall comply with, and where possible exceed, the minimum solar access requirements within the Apartment Design Guide.

5.9 Adaptable Housing

Objectives

a. To ensure a sufficient proportion of dwellings include accessible layouts and features to accommodate changing requirements of residents.
b. To encourage flexibility in design to allow people to adapt their home as their needs change due to age or disability.

Controls

1. Residential flat buildings and multi dwelling housing are to meet the requirements for adaptable housing within part B Section 4 Residential Flat Buildings of The Hills DCP 2012.
2. All types of residential accommodation are to consider flexibility in the design to allow adaption to meet the changing needs of residents due to ageing or disability.

5.10 Noise

Objectives

a. To ensure the amenity of future residents and workers by appropriately responding to noise impacts.

Controls

1. Site planning, building orientation and interior layout should be used as tools to lessen noise intrusion as far as possible.
2. Attenuation of noise at the source is preferred. Applicants are to indicate measures undertaken to mitigate the impact of noise upon adjacent residents and/or workers.
3. It is preferable that noise attenuation measures will last for a minimum of 10 years or the life of the development proposal, before being upgraded to meet current standards as required.
4. A Noise Impact Assessment prepared by a suitably qualified consultant may be required when submitting a development application for a new development or the renovation of an existing development.
5. The provisions of State Environmental Planning Policy (Infrastructure) 2007 and *Development near Rail Corridors and Busy Roads Interim Guideline* must be taken into consideration to minimise impacts of busy roads and railway corridors on residential and other sensitive development.
6. Development applications are to demonstrate how buildings comply with the noise criteria specified in Table 7.

Table 7 Noise Criteria

Internal Space	Recommended Noise Criteria	Maximum Noise Criteria
Living areas Working areas	40 dBA	45 dBA
Sleeping areas	35 dBA	40 dBA

5.11 Parking Rates and Access

Objectives

a. To provide sufficient parking spaces for development while encouraging public transport use.
b. To ensure that car parking is appropriately located and visual impacts of access and parking facilities on the public realm are minimised.
c. To ensure vehicles enter and exit developments in a safe and efficient manner.
d. Pedestrian and cycle access to, from and through development is simple, safe and direct.
e. To ensure that bicycle parking is considered and provided appropriately in all development.
f. To ensure that end of trip facilities such as change rooms, showers and secure areas for bicycle parking are provided in new buildings featuring employment uses.

Controls

Car Parking

1. Car parking spaces are to be provided at the rates specified in the parking rates table below. For any use not specified, the car parking rates in The Hills Development Control Plan 2012 (Part C Section 1 – Parking) shall apply.

Table 8 Car Parking Rates

Land Use	Rate
Residential flat buildings and dwellings in shop top housing	1 resident space per unit. 1 visitor space per 5 units.
Non-residential Uses	**General** Parking shall be provided in accordance with Part C Section 1 – Parking. **Retail and Commercial Uses (within B2 Local Centre)** To be determined by a merit based assessment. Development applications are to be accompanied by a traffic and parking study which demonstrates that the parking provision is sufficient to meet the forecast demand. It should also have regard to any requirements of State Significant Development Applications that may apply to the land.
All other uses	To comply with the rates in The Hills DCP 2012 Part C Section 1 – Parking.

2. Car parking shall not be located on the roof of buildings.

Vehicular Access

3. The location and means of access to customer car parking within a building is to be clearly visible.
4. Adequate vehicular entry and exit and circulation areas are o be provided. The design must:
   - Provide safe environment for both pedestrians and vehicles using the site and surrounding road networks;
   - Ensure vehicular ingress and egress to the site is in a forward direction at all times;
   - Provide for service vehicles where possible; and
   - Be designed to minimise the visual impact of hard paved areas.
   - Parking shall be provided underground or at the rear of buildings.
5. Loading areas and vehicular access points for development are to be screened from public roads and public access points.

6. Loading areas and vehicular access points for development in the B2 Local Centre zone must avoid conflicts with pedestrian activity areas including waiting zones for bus, taxi and kiss and ride activities.

Residential Flat Buildings and Shop Top Housing

7. Parking is to be underground and within the footprint of the building above.
8. Basement parking is not to be provided forward of the building line.
9. Where above ground parking cannot be avoided due to site conditions, it must be well integrated into the overall façade design and create a good relationship to the public domain.
10. Garages and parking structures are not to project forward of the building line and are to be screened from the public domain by active uses.
11. Any parking located within the front setback area must be suitably landscaped and contribute positively to the streetscape.
12. Car share spaces are encouraged within residential flat buildings and shop top housing developments. Car share spaces are to be for the exclusive use of car share scheme vehicles, and included in the number of car parking spaces permitted on a site. The car share parking spaces are to be:
    - Exclusive of visitor car parking;
    - Retained as common property by the Owners Corporation of the site, and not sold or leased to an individual owner/occupier at any time;
    - Made available for use by operators of car share schemes without a fee or charge;
    - Grouped together in the most convenient locations relative to car parking entrances and pedestrian lifts or access points;
    - Located in well-lit paces that allow for casual surveillance;
    - Signposted for use only by car share vehicles; and
    - Made known to building occupants and car share members through appropriate signage which indicates the availability of the scheme and promotes its use as an alternative mode of transport.
13. Development applications are to demonstrate how the car share parking space(s) is to be accessed, including where access is through a security gate. A covenant is to be registered with the strata plan advising of any car share parking space. The covenant is to include provisions that the car share parking space(s) cannot be revoked or modified without prior approval of Council.

Bicycle Parking

14. Secure, conveniently located bike parking facilities are to be provided at the rates specified in Table 9 below.

Table 9 Bicycle Parking Rates

Land Use	Rate (minimum)
Residential flat buildings	1 resident space per 3 apartments. 1 visitor space per 12 apartments.
Commercial use	1 space per 600m² GFA for staff.
Retail use	1 space per 450m² for staff.

6 Residential Flat Buildings and Shop Top Housing ~~(R4 High Density Residential Zone)~~

This section of the DCP applies to all land within the Precinct zoned R4 High Density Residential. It also applies to certain land within the Precinct zoned R3 Medium Density Residential that is defined as a 'low and mid-rise housing area' in Chapter 6 of the *State Environmental Planning Policy (Housing) 2021* (Housing SEPP).

State Environmental Planning Policy ~~No. 65 – Design Quality of Residential Apartment Development (SEPP 65)~~ (Housing) 2021 (Housing SEPP) applies to residential flat buildings and the residential component of shop top housing development in the Precinct. Such development is to have regard to the Housing SEPP~~, SEPP 65~~ and the NSW Apartment Design Guide in addition to the provisions below.

Siting the Development

6.1 Site Requirements

The Hills LEP ~~2012~~ 2019 Clause 9.1 (Minimum lot sizes residential flat buildings and shop top housing) specifies the minimum lot size for residential flat buildings in the R4 High Density Residential zone.

Objectives

a. To encourage the amalgamation of sites and discourage the creation of isolated development sites.
b. To provide sufficient space for landscaping that will complement the building form and enhance the landscape character of the street.
c. Development sites have sufficient area to provide adequate access, parking, landscaping and building separation.

Controls

1. Development sites shall have a minimum road frontage of 30m.
2. Development sites shall have a minimum site depth of 40m.
3. Residential flat buildings and shop top housing are to have a frontage (address) to the street and are not to be located on battle-axe allotments or rely on right of access arrangements for access to a public road.
4. The site coverage of future development shall not exceed 50% of the site area (excluding land to be dedicated or acquired or a public purpose).

   Note: Determination of site cover includes driveways, footpaths and other impervious surfaces.

Note: Isolation of Lots and Orderly Development

The creation of isolated sites is not desirable and should be avoided where possible. Where a property is likely to be isolated by a development and it cannot be demonstrated that the site can be developed to its full potential, applicants should provide documentary evidence that a genuine and reasonable attempt has been made to purchase the isolated site based on a fair market value. Where a development may result in the creation of an isolated lot/s, the applicant should demonstrate that:

- Negotiations for amalgamation of sites commenced early, prior to the lodgement of a development application;
- If negotiations are not successful, details of the negotiations should be provided with the development application submission, including at least one recent independent valuation

(which considers the property as being part of a complying amalgamated site) and include other reasonable expenses likely to be incurred by the owner of the isolated property in the sale of the property; and

- The orderly development of the isolated site can be achieved that is consistent with the provisions of The Hills LEP and DCP. This should include the applicant providing an envelope for that site, indicating height, building form, setbacks and separations (building and basement) sufficient to understand the relationship between the proposed development and the isolated site and the streetscape implications.

The development of an isolated site should not detract from the character of the streetscape and is to achieve a satisfactory level of amenity, including solar access, visual and acoustic privacy.

6.2 Setbacks (Building and Upper Level)

Objectives

a. To provide strong definition to the public domain and create a consistent streetscape.
b. To set taller building elements back from the street to reduce building scale and bulk and enable adequate sunlight access to the public domain.
c. To provide articulation zones to complement building mass and emphasise key design elements such as entrance points and respond to environmental conditions including solar access, noise, privacy and views.
d. To ensure adequate separation between buildings on different sites to alleviate amenity impacts, including privacy, daylight access, acoustic control and natural ventilation.
e. To facilitate a landscaped streetscape that can accommodate larger trees.

Controls

1. Buildings are to comply with Figure 56 Street Setbacks map and Table 10 Building Setbacks.
2. Where land is dedicated to Council for road widening at no costs, the setback shall be measured from the existing property boundary.
3. Buildings on street corners are to address both street frontages, with corners emphasised by appropriate architectural treatment.

Showground Precinct Development Control Plan

Figure 56 Street Setbacks ~~(R4 High Density Residential)~~

Table 10 Building Setbacks

Setbacks	
Setbacks to Classified Roads	• 10m (note: noise attenuation requirements may require a greater setback distance).
Setbacks to Waterways	• Refer to setback controls contained within 4.10 'Development Adjoining Cattai Creek Riparian Corridor'.
Front Setbacks	• See Figure 56 Street Setbacks. • Underground car parking shall not intrude into the primary setback.
Upper Level Setbacks	• Storeys above the 4th storey shall be setback a minimum of 4m behind the front building line.
Rear Setback	• 8m or to comply with SEPP 65 whichever is the greater.
Side Setback	• 6m or to comply with SEPP 65 whichever is the greater.
Balconies	• Balconies shall not protrude into the setback areas.

6.3 Open Space and Landscaping

Objectives

a. To maximise opportunities for landscaping, including the retention and/or planting of trees within deep soil areas to ensure a high level of amenity.
b. To assist with the management of water quality.
c. To provide communal open space for the enjoyment of residents.
d. Communal open spaces:
   - Are accessible, usable and safe;
   - Enhance the attractiveness of the development;
   - Provide opportunities for social interaction; and
   - Create pleasantly shaded outdoor areas.
f. To ensure development sites have sufficient space for landscaping that will complement the building form and enhance the landscape character of the street.

Controls

Landscaping

1. A minimum of 50% of the site area (excluding building footprint, roads, access driveways and parking) shall be landscaped. Terraces and patios within 1m of natural ground level shall be included in the calculation of landscaped open space.
2. Landscaped areas are to have a minimum width of 2m. Areas less than 2m in width will be excluded from the calculation of landscaped area.
3. Native ground covers and grasses are to be used in garden beds and path surrounds (turf is to be confined to useable outdoor areas).
4. Landscaped areas are to have a minimum width of 2m. Areas less than 2m in width will be excluded from the calculation of landscaped area.
5. Native ground covers and grasses are to be used in garden beds and path surrounds (turf is to be confined to useable outdoor areas).

Roof Gardens and Planting on Structures

6. Green walls are encouraged on podium walls along active frontages to soften the interface between future development and the public realm.
7. Rooftop gardens must be adequately enclosed and accessible to occupants of the development.
8. The design of exterior private open spaces such as roof top gardens is to address visual and acoustic privacy, safety, security, and wind effects.
9. Where roof gardens and green walls are provided, consideration should be given to the Urban Green Cover in NSW – Technical Guidelines, published by the Office of Environment and Heritage.

Communal Open Space

10. A minimum of 10m^2 per dwelling shall be provided as communal open space.
11. A minimum of 25% of the required communal open space must be located at ground level in a singular large parcel.
12. External (outside) common open space areas are to be capable of accommodating substantial vegetation and are to be designed to incorporate active and passive recreation facilities (such as seating, shade structures, BBQs and children's play equipment).
13. External (outside) common open space areas are to be located and designed to:
    - Be seen from the street between buildings;
    - Provide for active and passive recreation needs of all residents;
    - Provide landscaping;
    - Present as a private area for use by residents only;
    - Include passive surveillance from adjacent internal living areas and/or pathways;
    - Have a northerly aspect where possible; and
    - Be in addition to any public thoroughfares.
14. Internal open space areas are to provide opportunities for larger communal gathering and/or active recreation (i.e. kitchen facilities, tables and chairs, small-scale gymnasium or health studio).
15. Plant species appropriate to the context and the specific microclimate within the development are to be selected to maximise use of endemic and native species and opportunities for urban biodiversity.
16. Drought tolerant plant species, and species that enhance habitat and ecology, are to be prioritised.
17. Landscape design is to be integrated with water and stormwater management.

Designing the Building

6.4 Built Form Design

Objectives

a. To ensure development creates a positive streetscape and achieves a high quality architectural design that promotes commercial, retail and business activity.
b. To provide a mix of residential flat types and sizes to accommodate a range of household types and to facilitate housing diversity.
c. To encourage podiums which reinforce the intended neighbourhood character and enhance the pedestrian experience.

d. To ensure that towers:
   - Include slender design so as to not overwhelming in bulk and scale;
   - Allow for solar access to units within the development and on adjoining sites;
   - Create an open, attractive and distinct skyline;
   - Create small, fast moving shadows;
   - Allow for view corridors between nearby towers.

e. Roof design and roof features are provided which integrate telecommunications, service structures, lift motor rooms and mechanical plants, contributing to an attractive and interesting skyline of the precinct.

Controls

General

1. Retail and commercial uses at ground level are to be designed so that the ground floor for at least part of the premises is at the same level as the finished footpath level of the adjacent street and/or open space.
2. The façade design of a development is to utilise large expressed elements to relate to passing motorists and articulate the key components of the building such as entries, showrooms and the like. Finer detail to identify individual tenancies and different building levels are to be used to add richness to the architectural design.
3. Sun shading is to be provided appropriate to orientation for glazed portions of facades.
4. Development shall be designed to incorporate clearly defined ground floor street zone, podium and upper level elements. The podium element of any development is to be articulated as shown in Figure 46.
5. On streets with a road reserve of less than 20m the width, the length of the façade shall not exceed 40m. On streets with a road reservation of 20m or greater in width the street frontage shall not exceed 65m.
6. Buildings are to have a maximum length of 65m. Where a building has a length greater than 30m it is to be separated into at least two parts by a significant recess or projection.
7. Where a building has a length greater than 40m it shall have the appearance of two distinct building elements with individual architectural expression and features.
8. The entry to the development is to be visually identifiable from the street frontage with clear sight lines. Separate entrances are required for commercial / retail and residential uses.
9. Street corners must be addressed by giving visual prominence to parts of the building façade, such as a change in building articulation, material or colour, roof expression or height. Buildings on street corners are to address both street frontages.
10. Services such as for fire protection, water and power distribution are not to intrude upon the pedestrian right of way, visually detract from the appearance of the development, and are to be screened from the street frontage with materials which are integrated with architectural expression of the development.
11. Waste management shall comply with the waste management controls contained within Part B Section 5 - Residential Flat Buildings of DCP 2012.

Apartment Mix

12. No more than 25% of the total number of dwellings (to the nearest whole number of dwellings) contained in the development are to be studio or 1 bedroom dwellings, or both, and

13. At least 20% of the total number of dwellings (to the nearest whole number of dwellings) contained in the development are to be 3 or more bedroom dwellings.

Podium Design

14. Podium heights shall frame adjacent park land and on-site open space.
15. Podium facades shall avoid blank, featureless walls by patterning high quality architectural elements such as window bays, canopies and fenestration.

Tower Form and Design

16. The tower floor plate (floors above the 8th storey) is limited to 750m² gross floor area per storey.
17. Tower forms are to provide a unique profile when compared to nearby existing and proposed towers of similar height.
18. Tower form is to be coordinated to offset with adjacent towers to ensure:
    a. Prominent tower views to natural features are not obstructed; and
    b. Views of the sky and access to sunlight from the public realm and private open space areas are maximised.
19. Tower form is to be orientated to:
    a. Reduce the perceived mass of the building; and
    b. Provide privacy for both communal and private open space areas.
20. Tower facades are to be:
    a. Articulated to manage passive solar gain in summer;
    b. Well-glazed with functional windows where possible to reduce reliance on artificial cooling;
    c. Designed with high-quality sustainable materials and finishes that promote building longevity; and
    d. Varied in design and articulation to promote visual interest.

Roof Design and Features

21. Where building height creates an identifiable protrusion in the skyline the following are provided:
    a. A signature cap strengthening the building's identity as a landmark; and
    b. Decorative lighting that highlights key architectural features.

6.5 Streetscape and Public Domain Interface

Objectives

a. Development contributes to the activity, safety, amenity and quality of streets and the public domain.
b. Development addresses the street and creates a human scale for pedestrians.
c. Development frames and addresses public spaces with appropriately scaled built form achieving excellence in architectural, landscape and urban design.

Controls

1. Buildings shall address any shared open space and adjacent public areas to increase the natural surveillance of these areas and contribute to their safety and security.
2. Residential developments are to address the primary street frontage. Where a development comprises a number of buildings with a variety of orientations, a major part of the overall development is to face the street.
3. Building design shall avoid creating opportunities for personal concealment.

4. The siting and design of dwellings should take advantage of any views to open space, public reserves and bushland to promote natural surveillance and to enhance the visual amenity of residents.
5. Blank courtyard wall along boundaries shared with open space or reserves are to be avoided and opportunities to create and orient dwellings to permit direct views from living areas into the open space / reserve should be pursued in design. Any blank wall or portion of blank wall is to be treated with an anti-graffiti paint application and/or vegetation treatment.
6. Building entries should be readily apparent from the street and clearly visible from inside the dwelling to improve casual surveillance.
7. Lighting is to be provided for safety at night for all public and semi-public entry ways.
8. Awnings are to be provided over commercial and residential entries. Continuous awnings are to be provided above retail uses and the full length of Active Frontages.
9. Development is to provide awnings which are a minimum width of 1.5m over the pedestrian access/footpath.
10. Footpath awnings shall be designed to complement and integrate with the façade and the streetscape.
11. The design and layout of any building adjoining landscaped spaces or pathways shall ensure there is natural surveillance of the pathway to protect the security and amenity of users. Solid fences will not be permitted along the boundary of a pathway as they will restrict passive surveillance over the pathway.

Figure 57: Active Street Frontage with landscaped edge (Source: THSC)

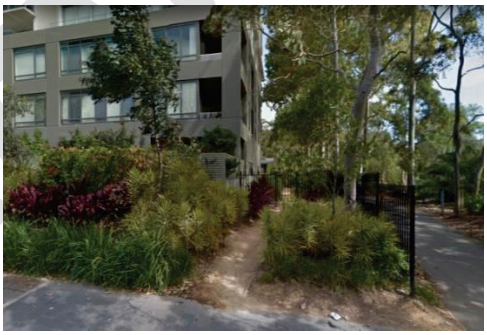


Figure 58: Landscaped setback to development (Source: THSC)

Figure 59: High quality address to public open space corridor (Source: THSC)

Figure 60: High quality address to public open space corridor (Source: THSC)

6.6 Residential Uses on Ground and First Floors

Objectives

a. To provide residential activation to streets.
b. To provide for residential identity and legibility.
c. Encourage the provision of housing for a diversity of dwelling types and users.
d. To introduce a fine grain built form and architectural diversity within a street block and/or building development.
e. To provide for future flexibility in use.

Controls

1. Higher density development with residential ground and lower floor uses is to adopt a two storey terrace house appearance to present a fine grain articulation to the street frontage.
2. Residential ground floor units are to have individual gates and entrances accessed directly from the street.
3. Ground floor residential apartments are to be elevated from the street level by a minimum of 300mm and a maximum of 600mm.
4. Ground floor residential fences are to be no more than 1.2m in height with a minimum 50% transparency. Contemporary palisade fence designs in a dark recessive colour are encouraged.
5. Soft landscaping to the front of the terrace is to be a minimum of 40% of the setback area, contiguous, and a minimum of 2m in any direction.
6. Small trees suitable for the landscaped area provided are encouraged.
7. Underground car parking is not to intrude into the primary setback by more than 500mm.

6.7 Solar Access and Overshadowing

Objectives

a. To provide adequate solar access to common open spaces and the open space of adjoining properties, so as to ensure a high level of amenity is achieved for both future and adjoining residents.
b. To ensure that overshadowing from new development does not result in significant loss of sunlight and diminish the enjoyment of public and private open spaces.

c. To protect, and where possible, increase the level of sunlight to public and private open spaces during the times of the year when outdoor spaces are most commonly used.
d. To facilitate the equitable sharing of future impacts of new development on the public domain.

Controls

1. Development is to ensure that at least 50% of the landscaped open space of adjoining properties receives a minimum of 4 hours of sunlight between the hours of 9am and 3pm on 21 June.
   Note: Where these areas already receive less than the minimum 4 hours, the proposed development shall not further reduce the level of solar access.
2. Development shall achieve direct sunlight to the principal usable part of the communal open space within the development site for a minimum of 2 hours between 9am and 3pm on 21 June.
3. The development shall not create additional overshadowing of land identified for public open space between the hours of 11am-2pm on 21 June. This includes public open spaces outside and adjacent to the precinct.
4. Solar access to future dwellings within the development shall comply with, and where possible exceed, the minimum solar access requirements within the Apartment Design Guide.

6.8 Adaptable Housing

Objectives

a. To ensure a sufficient proportion of dwellings include accessible layouts and features to accommodate changing requirements of residents.
b. To encourage flexibility in design to allow people to adapt their home as their needs change due to age or disability.

Controls

1. Residential flat buildings and multi dwelling housing are to meet the requirements for adaptable housing within part B Section 4 Residential Flat Buildings of The Hills DCP 2012.
2. All types of residential accommodation are to consider flexibility in the design to allow adaption to meet the changing needs of residents due to ageing or disability.

6.9 Noise

Objectives

a. To ensure the amenity of future residents and workers by appropriately responding to noise impacts.

Controls

1. Site planning, building orientation and interior layout should be used as tools to lessen noise intrusion as far as possible.
2. Attenuation of noise at the source is preferred. Applicants are to indicate measures undertaken to mitigate the impact of noise upon adjacent residents and/or workers.
3. It is preferable that noise attenuation measures will last for a minimum of 10 years or the life of the development proposal, before being upgraded to meet current standards as required.
4. A Noise Impact Assessment prepared by a suitably qualified consultant may be required when submitting a development application for a new development or the renovation of an existing development.

5. The provisions of State Environmental Planning Policy (Infrastructure) 2007 and *Development near Rail Corridors and Busy Roads Interim Guideline* must be taken into consideration to minimise impacts of busy roads and railway corridors on residential and other sensitive development.
6. Development applications are to demonstrate how buildings comply with the noise criteria specified in Table 7.

Table 11 Noise Criteria

Internal Space	Recommended Noise Criteria	Maximum Noise Criteria
Living areas Working areas	40 dBA	45 dBA
Sleeping areas	35 dBA	40 dBA

6.10 Parking Rates and Access

Objectives

a. To provide sufficient parking spaces for development while encouraging public transport use.
b. To ensure that car parking is appropriately located and visual impacts of access and parking facilities on the public realm are minimised.
c. To ensure vehicles enter and exit developments in a safe and efficient manner.
d. Pedestrian and cycle access to, from and through development is simple, safe and direct.
e. To ensure that bicycle parking is considered and provided appropriately in all development.
f. To ensure that end of trip facilities such as change rooms, showers and secure areas for bicycle parking are provided in new buildings featuring employment uses.

Controls

Car Parking

1. Car parking spaces are to be provided at the rates specified in the parking rates table below. For any use not specified, the car parking rates in The Hills Development Control Plan 2012 (Part C Section 1 – Parking) shall apply.

Table 12 Car Parking Rates

Land Use	Rate
Residential flat buildings and dwellings in shop top housing	1 resident space per unit. 1 visitor space per 5 units.
All other uses	To comply with the rates in The Hills DCP 2012 Part C Section 1 – Parking

2. Car parking shall not be located on the roof of buildings.

Vehicular Access

3. The location and means of access to customer car parking within a building is to be clearly visible.
4. Adequate vehicular entry and exit and circulation areas are o be provided. The design must:
   - Provide safe environment for both pedestrians and vehicles using the site and surrounding road networks;
   - Ensure vehicular ingress and egress to the site is in a forward direction at all times;

- Provide for service vehicles where possible; and
- Be designed to minimise the visual impact of hard paved areas.
- Parking shall be provided underground or at the rear of buildings.

5. Loading areas and vehicular access points for development are to be screened from public roads and public access points.
6. Loading areas and vehicular access points for development in the B2 Local Centre zone must avoid conflicts with pedestrian activity areas including waiting zones for bus, taxi and kiss and ride activities.

Residential Flat Buildings and Shop Top Housing

7. Parking is to be underground and within the footprint of the building above.
8. Basement parking is not to be provided forward of the building line.
9. Where above ground parking cannot be avoided due to site conditions, it must be well integrated into the overall façade design and create a good relationship to the public domain.
10. Garages and parking structures are not to project forward of the building line and are to be screened from the public domain by active uses.
11. Any parking located within the front setback area must be suitably landscaped and contribute positively to the streetscape.
12. Car share spaces are encouraged within residential flat buildings and shop top housing developments. Car share spaces are to be for the exclusive use of car share scheme vehicles, and included in the number of car parking spaces permitted on a site. The car share parking spaces are to be:

Exclusive of visitor car parking;

- Retained as common property by the Owners Corporation of the site, and not sold or leased to an individual owner/occupier at any time;
- Made available for use by operators of car share schemes without a fee or charge;
- Grouped together in the most convenient locations relative to car parking entrances and pedestrian lifts or access points;
- Located in well-lit paces that allow for casual surveillance;
- Signposted for use only by car share vehicles; and
- Made known to building occupants and car share members through appropriate signage which indicates the availability of the scheme and promotes its use as an alternative mode of transport.

13. Development applications are to demonstrate how the car share parking space(s) is to be accessed, including where access is through a security gate. A covenant is to be registered with the strata plan advising of any car share parking space. The covenant is to include provisions that the car share parking space(s) cannot be revoked or modified without prior approval of Council.

Bicycle Parking

14. Secure, conveniently located bike parking facilities are to be provided at the rates specified in Table 9 below.

Table 13 Bicycle Parking Rates

Land Use	Rate (minimum)
Residential flat buildings	1 resident space per 3 apartments. 1 visitor space per 12 apartments.

Commercial use	1 space per 600m² GFA for staff.
Retail use	1 space per 450m² for staff.

7 Terrace Housing

This section of the DCP applies to land within the Precinct zoned R3 Medium Density Residential.

Development specified in this section of the DCP that is Torrens Title subdivision will need to meet the requirements of Clause 4.1B Exceptions to minimum lot sizes for certain development under The Hills Local Environmental Plan ~~2012~~ 2019 unless the land is defined as a 'low and mid-rise housing area' in which case Chapter 6 of the Housing SEPP would apply.

Siting the Development

7.1 Site Requirements

Objectives

a. Development sites have sufficient area to provide adequate access, parking and landscaping.
b. To minimise impact on the amenity of neighbouring sites
c. To allow a range of allotment types to suit most household types and allow for diversity.
d. To provide a distinct urban character which is sympathetic to existing and future development.

Controls

1. Terrace lots shall have minimum site depth of 30m ~~(exclusive of land required for rear laneway access).~~
2. Terrace housing (as single lot or as a townhouse type development) shall be provided within the periphery of the Precinct on land zoned R3 Medium Density Residential.

~~3. Subject to council discretion all terraces are to be rear loading.~~

~~4.~~ 3. All dwellings with a frontage to the street (including a secondary street) must address the street.

7.2 Building Setbacks

Objectives

a. Developments contribute to an attractive and diverse neighbourhood that is characterised by tree-lined streets, high quality landscaping and innovative building design.
b. To provide strong definition to the public domain and create a consistent streetscape.
c. To alleviate impacts on amenity including privacy, solar access, acoustic control and natural ventilation within the development and adjoining neighbours.

Controls

1. Buildings are to comply with Figure 61 Street Setbacks – Terrace Housing map and Table 14 Setbacks – Terrace Housing.

Showground Precinct Development Control Plan

Figure 61 Street Setbacks – Terrace Housing

Table 14 Setbacks – Terrace Housing

Terrace Housing	
Front setbacks (Terrace Housing)	• Shall Comply with Figure 62.

Terrace Housing	
	• 3m to front building line for the first and second storey • 4m to front building line for the third storey
Front articulation zone (Terrace Housing)	• Minor façade elements such as balconies, porches or verandahs may be 1m forward of front building line. On corner blocks the articulation zone may be extended along the secondary frontage for a max of 3m or 25% of façade length with a min. of 1m setback from boundary.
Side setbacks (Terrace Housing)	• 0m between terraces • 3m from the side property boundary (end terrace) that adjoins a public street. • 1m from the side property boundary (end terrace) that adjoins a laneway.
Rear Setback (Terrace Housing) • 1-2 storey element • 3 storey element • ~~Garages of rear lanes~~	 • 7m • 9m • ~~0.5m~~
Multi Dwelling Housing (Other than Terrace Housing)	Shall comply with the setback requirements contained within The Hills DCP 2012(Part B Section 4 – Multi Dwelling Housing)

7.3 Open Space and Landscaping

Objectives

a. To cater for the recreational needs of building occupants.
b. To improve amenity and soften the impact of buildings through the provision of landscaping, including the retention and/or planting of trees within deep soil zones.
c. A high level of amenity for residents is achieved through the provision of sufficient solar access, natural ventilation, privacy and open space.

Controls

1. Minimum 16m^2 private open space (POS) for each dwelling with a minimum dimension of 3m. Must be located at ground level at the rear of the dwelling directly accessible from the main living area.
2. 60% of the private open space area shall comprise deep soil planting and be located such that a canopy tree can be planted.
3. 30% of front setback area shall comprise soft landscaping.
4. Landscaped areas are to have a minimum width of 2m.
5. Roof terraces and roof gardens are encouraged where the privacy of adjoining properties can be maintained.

Figure 62 Terrace with Green roof

(Source: Bere Architects)

6. At least 50% of the required private open space for each dwelling and adjacent dwellings is to receive direct sunlight for a minimum of 3 hours between 9am and 3pm on 21 June.
7. Collapsible or permanent clothes drying device is to be provided within private open space areas and located to maximise the amount of direct sunlight received.

~~7.4 Rear Laneways~~

~~*Objectives*~~

~~a. To facilitate orderly development within the R3 Medium Density zone through the provision of rear laneways.~~

~~b. To provide vehicular access to the rear or side of lots to reduce garage dominance in residential streets.~~

~~c. To reduce vehicular conflict through reduced driveway cross overs and focusing of traffic to known points.~~

~~d. To enable garbage collection along street frontages.~~

~~e. To facilitate the use of attached and narrow lot housing to achieve an attractive streetscape.~~

~~*Controls*~~

~~1. Rear laneways shall be provided in accordance with the Indicative Street Network and Hierarchy figure of this section of the DCP.~~

~~2. Where rear laneways are not achievable (for single row terraces only), and underground parking is an option, the entry is to not adversely impact upon the streetscape or pedestrian right of way. Driveway entries from the street frontage are not desirable and are subject to council discretion.~~

~~3. The design and construction of laneways is to be consistent with Figure 63.~~

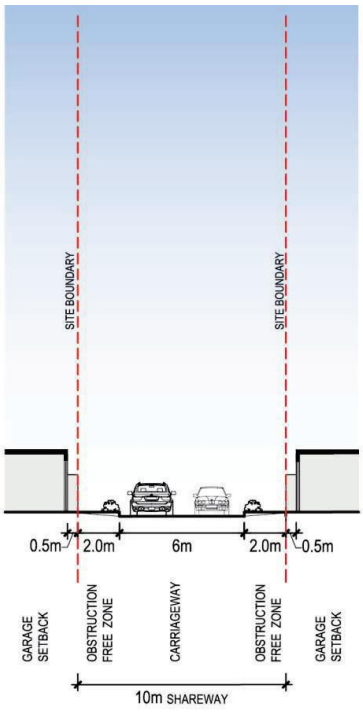
~~4. The laneway is a public "shareway" as the paved surface is for cyclists, pedestrians and cars etc, with a 10 km speed limit and driveway style crossovers to the street rather than a road junction.~~

~~5. On street car parking within the rear laneway carriageway shall not be permitted.~~

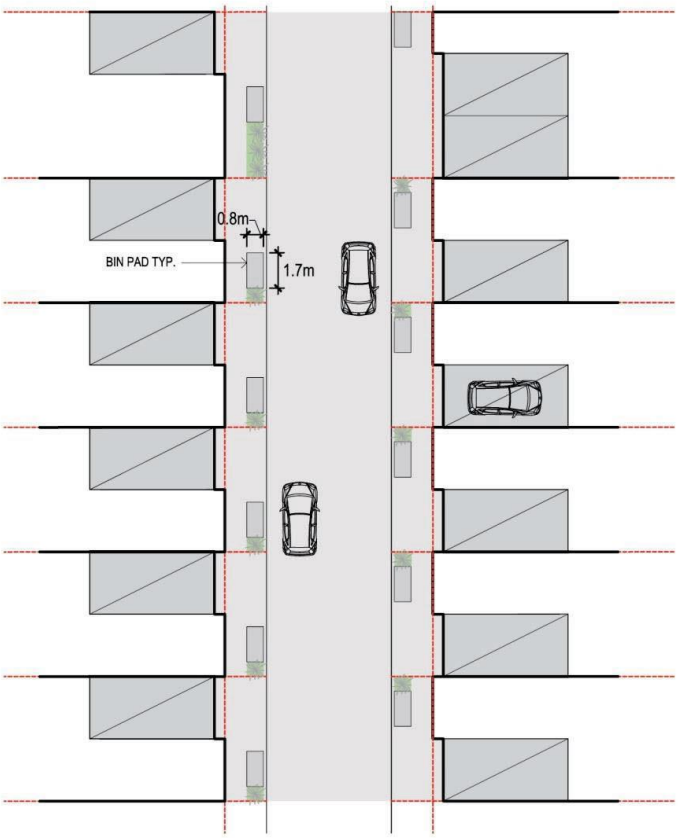
6. The minimum garage doorway widths for manoeuvrability in this laneway section are 2.4m (single) and 4.8m (double).
7. Rear laneway design shall have regard to the following lot layouts. Entry way sightlines are to end with a landscaped treatment or the continuation of the laneway.
8. Laneways that create a 'fronts to backs' layout (front addressed principal dwellings on one side and rear accessed garages on the other side) are to be avoided.
9. All lots adjoining a laneway should utilise the laneway for vehicular/garage access (refer Figure 65).
10. Terraces shall be designed so as to facilitate passive surveillance along the rear laneway through the positioning of windows and balconies facing the laneway.
11. Waste collection is to be undertaken from the rear laneway.
12. A concrete bin pad 1.7m wide and 0.8m deep shall be provided behind the kerb and adjacent to the driveways for bin presentation.
13. A swept path analysis for the standard 12.5m long HRV (AS2890.2-2002) shall be submitted demonstrating all bends of laneways are suitable for the turning of garbage vehicles. This includes ingress and egress points to intersecting roads or laneways. All manoeuvring must be contained within trafficable carriageways.
14. No building element (such as eaves, balconies, gutters and the like) shall encroach into the rear laneway reservation area (carriageway plus verge).

    Note: Waste collection vehicles will collect rubbish bins from the laneway verge. Accordingly, any building elements that overhangs the rear laneway reservation area will impact on operation of side mounted waste collection vehicles.

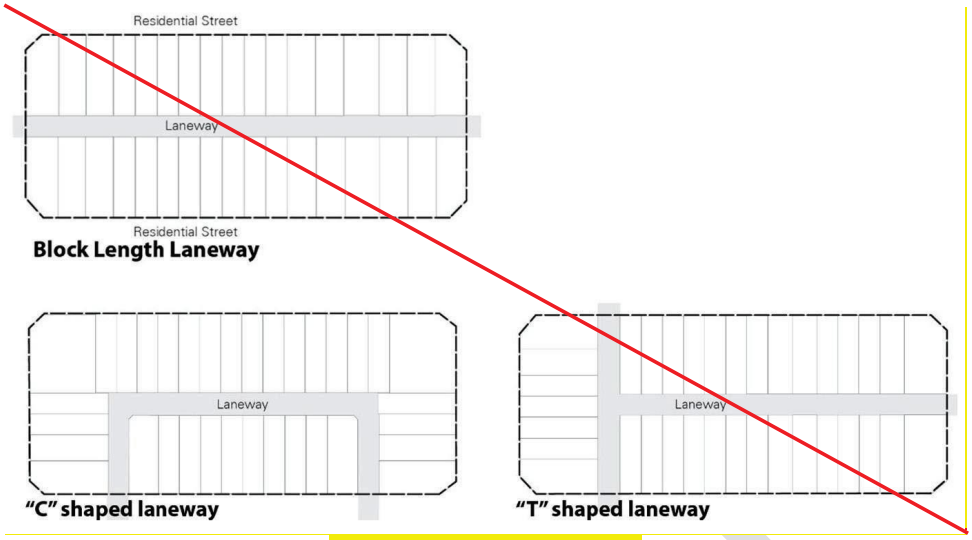
Showground Precinct Development Control Plan



PROFILE 10 TYPICAL LANEWAY SECTION & PLAN



~~Figure 63 Rear Laneway Principles~~



~~Figure 64 Sample Lane Sections~~

~~Source: North Kellyville DCP~~

~~*Note: Rear laneway location and layout is subject to swept path analysis.*~~

Designing the Building

7.4 Building Height

Objectives

a. Terraces integrate with the character of surrounding development and are of a high architectural quality.
b. Designs reduce the visual bulk of buildings from the street.
c. The scale of terrace development reinforces the desired future neighbourhood character.

Controls

1. Terrace houses are to be a minimum of 2 storeys and a maximum of 3 storeys inclusive of attic rooms.

7.5 Building Design and Streetscape

Objectives

a. To incorporate high quality façade design and finishes.
b. Designs reduce the visual bulk of buildings from the street to reinforce the desired future neighbourhood character.
c. An appropriate level of amenity is provided for residents within, and adjoining, the development.

Controls

1. Each dwelling is to include individual access from the main street frontage.
2. Building entry must be integrated with building façade design. At street level, entry is to be articulated with awnings, porticos, recesses or projecting bays for clear identification. The entry path to the building is to be accessible and visible from the street.

3. The minimum internal floor area for each dwelling, excluding common passageways, car parking spaces and balconies shall be as follows:

Table 15 Minimum Floor Area – Terrace Housing

Dwelling Type	Minimum Floor Area
1 bedroom dwelling	75m^2
2 bedroom dwelling	110m^2
3 bedroom dwelling	135m^2

4. For strata developments, a minimum of 10m^3 storage space is to be provided for each dwelling in either a lockable garage or a basement. Storage areas shall have a minimum base of 5m^2 and minimum width of 2m.
5. The minimum width of each dwelling is 6m.
6. The maximum building length is 50m (block of attached terraces).
7. Where a building frontage is greater than 32m, a 4m gap shall be provided to break up the frontages.

~~Figure 65 Vegetated rear lane~~
~~Source: THSC~~

Figure 66 Pedestrian walkthroughs between terraced groups, Kingston
Source: THSC

~~8. Bin storage areas must be located so that bins can be easily wheeled to the rear laneways for collection.~~

9. Hedge and shrub planting or open style fencing shall be provided along the street frontage. Where proposed, the height of front fences should not exceed:
10. 0.9m for solid masonry fences; and
11. 1.2m for open or transparent style fences with 50% min. permeability / and or hedges.
12. Chain link, sheet metal or timber paling fencing is not permitted to front or secondary frontages.
13. Side and rear fences shall be a maximum of 1.8m in height.
14. Front fencing and courtyard walls are permitted on the boundary line. Courtyard walls are only permitted on secondary frontage to corner lots.
15. Minimise direct overlooking of main internal living areas and private open space of dwellings both within and adjoining the development through building design, window locations and sizes, landscaping and other screening devices.

~~16. Rear laneways to provide for low maintenance soft landscaping treatments to reduce impact of hardscaped surfaces and wall treatments.~~

Figure 67 Terrace style housing, Kingston
Source : THSC

Figure 68 Terrace Style Townhouse
Source: Google Streetview

Figure 69 Modern Terrace Design
Source: www.realestate.com

Figure 70 Terraces, Pyrmont
Source: THSC

7.6 Car Parking

Objectives

a. To provide sufficient parking spaces for development while encouraging public transport use.

b. To ensure that car parking is appropriately located.

Controls

1. Car parking spaces are to be provided at the rates specified in parking rates table below. For any use not specified, the car parking rates in The Hills Development Control Plan 2012 (Part C Section 1 - Parking) shall apply.

Table 16 Parking Rates

Land Use	Rate
Dwellings – detached, attached and semi-detached	To comply with the rates in Part C Section 1 – Parking.

~~2. All terrace housing shall be accessed via a rear laneway, in accordance with the Street Network and hierarchy figure within this section of the DCP.~~

~~3. Garages are to face the rear lane.~~

4. Where basement car parking is provided, the parking area is to be accessed by a single front driveway. The car park entry is to be integrated with the building design.
5. Basement car parking is to be consolidated under building footprints to maximise opportunities for deep-soil planting on the site.
6. Basement car parking must not protrude more than 0.5m above the natural ground level.
7. Where basement car parking is provided, waste collection shall occur within the basement car park.

8 Industrial and Business Development within the Castle Hill Industrial Area

This section applies to development on land within the Precinct zoned IN2 Light Industrial and B5 Business Development.

8.1 Setbacks, Building Layout and Design

Objectives

a. To ensure development creates a positive streetscape and achieves a high quality architectural design that promotes light industrial activity.
b. To provide an adequate buffer between industrial development and residential development.

Controls

1. Industrial development, and bulky goods premises, shall comply with the controls contained within Part B Section 7 – Industrial of this DCP.
2. Business development shall comply with the controls contained within Part B Section 7 – Industrial of DCP.
3. All buildings are to comply with the setbacks shown in Figure 71.

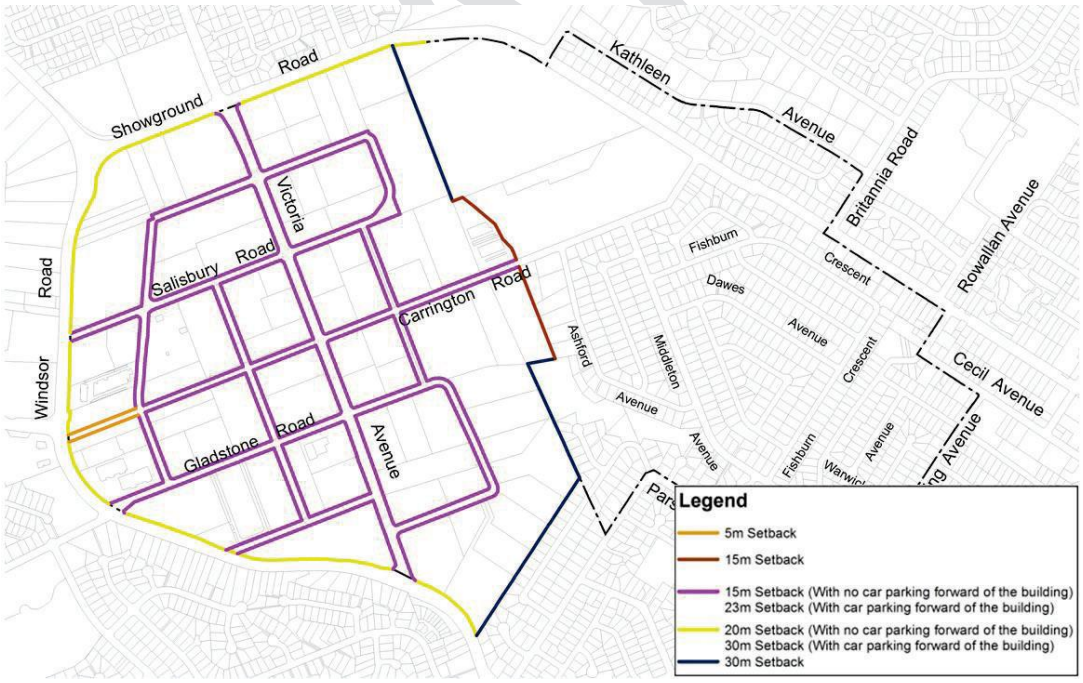


Figure 71 Setbacks – Industrial and Business Development

4. Where a proposed acquisition for road widening affects a development site, the minimum setback will be measured from the proposed new alignment of the road.
5. Where development is located within 30 metres of a residential property boundary, building heights shall be no more than 10 metres.

6. Where possible, existing trees are to be maintained and augmented as a visual green screen to development.
7. The location and means of access to customer car parking is to be clearly visible.
8. The façade design of a development is to utilise large expressed elements to relate to passing motorists and articulate the key components of the building such as entries, showrooms and the like. Finer detail to identify individual tenancies and building levels are to be used to add richness to the architectural design.
9. Buildings are to be designed with a strong relationship to the street through glazing. Extensive blank walls are to be avoided.
10. Signage is to be integrated into the overall façade design and be in accordance with Part C Section 2 of The Hills DCP 2012.
11. Sun shading is to be provided appropriate to orientation for glazed portions of façades.
12. Roof design is to be incorporated into the overall building design and built form modelling.
13. Roof space is not to be used for car parking or external retail space.

8.2 Car and Bicycle Parking

Objectives

a. To provide sufficient parking spaces for development while encouraging public transport use.

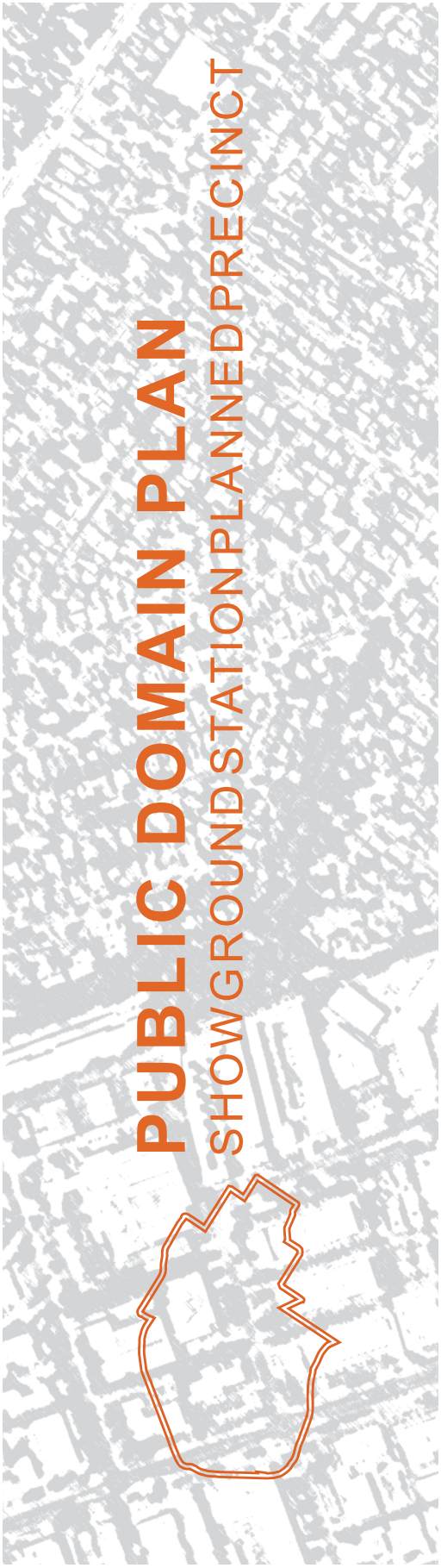
b. To ensure that car parking is appropriately located.

c. To ensure that bicycle parking is considered and provided appropriately in all development.

Controls

1. Car parking spaces are to be provided at the rates specified within The Hills Development Control Plan 2012 (Part C Section 1 - Parking).
2. Bicycle spaces are to be provided at the rates specified within The Hills Development Control Plan 2012 (Part C Section 1 - Parking).
3. End of trip facilities such as change rooms, showers and secure areas for bicycle parking are to be provided within employment development.

ATTACHMENT 2



THE HILLS Sydney's Garden Shire

AUGUST 2018

DISCLAIMER

Every reasonable effort has been made to ensure that this document is correct at the time of printing. The Hills Shire Council disclaims all liability in respect of the consequences of anything done or omitted.

TABLE OF CONTENTS

TABLE OF FIGURES

TO STRIVE FOR BETTER THINGS

LIST OF TABLES

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EXECUTIVE SUMMMARY

The Showground Precinct is a designated Planned Precinct in north west Sydney. It is the location of an important regional recreation and civic open space, The Precinct, and also provides jobs in retail, commercial and light industrial services uses in addition to residential housing.

The construction of the Sydney Metro Northwest creates an opportunity to provide increased density to take advantage of a new high frequency transport service. The Showground Station is located between the Strategic Centres of Castle Hill and Norwest both of which offer a diverse range of employment opportunities allowing for the potential to work close to home. The vision for Showground includes providing the structure for a connected, green, pedestrian focussed high density residential community. A desirable activated urban environment which will attract new residents who will want to stay and enjoy being a part of an engaged and welcoming connected community.

This Public Domain Plan is the 'how to' guide that illustrates the public domain needed to create a high quality urban area.

The key issues relating to the public domain within the Showground Planned Precinct are:

- The need to improve accessibility and connections across the precinct for pedestrians,
- Increase the quantity and quality of public space,
- Build upon the cutural identity, legibility and identity of the Precinct, and
- Provision of cohesive and attractive streetscapes.

The Public Domain Plan has been prepared to enhance the image and amenity of the Precinct through the provision of street trees, footpath paving, street furniture and landscaping to give the precinct an urban identity, while complementing the character of the surrounding area. The Public Domain Plan provides an overall direction for creating public domain spaces that are attractive, safe and vibrant within the Precinct.

Figure 1 A public domain accessible to all Source: Oculus

BACKGROUND

The Showground Planned Precinct in Castle Hill, has been created to enable the urban transition from a low density residential area to a higher density residential area adjacent the new Showground Metro Station. The population is projected to increase to accommodate an additional 9,000 dwellings and 2,300 new jobs. This places pressure upon the existing public domain facilities and infrastructure.

1.INTRODUCTION

This Public Domain Plan (The Plan), has been prepared to guide the future public domain design interventions and strategies for the Showground Planned Precinct in Castle Hill.

The Public Domain Plan sets an urban framework to support the growth and transformation of the Showground Planned Precinct and complements both Local Environmental Plan 2012 and Development Control Plan 2012 and the Strategic Objectives of the Greater Sydney Commission Greater Sydney Region Plan and Draft Central City District Plan.

STRUCTURE

The strategy is arranged into the following parts:

Parts1-3 outline the basis for the Public Domain Plan, discuss the existing and strategic contexts, the purpose of the plan, set out out the vision, objectives and key design objectives for the The Plan.

Part 4 outlines the Strategic Vision with maps and diagrams for all areas subject to The Plan and provides detail on the movement patterns, public open space, urban infrastructure, the urban canopy, public art, street furniture, and specific public domain treatments.

Part 5 outlines the intended implemantation for the works and funding mechanisms

IMPLEMENTATION

The future public domain works will be funded through the Contributions Plan and will be delivered by Council via the Contributions Plan or by developers through a works kind agreement or conditions of development consent. The funding will be allocated according to the site-specific public domain strategies within the precinct which are directly impacted by the proposed development. Elements within the precinct such as the Showground which have regional roles are subject to other funding mechanisms, and are outside the scope of this Public Domain Plan.

WHAT IS PUBLIC DOMAIN

The public domain is space that is publicly accessible for the whole community such as footpaths, streets, roads, parks, squares and building setbacks. In higher density urban areas the public domain is increasingly where the ‘theatre’ of life takes place.

A well designed and attractive public domain improves environmental amenity, accessibility, and encourages greater engagement with the public domain by members of the community and visitors. The benefits of a successful public domain, is that it is an attractive place that people wish to visit and linger in. A public domain with high amenity is also attractive to business development and supports economic activity.

The key guiding principles to achieving a high quality public domain are:

- Provide attractive human scaled activated streetscapes and public open spaces,
- Providing safe, well designed, attractive and efficient movement corridors,
- The provision of high quality architectural design in the built form which frames the public domain,
- Incorporate ecologically sustainable development principles into all development.
- Respect for local context and character, and
- Integration with natural systems and reinforcing the local characteristics of place.

Figure 2 Pedestrian orientated public domain
Source: Brent Toderian

Figure 3 Pedestrian walkway
Source: Nationalparks.nsw.gov.au

STRATEGIC CONTEXT

In 2011 The State Government committed to the construction of the Sydney Metro Northwest with a completion date at the end of 2019. The Sydney Metro Northwest comprises several new stations within The Hills Shire Council these being: Castle Hill, Showground, Norwest, Bella Vista, Kellyville and Rouse Hill.

As part of the on-going work in delivering the rail link, the Department of Planning and Environment undertook a strategic review of development around each of the future rail stations in order to guide and coordinate future planning for the corridor. The North West Rail Link Corridor Strategy was finalised in September 2013.

In 2014 the NSW State Government launched a priority precinct program to focus on areas located next to existing or future planned transportation nodes that were suitable for urban rejuvenation by being able to provide more housing through urban densification and additional employment.

The NSW Government announced the Showground Precinct as a 'Priority Precinct', in August 2014. In December 2017 the Showground Precinct was be rezoned.

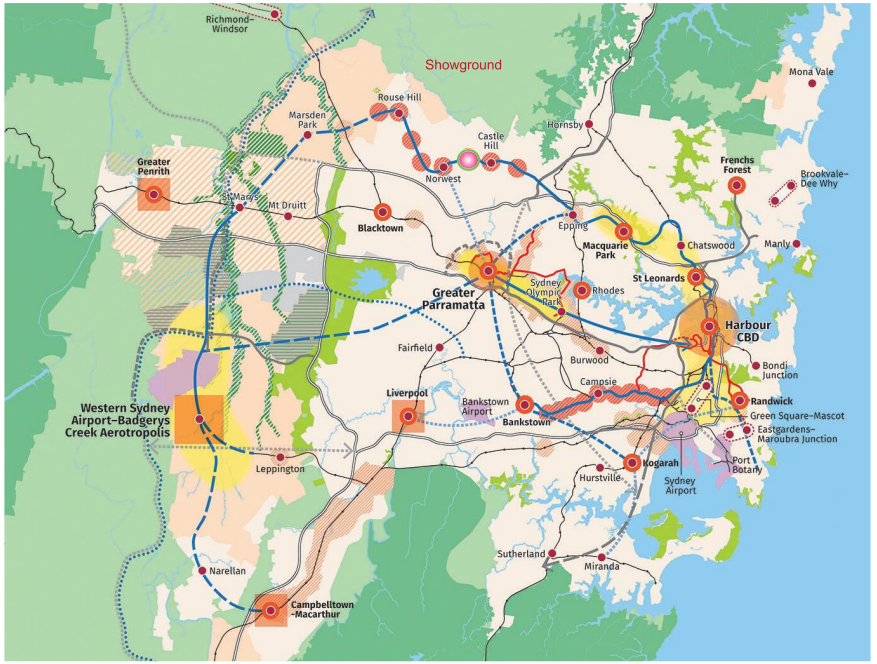


Figure 4 Strcture Plan for the metropolis of three cities
Source: , Greater Sydney Region Plan, March 2018, Greater Sydney Commission

The Showground Metro Rail Station is located between the Strategic Centres of Norwest and Castle Hill.

Showground Metro Rail Station

Metropolitan Centre
Metropolitan Cluster
Health and Education Precinct
Strategic Centre
Economic Corridor
Trade Gateway
Western Sydney Employment Area
Land Release Area
South Creek Parkland Investigation
Waterways
Train Station
Committed Train Link
Train Link/Mass Transit Investigation 0–10 years
Train Link/Mass Transit Investigation 10–20 years
Train Link/Mass Transit Visionary
Freight Rail Investigation
Transit Oriented Development
Urban Renewal Area
Greater Penrith to Eastern Creek Growth Area
Urban Investigation Area
Urban Area
Protected Natural Area
Metropolitan Rural Area
Major Urban Parkland including National Parks and Reserves
Light Rail
Light Rail Investigation
Motorway
Committed Motorway
Road Investigation 0–10 years
Road Investigation 10–20 years
Road Visionary

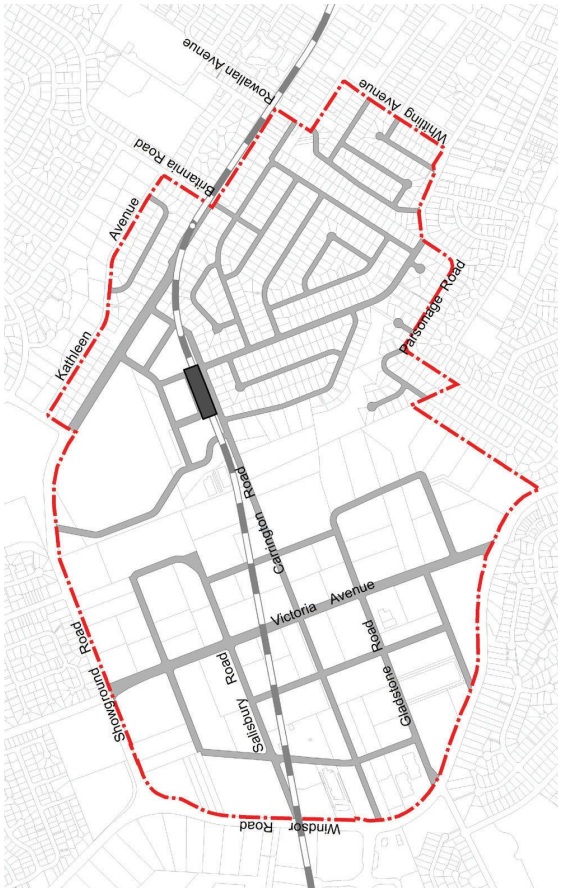


Figure 6 Showground Precinct

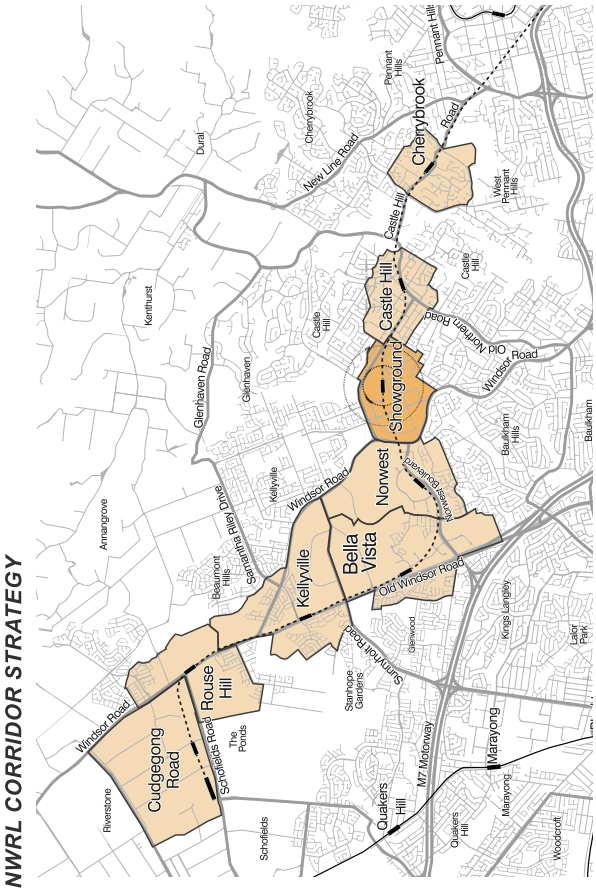


Figure 5 Location of Showground Station Precinct
Source: North West Rail Link Corridor Strategy, 2013, Department of Planning and Environment

SHOWGROUND STATION PLANNED PRECINCT AREA

SHOWGROUND SUB-PRECINCTS

The Showground Precinct comprises 6 distinct sub-precincts.

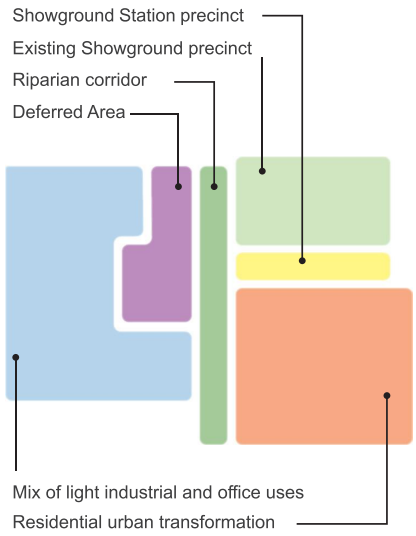


Figure 7 Precinct sub-districts

SHOWGROUND SUB-PRECINCT ORGANISATION

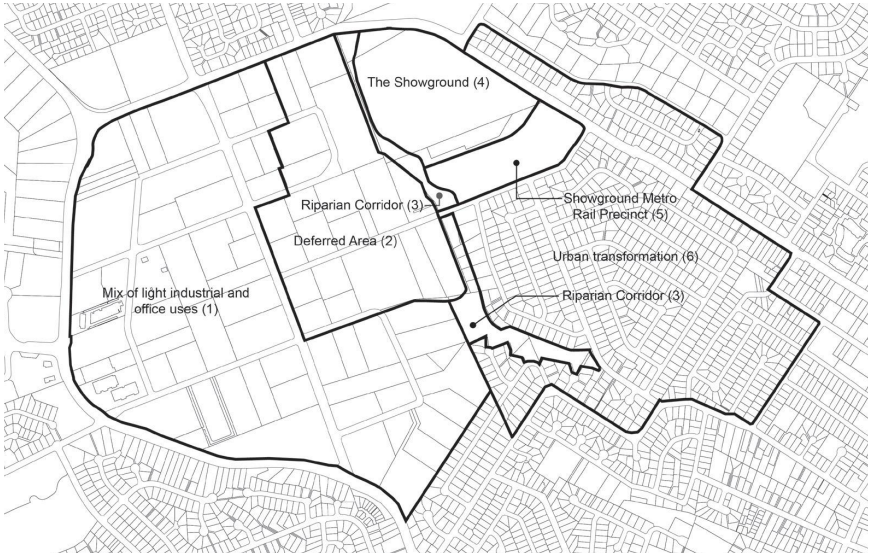


Figure 8 Showground Sub-Precincts

The 6 sub-precincts combine to form an independent precinct which can support a residential population providing work opportunities for a diverse range of occupations and skill sets in close proximity to home. This public domain plan addresses the provision of improved amenity in the urban transformation sub-precinct and the riparian corridor sub-precinct which provides a pedestrian / cyclist link across the precincts.

2.VISION AND OBJECTIVES

VISION FOR THIS PLAN

The Showground Priority Precinct will be a vibrant, safe and attractive place to live, work, and visit.The Public Domain treatments will support and reinforce the role of the Showground Precinct as a transit orientated village in addition to a precinct with regional recreational facilities. A major civic destination within the Hills Shire Local Government Area, the Showground Precinct will be characterised by high quality public domain spaces that provide for an active street life, and spaces that promote strong community engagement and interaction.

OBJECTIVES FOR THIS PLAN

This Plan will assist in achieving the vision outlined above with the following public domain objectives:

- Facilitate the creation of high quality public spaces that encourage social interaction and create a sense of place for residents and visitors to The Showground Precinct,
- Promote the visual and physical integration of the public and private domain,
- Provide appropriate, equitable, safe and convenient access points for pedestrians,
- Provide for improved pedestrian circulation patterns throughout the Precinct,
- Ensure improved pedestrian connectivity between all major developments,
- Provide for improved pedestrian circulation patterns throughout the Precinct,
- Soften the existing roadway environment with landscape treatments,
- Retain / enhance or reinstate the existing green canopy,
- Protect, enhance and reduce development impact upon the threatened and endangered native and flora species within the greater precinct and the Fred Caterson Reserve.

KEY DESIGN OBJECTIVES

THE KEY PUBLIC DOMAIN ELEMENTS COMPRISE:

Streetscape improvements including:

- Road widening,
- New footpaths and paving treatments,
- Enhanced lighting
- Street trees,
- Wayfinding signage, and
- Street furniture.

Transport improvements including:

- The provision of a new pedestrian bridge over Carrington Road,
- The provision of new roads to increase cross-precinct permeability,
- Proposed pedestrian links to break up large block patterns,
- Reinstatement of former cycle path west of The Showground,
- New cycleway connections.

Riparian corridor improvements:

- Provision of an enhanced public domain within the existing riparian corridor to provide accessibility,
- Provision of a continuous north south shared path cross-precinct link,
- Restoration, enhancement and reinstatement of endemic species,
- Reinstatement and restabilisation of creek bank where eroded,
- Removal of weeds and non endemic invasive species,
- Provision of east-west pedestrian links,
- Provision of public amenity through high quality landscape interventions.

Public open space:

- Extension of Chapman Reserve to accomodate population growth and increased useage,
- Enhancement and upgrading of existing facilities in Cockayne Reserve,
- Site specific tree planting and landscape enhancements to improve visual amenity and useability,
- Provision of public art in site-specific locations,
- Protection and enhancement of distinctive streetscapes and landscape settings,
- Extend and integrate open space network with enhanced green corridors,
- Plant decidous trees on north-south streets to allow for sunlight access into the street during winter months.

Water management:

- Include opportunities for porous paving in on-street parking bays in areas of low traffic movement,
- Minimise the use of heavy infrastructure where landscape approaches are able to mitigate flash flooding,
- Preserve overland flow paths,
- Provide tree grates in areas where large expanses of hard paving occur,
- Provide pervious paving in cross site links where practicable,
- Preserve deep soil provision in all building setbacks to minimise additional overland flow and overloading of stormwater system by:

– requiring all basement car parking to be contained within the building footprint,

– requiring all building services to be incorporated within the building structure where practicable,

– encouraging location of OSD tank to be within building footprint or under paved areas where pracucable.

3.ANALYSIS

PLANNING AND INFRASTRUCTURE FRAMEWORK

The Hills Local Environmental Plan 2012 and Development Control Plan 2012 provides a planning and infrastructure framework for future development within The Showground Planned Precinct. The Local Environmental Plan identifies floor space ratios and development provisions and specifies what activities can be carried out on land. The Development Control Plan provides greater detail for matters such as building setbacks, car parking, site and density requirements.

The preparation of a public domain plan to guide the development of, and improvements to, the public domain and streetscape of centres is identified in Council's Centres Direction which forms part of a strategy that guides land-use planning and management of centres in the Shire. Together with the Development Control Plan and Contributions Plan, the Public Domain Plan will assist in achieving the key objectives of the Centres Direction, namely:

- C1 Create vibrant centres that meet the needs of the community
- C2 Make centres more attractive places to visit
- C3 Make centres accessible to the community
- EL2 Provide high quality spaces for community recreation and enjoyment
- EL3 Improve the accessibility and connectivity of environment and leisure spaces
- EL4 Provide for public domain spaces that encourage community interaction
- EL5 Conserve the Shire's unique diversity of plants and animals

EXISTING ENVIRONMENT

Sub Precinct 1 comprises existing big box retail and light industrial uses on large land lots with generous landscaped setbacks. The road carriageways are generally wide allowing for large truck movements. This precinct is a highly functioning light industrial zone set to transition in part to business uses providing a link to the Norwest Business Park.

Sub Precinct 2 referred as 'Deferred Area', this Sub-Precinct is subject to future masterplanning and is part of the Cattai Creek West masterplanning project undertaken by the Department of Planning and Environment. This sub -precinct does not comprise part of the Public Domain Plan.

Sub Precinct 3 comprises the Cattai Creek Riparaian Corridor. This sub-precinct is largely inaccessible and potentially provides for a continuous pedestrian north-south link across the precinct. The Riparian Corridor provides the opportunity for a unique public open space in a natural bushland setting with endemic vegetation and landforms whilst preserving and rehabilitating the natural setting.

Sub Precinct 4 comprises The Showground, a regional recreation space and a significant feature within The Hills Shire civic identity. The Showground is subject to a separate masterplanning process and does not form a part of this Public Domain Plan

Sub-Precinct 5 comprises The Showground Metro Rail Precinct which is subject to the North West Rail Link Corridor Public Domain Plan and does not form a part of this plan although common elements are utilised to ensure continuity of public domain treatments.

Sub-Precinct 6 comprises the residential component of the precinct subject to a change in urban form from single lot low density residential dwellings to medium to high density residential dwellings. This Public Domain Plan is mainly concerned with this sub-precinct as it is subject to the greatest amount of urban transformation and change in built form. In particular, the Public Domain Plan serves to support the transformation of this sub-precinct into an attractive, connected, accessible and walkable pedestrian orientated mixed use community.

EXISTING CONTEXT

INDUSTRIAL LANDS : EXISTING CONTEXT

RIPARIAN CORRIODR : EXISTING CONTEXT

RESIDENTIAL AREA : EXISTING CONTEXT

Figure 9 Existing context images

4.STRATEGIC VISION / PUBLIC DOMAIN PLAN

MOVEMENT PATTERNS

PEDESTRIAN CONNECTIVITY

Good pedestrian cross site permeability and a visually pleasant and safe environment encourage greater street activation by pedestrians.

Principles

- Provide accessible pedestrian linkages to the station, the Showground, local shops and cafes from the residential areas.
- Enhance and improve the walking environment for all users.
- Encourage pedestrian movement between various parts of the Precinct.
- Minimise ongoing maintenance.
- Provide lighting to all pedestrian walkways.

Strategies

- Provide and encourage additional cross site links of 4-5m to encourage precinct permeability and improve access to the station, public transport, work places and recreational facilities.
- Repair and create shared ways alongside the Riparian Corridor to improve cross site pedestrian access.
- Improve access to the Showground and station through the provision of a pedestrian bridge.
- Provide pavements to both sides of the road in existing local areas.
- Remove trip hazards from uneven pathways.

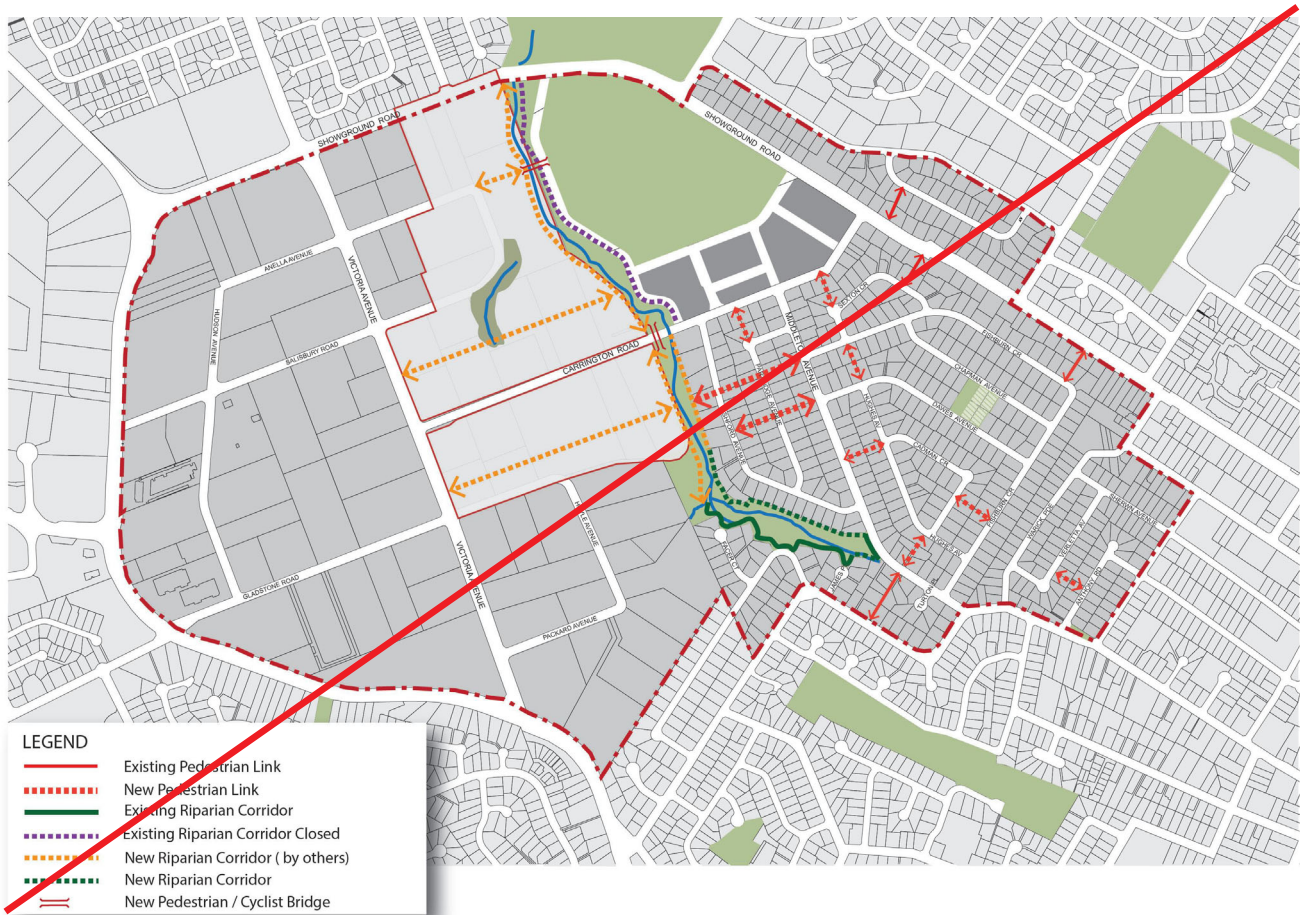
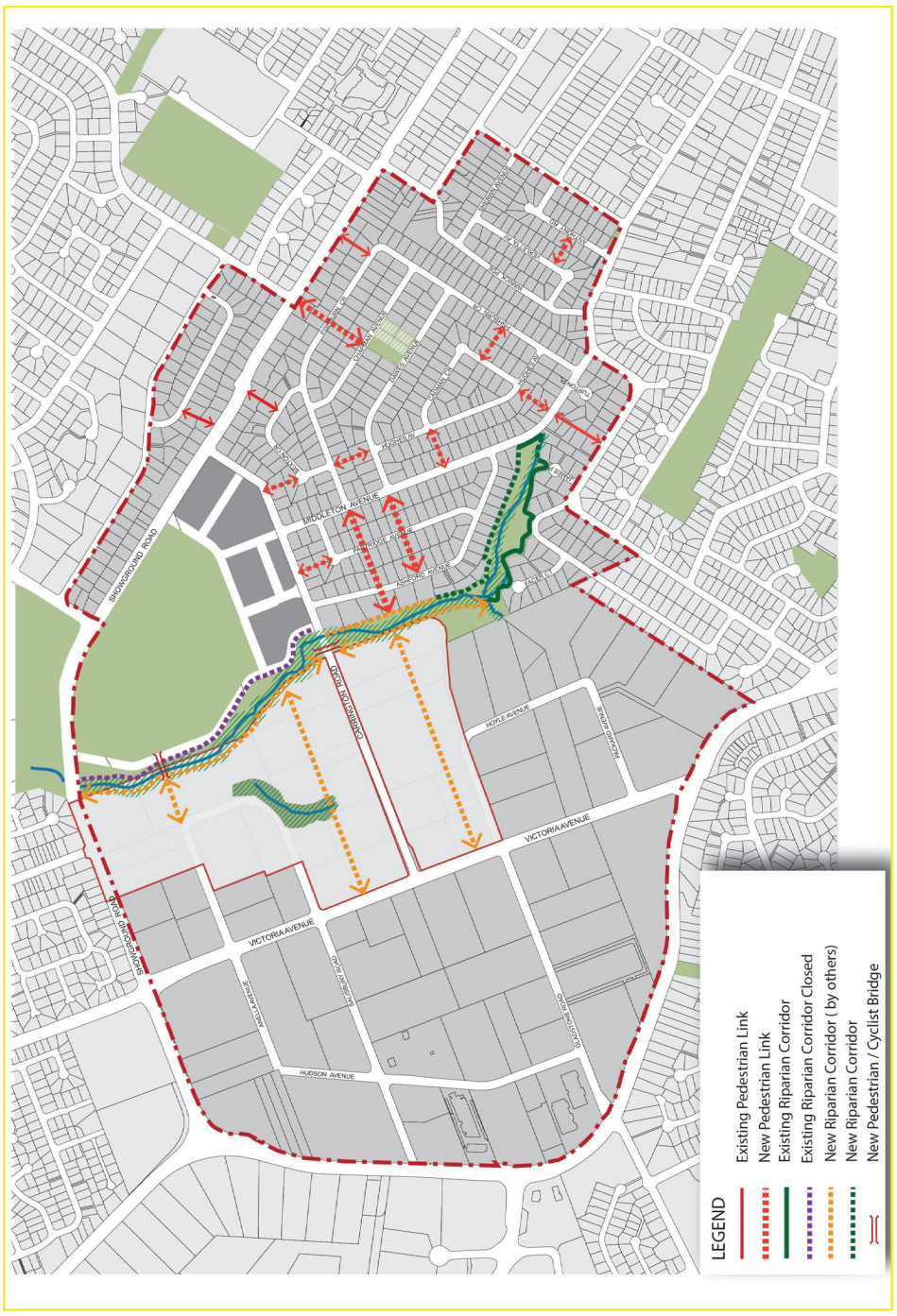


Figure 10 Pedestrian connectivity



DESIRABLE PEDESTRIAN FOCUSSED PUBLIC DOMAIN TREATMENTS

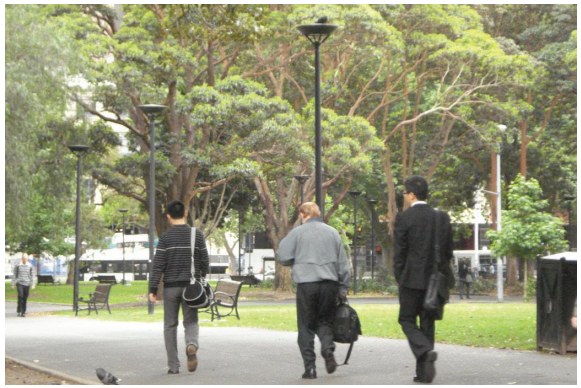


Figure 11 Pedestrian walkways provide connectivity

Figure 13 Edge treatments soften the impact of traffic
Source: City of Sydney

Figure 15 Robust pedestrian path
Source: bestsydneywalks.com

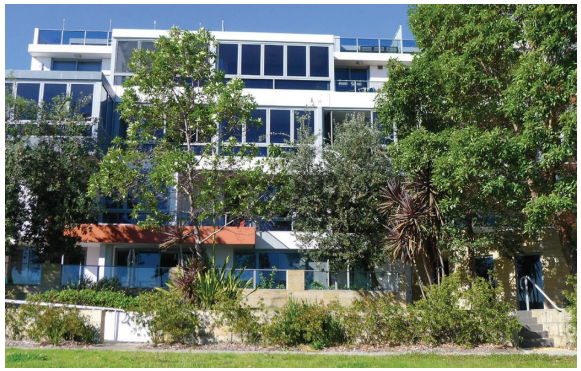


Figure 12 Landscaped buildings overlooking public domain

Figure 14 Landscaped setbacks soften building impact
Source: Brent Toderian

Figure 16 Landscaped setbacks improve pedestrian amenity
Source: Unknown

PEDESTRIAN PAVING

To create a cohesive look across the Precinct with changing paving materials indicating change in character from higher density transitioning to lower density.

Principles

- Improve the aesthetic appeal of the precinct.
- Improve streetscape quality and accessibility.
- Provide a sense of identity.

Strategies

- Provide paving per notated pavement type.
- Refer to Specific Public DomainTreatments later in this lan for paving type details.

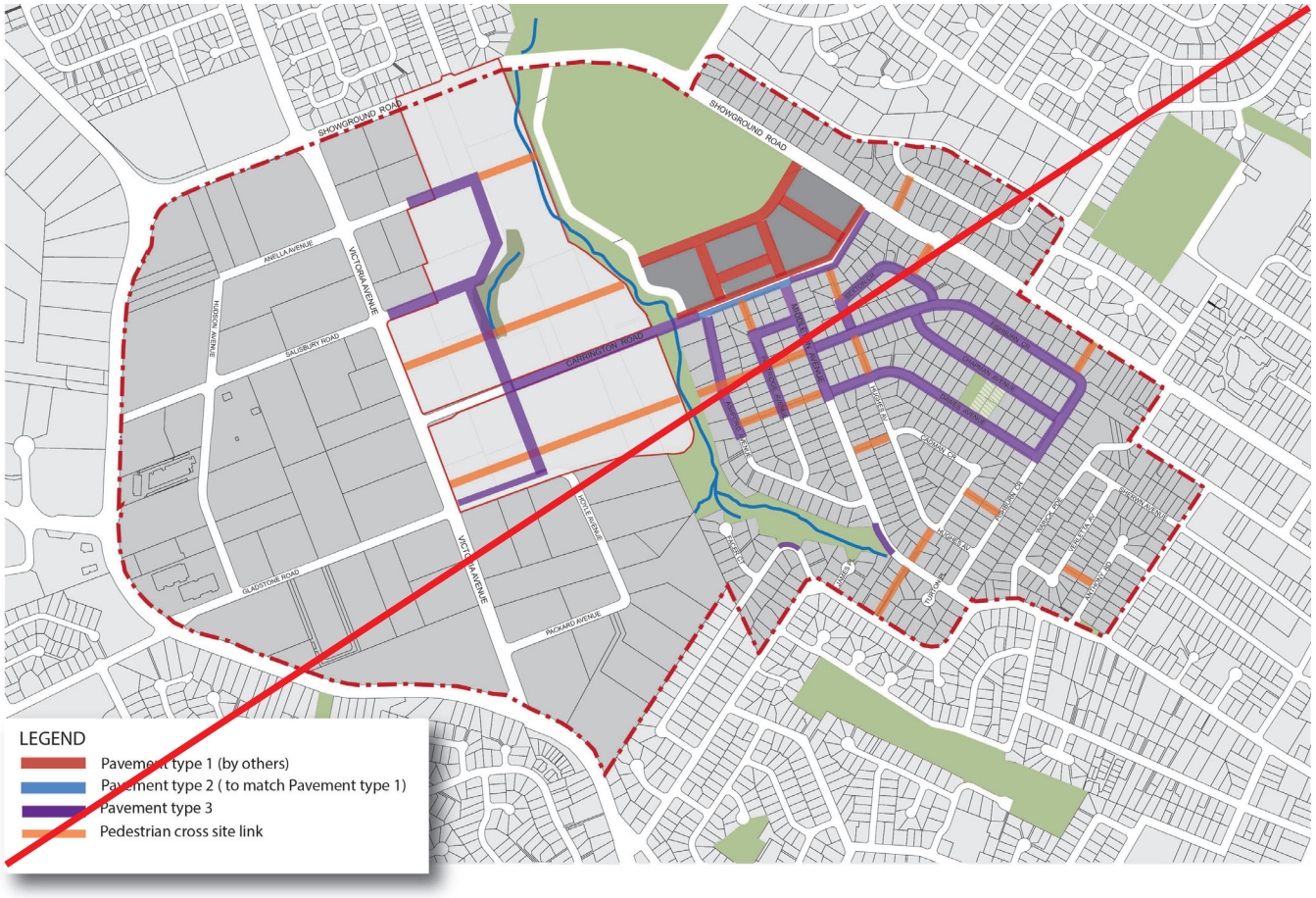
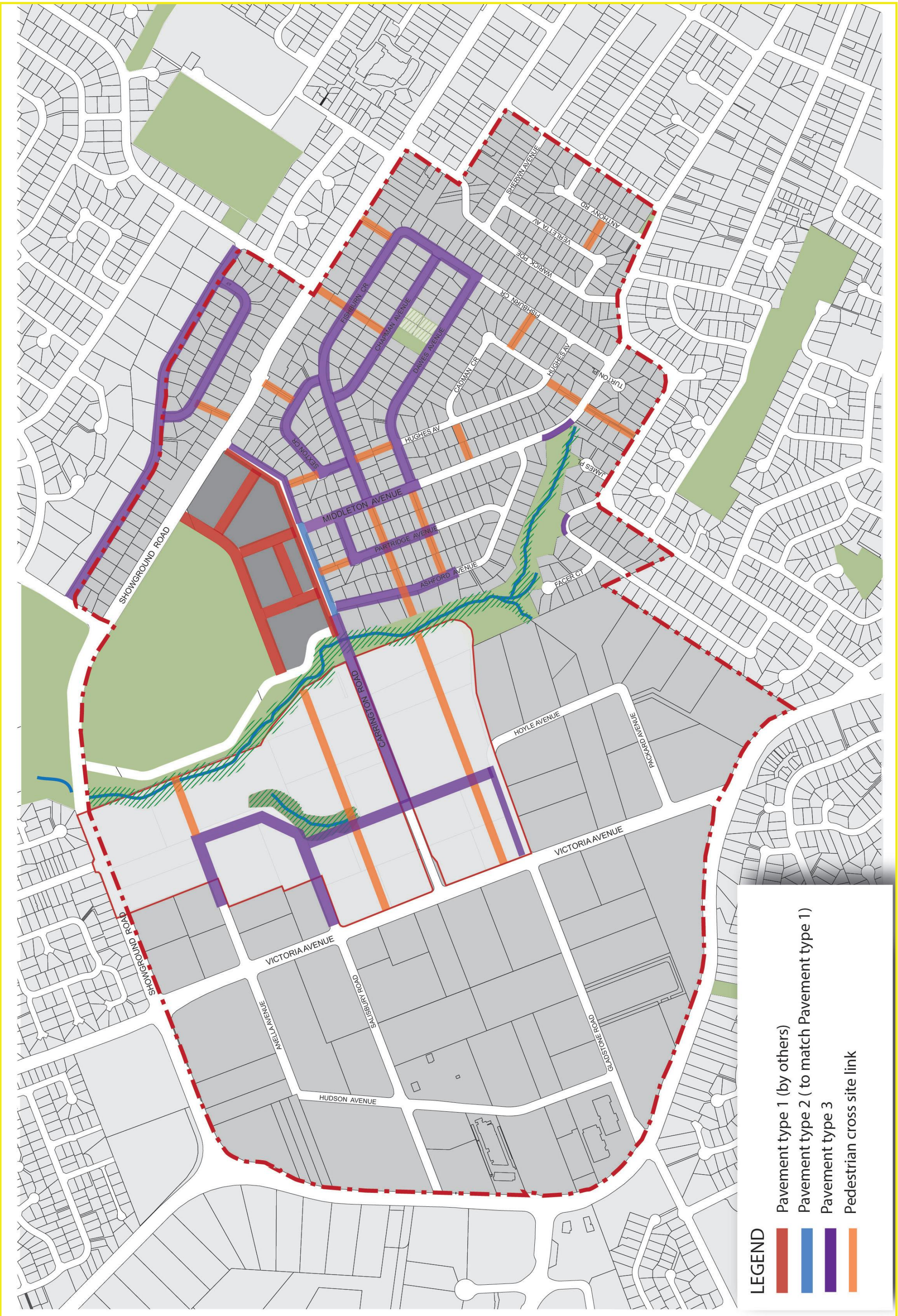


Figure 17 Pedestrian paving


SHOWGROUND ROAD
CARRINGTON ROAD
MIDDLETON AVENUE
PARTRIDGE AVENUE
ASHFORD AVENUE
HUGHES AV
VICTORIA AVENUE
HOYLE AVENUE
PACKARD AVENUE
ANELLA AVENUE
SALISBURY ROAD
GLADSTONE ROAD
HUDSON AVENUE
LEGEND
Pavement type 1 (by others)
Pavement type 2 (to match Pavement type 1)
Pavement type 3
Pedestrian cross site link

CYCLEWAYS

To encourage the use of bicycles as a means of transportation by providing a pleasant and safe rider experience.

Principles

- Encourage alternate transport options through safe and accessible infrastructure.
- Link all existing cycleways within the Precinct to the regional cycleway network.
- Provide aethetically pleasing cycle storage at major transport and shopping hubs.

Strategies

- Provide on-road and off-road cycleway facilities where practicable.
- Further develop cycle routes and cross precinct linkages as the area undergoes transition.
- Repair and reinstate storm damaged cycle paths.

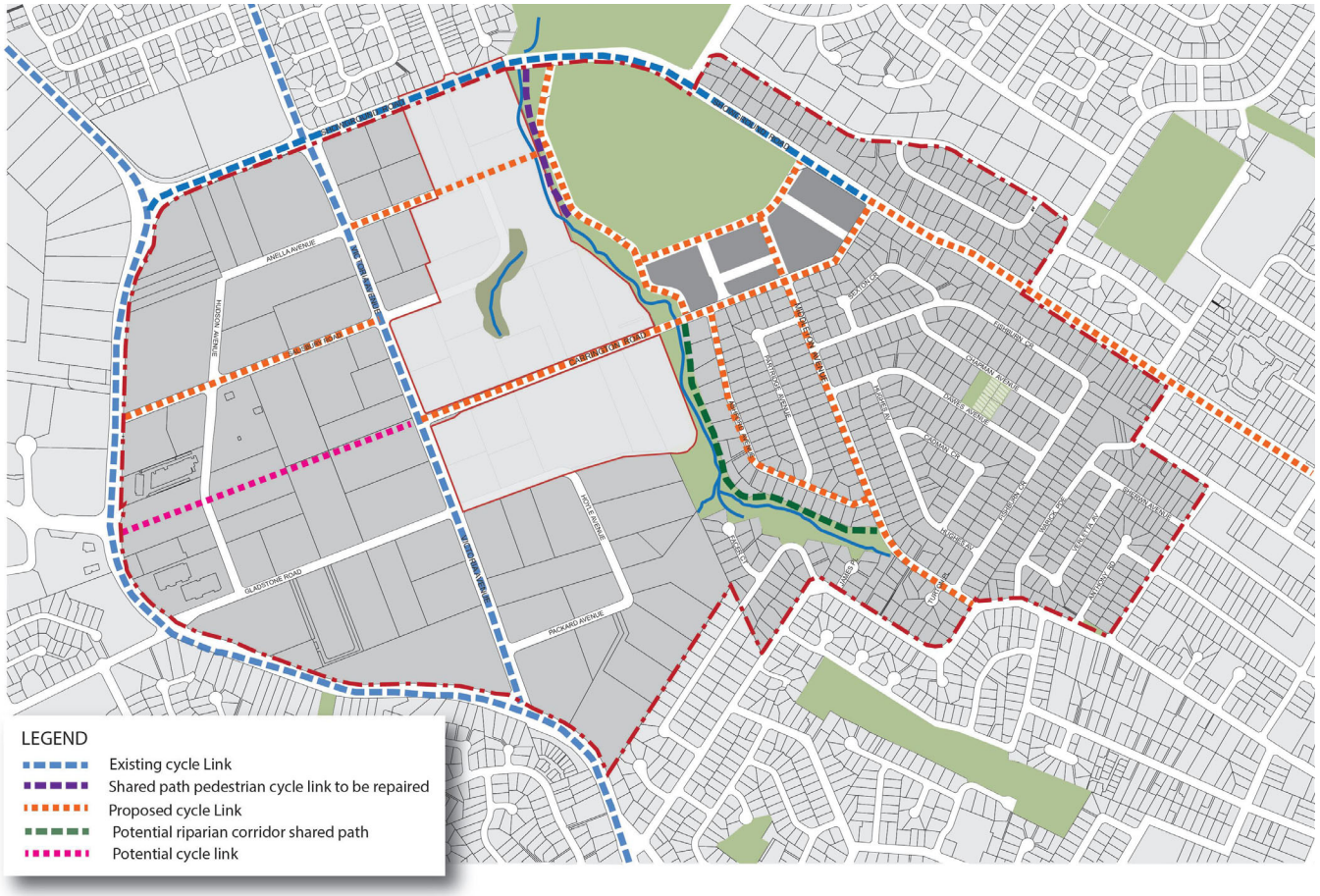


Figure 18 Cycleways

CYCLEWAY INDICATIVE MATERIALS AND TREATMENT

Figure 19 Concrete cycleway treatment
Source: TBC

Figure 21 Typical riparian corridor treatment
Source: TBC

Figure 23 Typical built form edge to cycleway

Figure 20 Typical THSC cycle shared way to engineer's detail

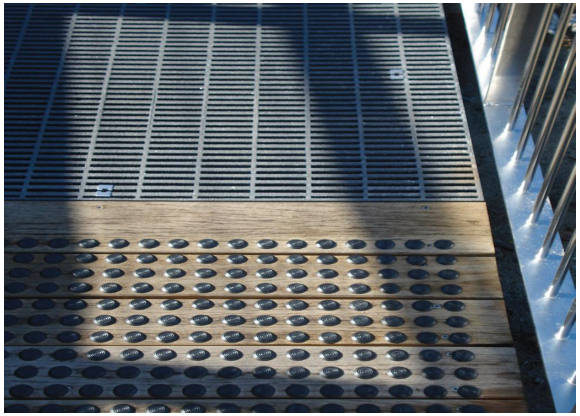


Figure 22 Fibre reinforced gridding use where environmentally sensitive or subject to flooding

Figure 24 Clear signage for wayfinding

VEHICLE MOVEMENT AND NEW ROAD CONNECTIONS

Principles

- Improve precinct permeability.
- Provide a safe and integrated road network.
- Accommodate increased traffic flows due to increased residential density.
- Increase vehicular capacity of the precinct.

Strategies

- Provide new roads where indicated as development occurs.
- Provide incremental road widening as on street car parking as development occurs.

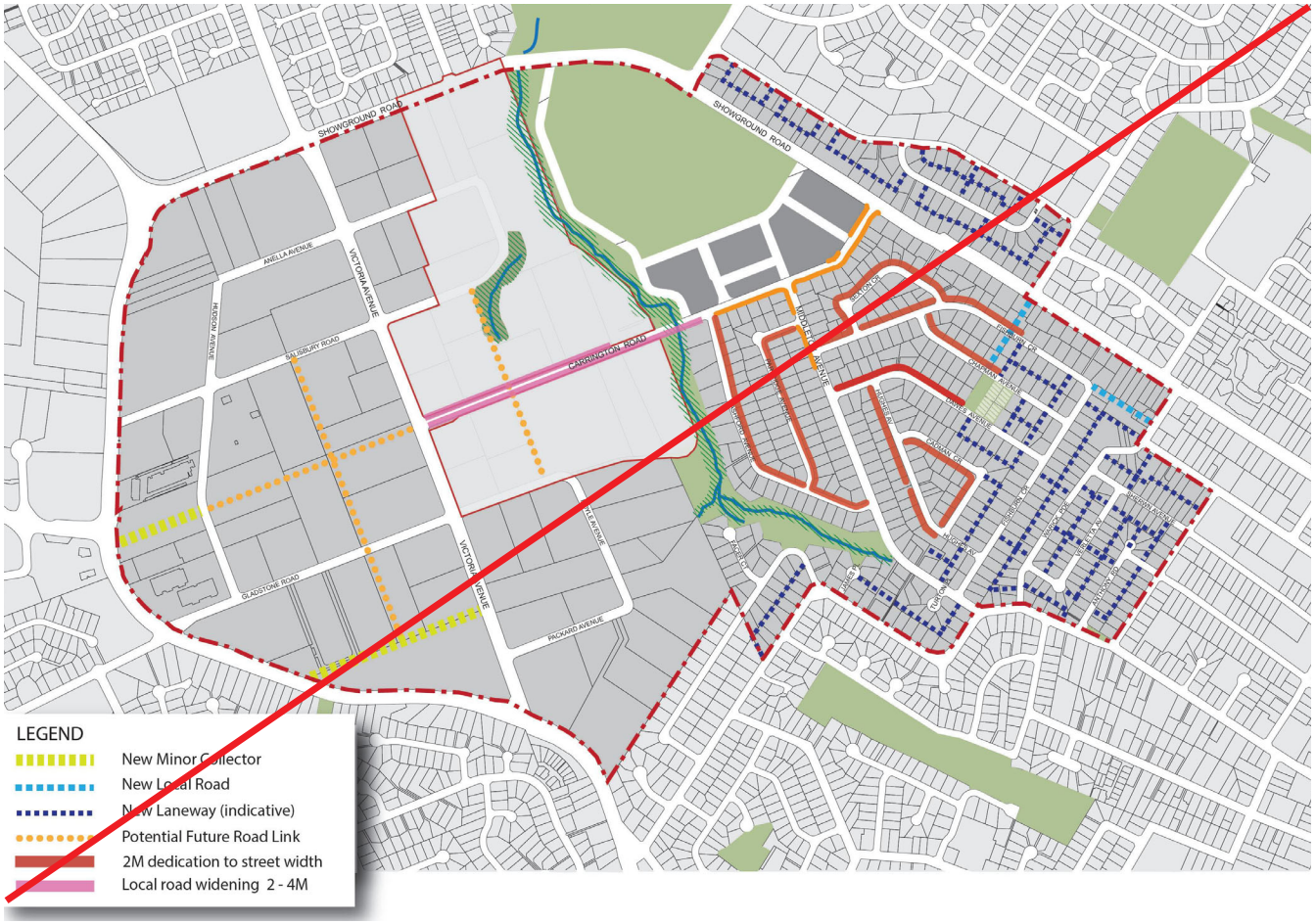
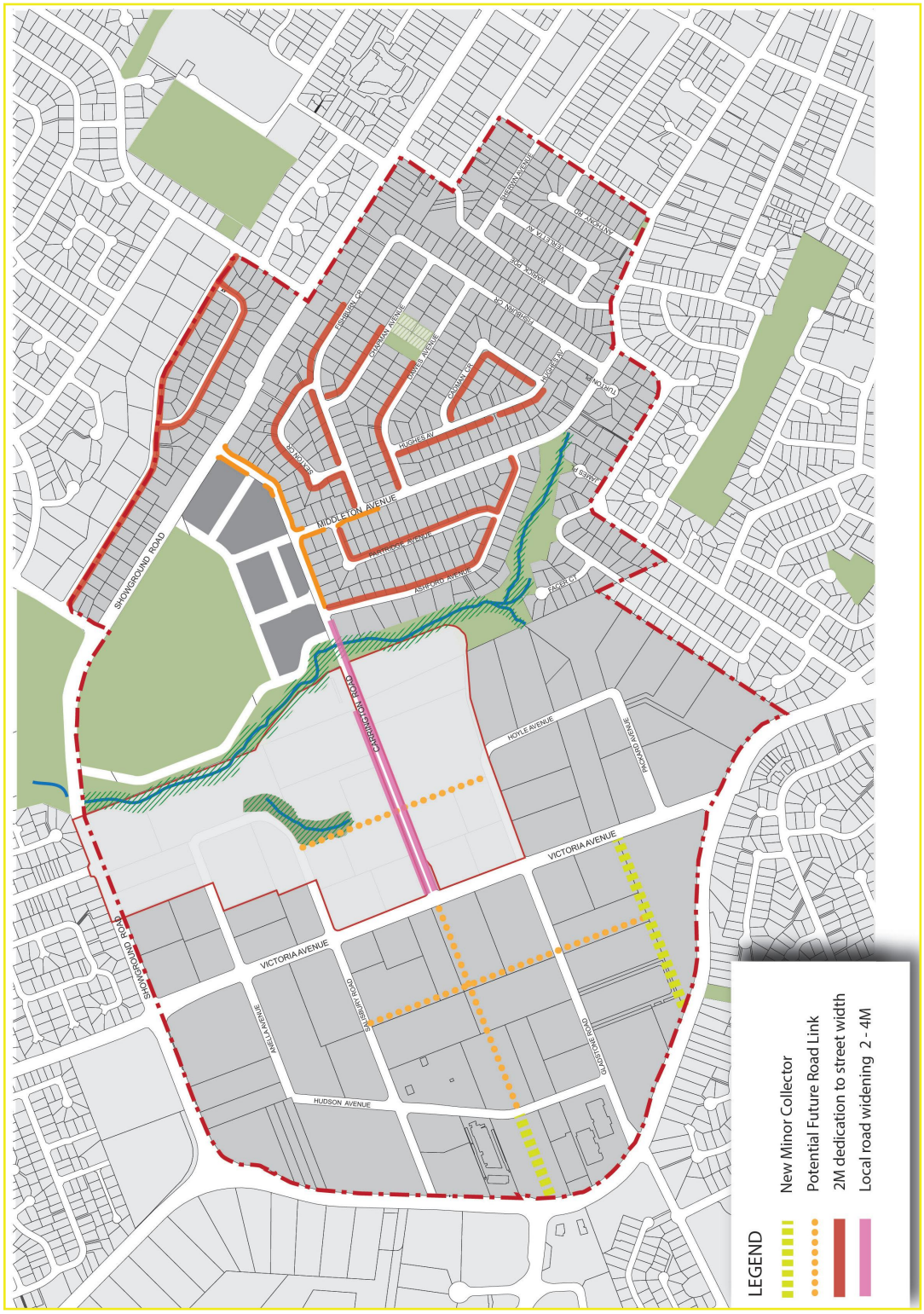


Figure 25 Vehicle movement and new road connections


SHOWGROUND ROAD
MIDDLETON AVENUE
CHERRINGTON ROAD
VICTORIA AVENUE
HUDSON AVENUE
HOYLE AVENUE
ASHFORD AVENUE
LEGEND
New Minor Collector
Potential Future Road Link
2M dedication to street width
Local road widening 2 - 4M

PUBLIC TRANSPORT

Principles

- To encourage the use of public transport for travel to and from the Precinct.
- To provide a modern, comfortable, safe and accessible bus facilities for commuters.
- To provide alternative transport options in the town centre.
- To provide ease of access throughout the precinct.

Strategies

- Provide bus facilities which are covered, waterproof, well lit, and safe.
- Provide adequate facilities at bus stops throughout the Precinct.
- Provide for provision of timetables and locality maps.

Figure 26 Public transport

PUBLIC OPEN SPACE

FUNCTION OF PUBLIC OPEN SPACE

The function of public open space is that it provides the stage for civic life to occur. The public open spaces that are the subject of this Public Domain Plan comprise a local park known as Chapman Reserve and a green linear park link based on riparian zone around Cattai Creek.

Parks and green networks are often undervalued yet important parts of the urban environment. As the urban density increases and greater demand is placed on these spaces, appropriate public domain treatments are required to retain and preserve high quality public open spaces.

Public open space is important because parks and open spaces provide places for social gathering and community involvement. They also provide quiet places for reflection and calm and appeal to a range of age groups. Parks provide delight and often, even if not used, provide pleasure just by people knowing that they are there. Public open space also promotes healthy living by providing places for physical activities such as walking, exercise and cycling.

The identity of place is enhanced and reinforced by the quantity, quality and access to public open space. In areas of urban regeneration public open space plays an important role in the image of place and sense of community.

Figure 27 Commuter / recreation cycleway
Source: bikely.com

Figure 28 Commuter / recreation cycleway

Figure 29 Play areas

GENERAL PRINCIPLES

Principles

- Provide a safe and high amenity environment.
- Respond to higher densities through urbanisation of open space.
- Encourage the community to use open space by improving the aesthetic quality of the public domain.
- Locate incidental play elements at appropriate places along streets, within road reserves and setbacks.

Strategies

- Upgrade existing open space facilities to cater for a diversity of users and provide valued places for active play and passive recreation.
- Protect sunlight access to existing public open spaces.
- Encourage cross site green corridor links to connect open space and linear park corridors.
- Provide a high quality greened pedestrian domain with dedicated street tree planting, landscape treatments and landscaped setback requirements.

Figure 30 Public domain in human scaled setting

Figure 31 Public gathering spaces

Figure 32 Integrated seating and exercise

DESCRIPTION

Two public open spaces are proposed to be enlarged and enhanced as a part of this Public Domain Plan.

These are:

- Chapman Avenue Reserve.
- Riparian Corridor - 7.9ha this includes:
  - Cockayne Reserve 4.6 ha (existing public open space)
  - Additional open space gained through Creek Riparian Corridor 4.3ha.

Note: The riparian corridor shown is indicative and will be required to be surveyed. The corridor illustrated is based on the strahler stream order determined by the Office of Water. For further information refer to the Department of Planning website exhibition material for the Showground Precinct dated 2015, *Appendix I Ecological Assessment.*

Note: In addition to a watercourse the riparian corridor comprises endangered communities of ecological value subject to the TSC and /or EPBC Act. This may result in a riparian corridor of a larger area than graphically indicated subject to the requirements of the relevant authorities.

Figure 33 Public open space

CHAPMAN RESERVE DESCRIPTION

Chapman Reserve is an existing local park centrally located within the Showground urban transformation sub-precinct (6). It is a local park which spans between two streets, Chapman Avenue and Dawes Avenue.

The park is turfed with little landscape treatment. The park equipment comprises an aged playground set and there is no paving or seating provision. There are three well established trees and some landscape screening to a residential property adjacent the play set.

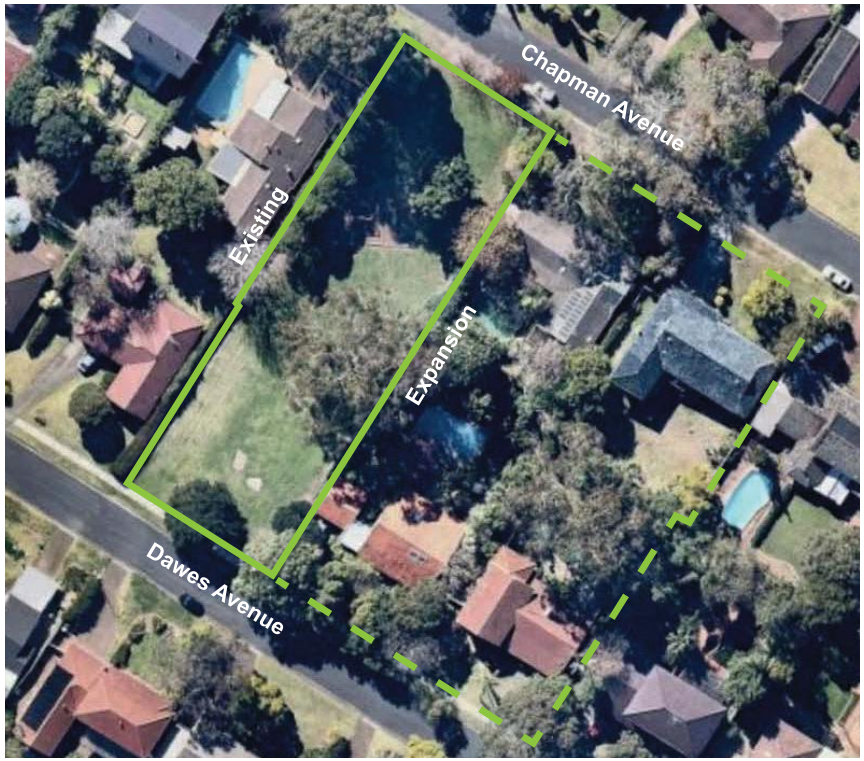


Figure 37 Chapman Avenue Reserve aerial

EXISTING PARK CONDITIONS

Figure 34 View from Chapman Avenue

Figure 35 Existing play equipment

Figure 36 View from Dawes Avenue

DESIGNPRINCIPLESCHAPMANRESERVE

Principles

- Provide a safe and high quality environment urban park for a diversity of user groups.
- Protect sunlight access to existing public open spaces.
- Encourage the community to use open space by improving the amenity and aesthetic quality.
- Provide artwork in the form of stand alone objects and landscape art integrated into park masterplan.
- Provide cross site accessibility to all user groups.
- Expand the existing park to the south from 2200m^2 to 6200m^2 to cater for the increased population.

Strategies

- Council to provide a site specific landscape masterplan to enable the expanded park to be realised.
- Provide customised play equipment designed to be multi-purpose and to fit within designated play areas.
- Provide a variety of seating suited to the setting.
- Provide a series of shade structures to cater for several family groups.
- Provide shaded areas within a landscaped garden setting.
- Provide a range of ground treatments including turf, coloured concrete and soft fall.
- Provide a drinking fountain, bins and lighting.

CHAPMAN RESERVE INDICATIVE SCHEMATIC DESIGN

Figure 38 Adventure play
Source:https://thehealthycitylocal.com

Figure 39 Quiet place Source: Owen Wilson

Figure 40 Climbing and spinning

Figure 41 Schematic design

Figure 42 Unstructured play

Figure 43 Shade structure with seating Source: KMC

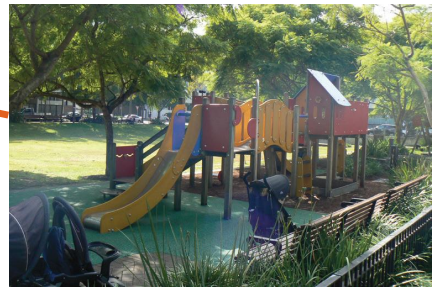


Figure 44 Play with seating

RIPARIAN CORRIDOR DESIGN PRINCIPLES

Principles

- Protect, enhance and maintain the natural function of the watercourse through the provision of a continuous vegetated riparian corridor.
- Protect environmentally sensitive and valuable ecological areas.
- Enhance and / or reinstate a naturalised creek experience.
- Allow for the safe conveyance of water flows throughout the riparian corridor.
- Provide for active and passive recreation opprtunities within the riparian corridor such that the function of the corridor is not adversely impacted.
- Encourage the community to use open space by improving accessibility.
- Provide links to regional open space networks.
- Reinforce the natural qualities of the environment through appropriate landscape design, edge, seating and paving treatings, selection

Figure 45 Riparian corridor interface areas, mapping

RIPARIAN CORRIDOR DESIGN STRATEGIES

Strategies

- Protect the Riparian Corridor through maintaining required setbacks and managing built form interface through setback and height controls.
- Improve and maintain waterway stability and function with the application of soft and hard engineering techniques that mimic natural processes.
- Protect sunlight access to existing public open spaces.
- Provide a continuous north south pedestrian cyclist shared path link as shown on the Pedestrian Connectivity and Cycleways maps.
- Provide pedestrian eastwest cross creek links (bridges) to provide additional pearmeability and cross precinct connectivity.
- Edge treatments, public furniture , paving, lighting, colour and material selections shall complement the natural setting.

Figure 46 Riparian corridor interface areas, aerial

RIPARIAN CORRIDOR INTERFACE AREA A

DESCRIPTION

Riparian Corridor A begins at the northern most point of the corridor from Showground Road and extends southwards. The area is partly infested with exotic weeds and experiencing bed and bank instability. Despite the adjacent urbanisation the area has retained much of the endemic vegetation and natural sandstone outcrops, which provide some creek stability.

This part of the corridor is subject to flooding and the existing cycle path has been partly washed away and closed due to safety concerns.

The path is immediately adjacent The Showground and once reinstated would be accessible to a large number of people. The route under Showground Road continues into the Fred Caterson Reserve.

A lightweight sacrificial cycle path structure would be appropriate in this location utilising similiar construction and paving material used in the pedestrian bridge adjacent Showground Road.

This location offers the opportunity for viewing platforms / seating structures and an improved underpass treatment. An interactive and engaging public domain would result once the masterplanning of the deferred area is realised.

EXISTING CONDITIONS

Figure 47 Remaining cycle path

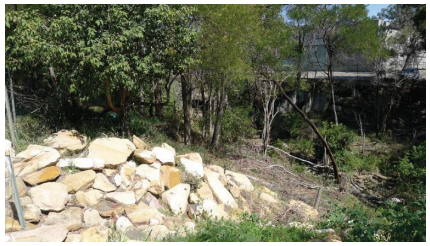


Figure 48 Flood damage to path

Figure 49 Facing existing industrial land to the west

DESIGN PRINCIPLES

Principles

- Provide a continuous north south precinct pedestrian / cycle link.
- Protect sunlight access to existing public open spaces.
- Encourage the community to use open space by improving the amenity and aesthetic quality of the public domain.
- Integrate public art into the public domain.

Strategies

- Provide a masterplan for the rehabilitation of the riparian corridor, and the reinstatement of the pedestrian / cycleway including site specfic public domain elements.
- Provide places for sitting and resting.
- Use materials and design elements which are robust, low maintanenece and complement the natural environment.
- Provide lighting feature to underpass.
- Provide interpretive, wayfinding and interpretive heritage signage as per Signage Map.
- Provide pedestrian / cycle bridge as indicated on Pedestrian Connectivity Map.
- Provide lighting subject to masterplan requirements.

INDICATIVE ACTIONS

Figure 50 Indicative riparian corridor treament
Source: TBC

Figure 51 Indicative bridge treatment
Source: TBC

Figure 52 Indicative seating platforms
Source: TBC

RIPARIAN CORRIDOR INTERFACE AREA A

INDICATIVE INTERFACE ZONE

Figure 53 Riparian Corridor A

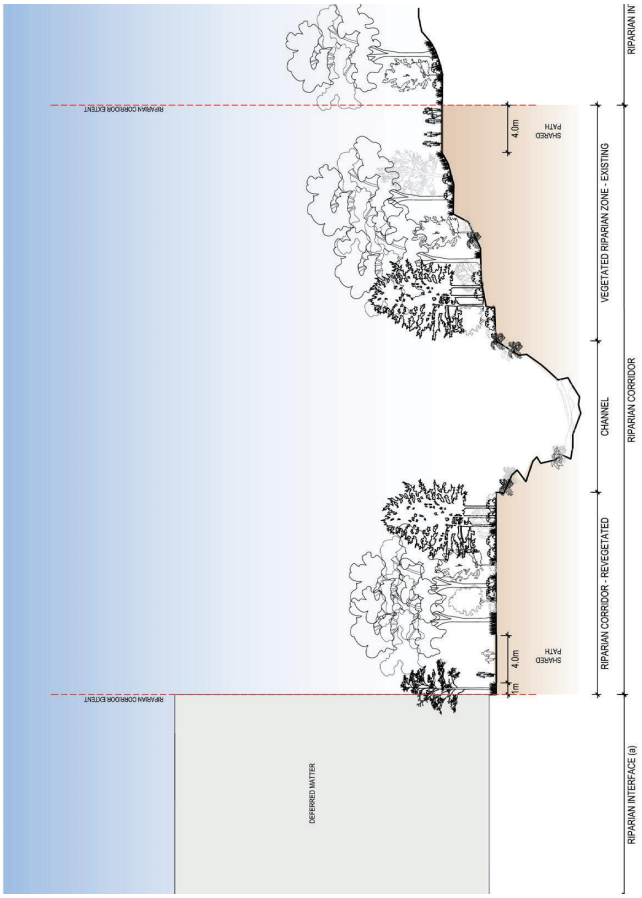


Figure 56 Indicative cross section

RIPARIAN CORRIDOR INTERFACE AREA A

BUILT FORM INTERFACE

Figure 54 Indicative public domain

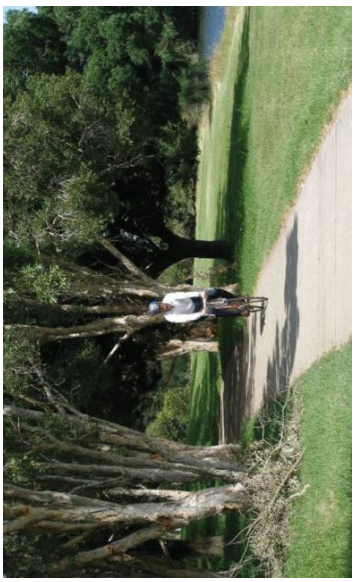


Figure 55 Indicative public domain

RIPARIAN CORRIDOR INTERFACE AREA B

DESCRIPTION

Riparian Corridor B begins where the built form interface related to The Showground Station begins. The built form is significant in height, noted as being 16 storeys and will provide a very different interface experience with the riparian corrider to interface A.

Interface B is currently quite heavily infested with weeds, in part due to disturbed land as a result of the metro works. The banks are steep and the zone is home to a variety of fauna endemic to the area. Well established trees exist within the corridor providing a high tree canopy.

The projected urbanism of either side of the corridor lends itself to providing a high quality public domain with the potential for significant public art installations.

EXISTING CONDITIONS

Figure 57 Industrial riparian interface

Figure 58 Riparian corridor at Carrington Road facing north

Figure 59 Riparian corridor at Carrington Road facing south

DESIGN PRINCIPLES

Principles

- Provide a continuous north south precinct pedestrian / cycle link.
- Protect sunlight access to existing public open spaces.
- Encourage the community to use open space by improving the amenity and aesthetic quality of the public domain.
- Integrate public art into the public domain.

Strategies

- Provide a masterplan for the rehabilitation of the riparian corridor, and the reinstatement of the pedestrian / cycleway including site specfic public domain elements.
- Provide places for sitting and resting and potential seamless merging into urban public domain where practicable.
- Use materials and design elements which are robust, low maintanenece and complement the natural environment.
- Provide interpretative and wayfinding signage as per Signage Map.
- Provide pedestrian / cycle bridge over Carrington Road as indicated on the Pedestrian Connectivity Map.
- Consider providing a pedestrian underpass to also aid the passage of fauna.
- Provide lighting subject to masterplan requirements.

INDICATIVE ACTIONS

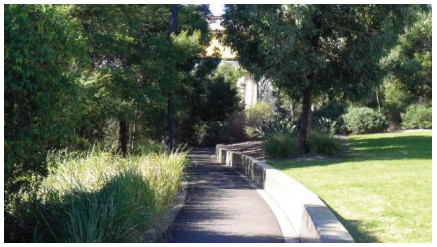


Figure 60 Indicative riparian corridor treament

Figure 61 Indicative pedestrian/cyclist link
Source: Nationalparks.nsw.gov.au

Figure 62 Indicative cafe interface

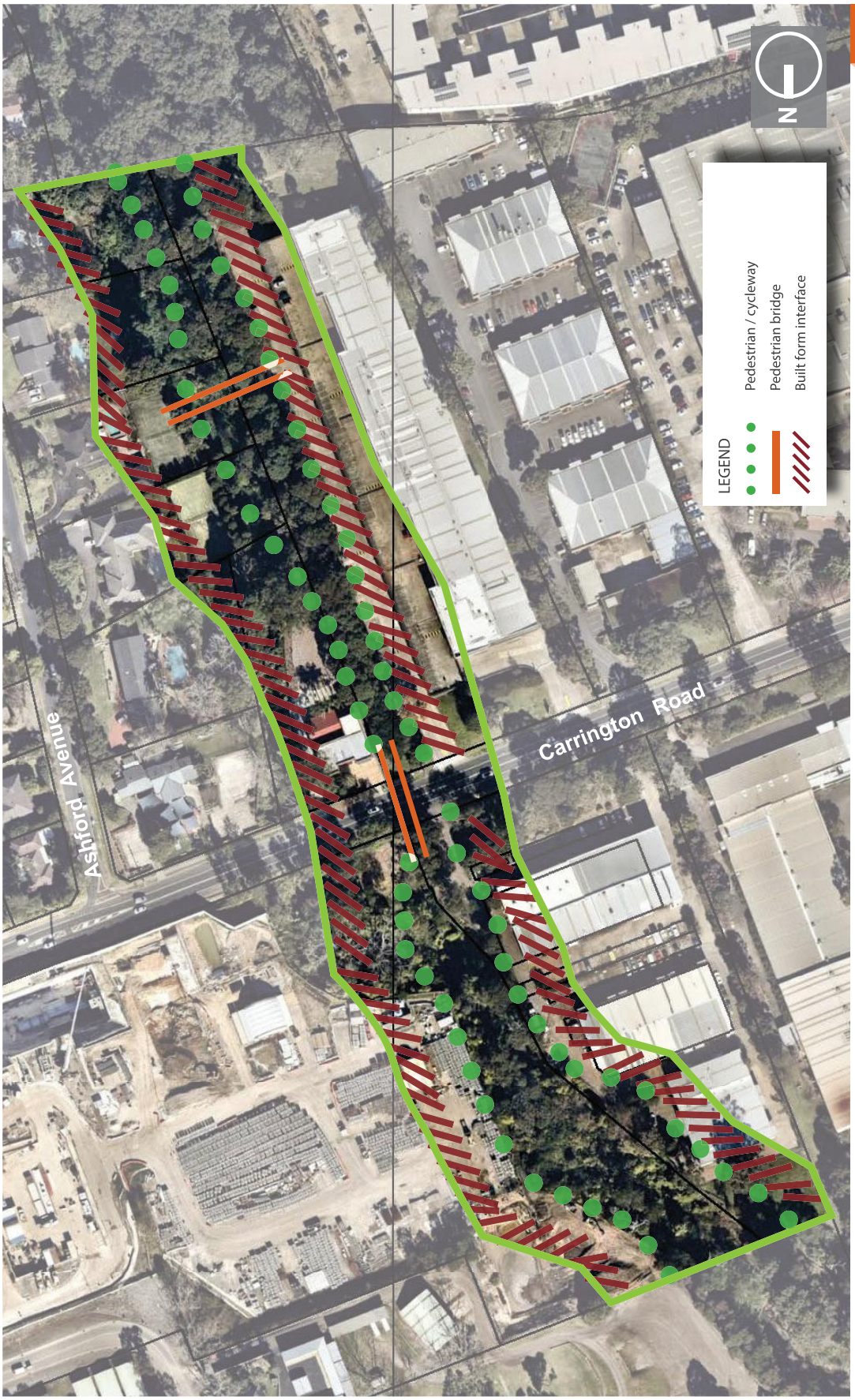


Figure 63 Riparian Corridor B Source: THSC

RIPARIAN CORRIDOR INTERFACE AREA B

BUILT FORM INTERFACE

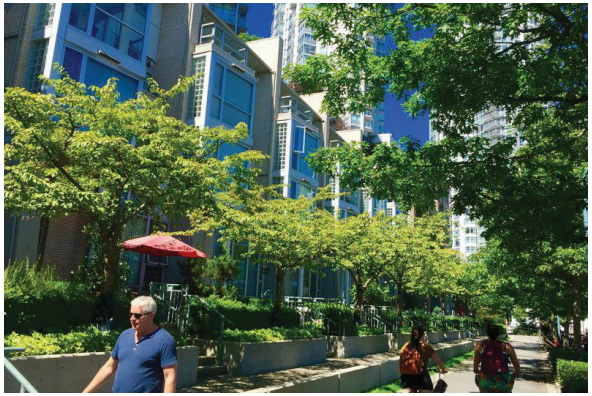


Figure 64 Indicative public domain Source: Brent Toderian

Figure 65 Indicative public domain Source: Brent Toderian

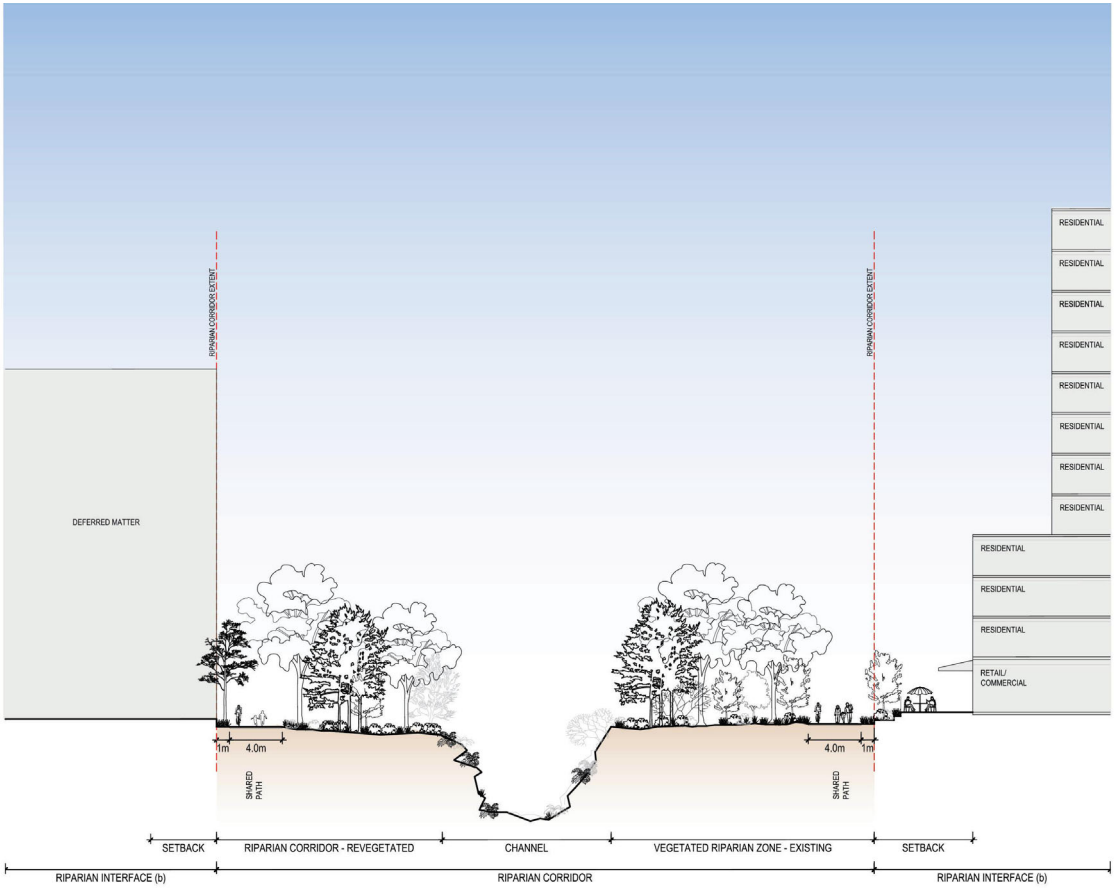


Figure 66 Indicative cross section

RIPARIAN CORRIDOR INTERFACE AREA C COCKAYNE RESERVE

DESCRIPTION

Cockayne Reserve is a local park comprising riparian interface zone C. The Park is open to the public and has several urban interfaces which offer park amenity.

Local bush care groups undertake weeding and bush regeneration keeping the area somewhat clear of weed infestation. The corridor in parts presents as pristine bush providing a unique bushland experience in an otherwise urban setting.

The four existing urban interfaces each present a park setting of different scale and character. It is intended that each interface will undergo enhancement in addition to general riparian corridor strategy works.

The four interfaces to be addressed are:

- Cockayne Reserve frontage to Middleton Avenue (1).
- Cockayne Reserve frontage to James Place (2).
- Cockayne Reserve frontage to White Ceder Drive (3).
- Cockayne Reserve frontage to Facer Crescent (4).

EXISTING CONDITIONS

Figure 67 Residential riparian interface
Source: THSC

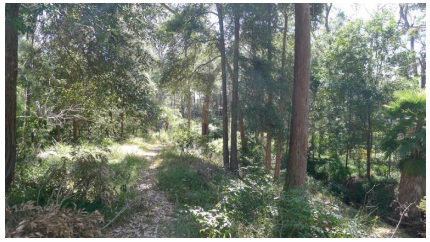


Figure 68 Riparian corridor facing north
Source: THSC

Figure 69 Riparian corridor
Source: THSC

GENERAL DESIGN PRINCIPLES

Principles

- Provide a continuous north south precinct pedestrian / cycle link.
- Protect sunlight access to existing public open spaces.
- Encourage the community to use open space by improving the amenity and aesthetic quality of the public domain.
- Integrate public art into the public domain.

Strategies

- Provide a masterplan for the rehabilitation of the riparian corridor, and the reinstatement of the pedestrian / cycleway including site specfic public domain elements.
- Provide places for sitting and resting and potential seamless merging into urban public domain where practicable.
- Use materials and design elements which are robust, low maintanenece and complement the natural environment.
- Provide interpretive and wayfinding signage as per Signage Map.
- Provide pedestrian / cycle bridge over Carrington Road as indicated on Pedestrian Connectivity Map.
- Provide lighting subject to masterplan requirements.

INDICATIVE DESIGN ACTIONS

Figure 70 Adventure play areas sited adjacent to pedestrian cycle way Source: City of Ryde

Figure 71 Provide seating within the corridor

Figure 72 Integrated exercise equipment

RIPARIAN CORRIDOR INTERFACE AREA C INDICATIVE INTERFACE ZONE

Figure 73 Riparian Corridor C

COCKAYNE RESERVE MIDDLETON AVENUE FRONTAGE

SITE DESCRIPTION

Cockayne Reserve frontage to Middleton Road is easily missed and is currently the main entry to the Riparian Corridor from the urban transformation sub-precinct (6).

The reserve falls away from the street towards the west and provides a relatively un-useable park.

There is a single seat in the park with no shade provided.

Figure 74 Cockayne reserve frontage to Middleton Ave

EXISTING CONDITIONS

Figure 75 Cockayne Reserve from pavement

Figure 76 Cattai creek tributary

Figure 77 Cockayne reserve facing north

INDICATIVE DESIGN ACTIONS

Specific Design Strategies

- Provide a site specific landscape masterplan for reserve enhancements
- Provide a defined entry that is accessible comprised of shaped landscaped forms which provide seating, pathways and retaining walls integrated with the existing topography.
- Provide seating which receives winter solar access and shade in summer.

Figure 78 Cockayne Reserve Middleton Avenue

- Use materials and design elements which are robust, low maintanenece and complement the natural environment.
- Provide visible interpretive and wayfinding signage as per Signage Map.
- Provide intuitive links to the Riparian Corridor.
- Improve fencing treatment to stormwater drain and employ safety features to prevent drain access.
- Use feature paving and planting to signify reserve entry as notated.

Figure 79 Shaped planes allow for change in levels

Figure 80 Tiered landscape setting
Source: www.scottarboretum.org

Figure 81 Shade structure with seating
Source: Ku-ring-gai Council

COCKAYNE RESERVEJAMES PLACE FRONTAGE

SITE DESCRIPTION

Cockayne Reserve frontage to James Place is attractive and somewhat accessible. The reserve entry comprises a range of well established trees which are a mix of endemic and introduced species.

The reserve falls away from the street towards the west and access to the existing Riparian Corridor is easily discernable.

Figure 82 Cockayne reserve frontage to James Place
Source: Google Maps

There is no seating in the reserve and the existing grounds are well kept.

EXISTING CONDITIONS

Figure 83 Cockayne Reserve from pavement

Figure 84 Towards riparian corridor

Figure 85 Facing James Place from reserve

INDICATIVE DESIGN ACTIONS

Specific Design Strategies

- Provide a additional tree planting at street frontage per landscape architects specification.
- Provide seating which receives winter solar access and shade in summer.
- Provide in addition to a seat ,a separate table and bench seating arrangement subject to landscape architect's specification.

Figure 86 Cockayne Reserve facing north

- Use materials and design elements which are robust, low maintanenece and complement the natural environment.
- Provide wayfinding signage as per Signage Map.
- Use feature paving and planting to signify reserve entry per Urban Canopy Map and Pedestrian Plaving Plan.

Figure 87 Seating

Figure 88 Reinforce landscaped edges

Figure 89 Proposed feature street tree planting

COCKAYNE RESERVE WHITE CEDER DRIVE FRONTAGE

SITE DESCRIPTION

Cockayne Reserve frontage to Ceder Drive is clearly visible and allows clear sight lines into the reserve. The fall of the land is mild and parkland comprises open space bordered by well established trees. To the east of the parkland is a row of prominant Araucarias. These present a significant and prominant landmark setting. The play equipment is tired and needs refreshing.

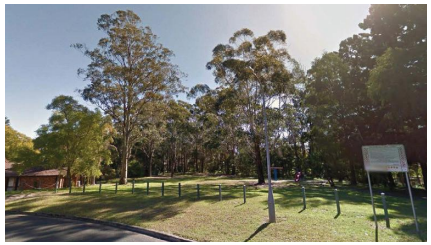


Figure 90 Cockayne Reserve frontage
Source: Google Maps

There is a single seat in the park.

The park presents the opportunity for multiple family gatherings and updated play equipment to suit a range of age groups. Access to the Riparian corridor is easily discernable.

EXISTING CONDITIONS

Figure 91 Cockayne Reserve facing east

Figure 92 Existing play equipment

Figure 93 Araucarias

INDICATIVE DESIGN ACTIONS

Specific Design Strategies

- Provide a site specific landscape masterplan for reserve improvement and enhancements.
- Provide seating which receives winter solar access and shade in summer.
- Provide BBQ equipment, shade structures, a water fountain and seating for multiple family groups.

Figure 94 Cockayne Reserve Ceder White Drive

- Use materials and design elements which are robust, low maintanence and complement the natural environment.
- Provide visible interpretive and wayfinding signage as per Signage Map.
- Use feature paving and planting to signify reserve entry, as notated.

Figure 95 Multiple seating settings with shading
Source: Woodgrove

Figure 96 Provide play equipment for older age groups
Source: City of Ryde

Figure 97 Update small child's play

COCKAYNE RESERVE FACER CRESCENT FRONTAGE

SITE DESCRIPTION

Cockayne Reserve frontage to Facer Crescent is clearly visible. The land falls sharply to the west. This is a small park with the opportunity for a single seating arrangement set within the site topography.

The park leads directly into the Riparian Corrider quite quickly. This area is undergoing bush rehabilitation by volunteer groups and leads one to directlty into the Riparian Corridor.

Figure 98 Cockayne Reserve frontage
Source: Google Maps

EXISTING CONDITIONS

Figure 99 Cockayne Reserve facing east

Figure 100 Existing storm water drain

Figure 101 Riparian corridor access

INDICATIVE DESIGN ACTIONS

Specific Design Strategies

- Provide additional tree planting at street frontage per landscape architect's specification.
- Consider terraced landscaping with integrated seating to improve park accessibility.
- Provide seating which receives winter solar access and shade in summer.

Figure 102 Cockayne Reserve Facer Crescent

- Use materials and design elements which are robust, low maintanence and complement the natural environment.
- Provide visible interpretive and wayfinding signage as per Signage Map.
- Employ safety features to nearby stormwater drain prevent drain access.
- Use feature paving and planting to signify reserve entry as notated.

Figure 103 Indicative seating settings

Figure 104 Indicative seating settings
Source: Aspect

Figure 105 Indicative signage

RIPARIAN CORRIDOR INTERFACE AREA C

BUILT FORM INTERFACE

Figure 106 Indicative public domain

Figure 107 Indicative public domain Source: DKO

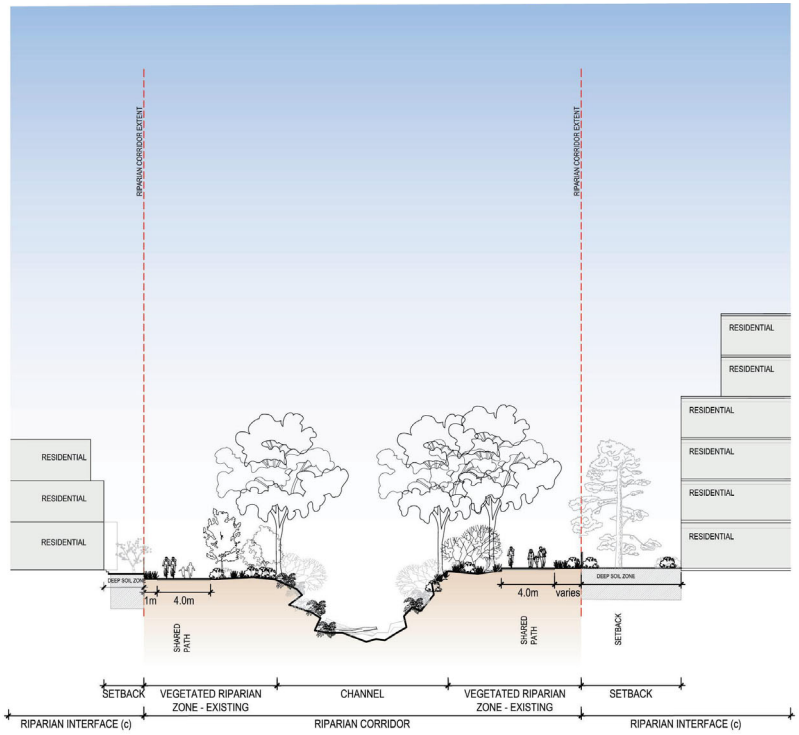


Figure 108 Indicative cross section

PUBLIC ART

FUNCTION OF PUBLIC ART

Public art has the power to enhance the urban environment and helps define our relationship with the public domain. The Showground Precinct is an ideal location for a collection of high quality public artwork reflecting the diverse culture and environmental settings in which it occurs.

Principles

- Utilise Public Art to reinforce the identity of the Showground Precinct and link the sub precincts through common themes.
- Create an avenue for local artists and designers to have input into the built environment.
- Make use of local knowledge, experience and understanding of the region.
- Assist in the creation of ongoing professional experience and financial opportunities to strengthen the skills base and viability of the local arts industry.
- Set public art and design precedents in the public domain.
- Assist in expanding the audience for local contemporary art and design.

Strategies

Ensure public art:

- Is well integrated in public and private developments.
- Provides positively to the experience of place.
- Is community endorsed.
- Provide links with other metropolitan temporal art events such as Vivid and the Biennale.
- Actvate new urban spaces with temporary art installations.
- Establish a Public Art register within Council's existing asset management register.

Figure 109 Public art Source: Outdoor musical instruments

Figure 113 Public art

Figure 111 Public art

Figure 112 Public art

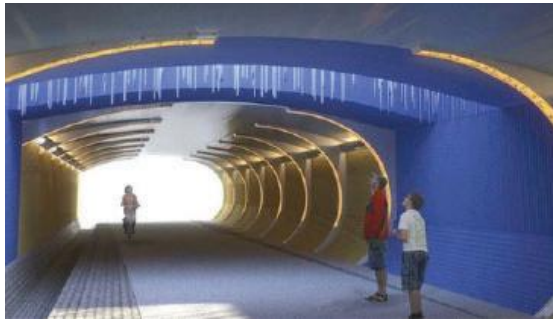


Figure 110 Public art with lighting Source: unknown

Figure 114 Public art as seating Source: vancouver.ca /viva

PROPOSED PUBLIC ART LOCATIONS

Principles

- Public Art to reinforce the identity of place.
- Public art is innovative and creative.

Strategies

- Public Art is integrated into the public domain.
- Public Art is intuitive, engaging and non threatening.
- Public Art is durable.
- Public Art does not cause physical harm.

Figure 115 Public Art Locations

URBAN TREE CANOPY

STREET TREES

The proposed street trees contribute to and retain the identity of the existing treed landscape which is an integral part of the Showground Precinct identity. Street trees and landscape treatments improve the local amenity and visual appearance by providing shade and softening the proposed changes in built form.

Principles

- Contribute and maintain the existing garden character of Castle Hill.
- Reinforce the character of the street scape with a selection of street trees reflective of the nature and hierarchy of the street.
- Enhance and reinforce the urban tree canopy
- Establish wayfinding through key signature trees found within the existing environment.
- Retain and protect significant trees.

Strategies

- Improve the aesthetic appearance of the Precinct by providing avenue planting.
- Provide street trees that minimise impact on paving, services and other infrastructure.
- Provide street trees in accordance with specified street type.
- Provide a variety of species to minimise loss in canopy and degredation of streetscape due to disease.

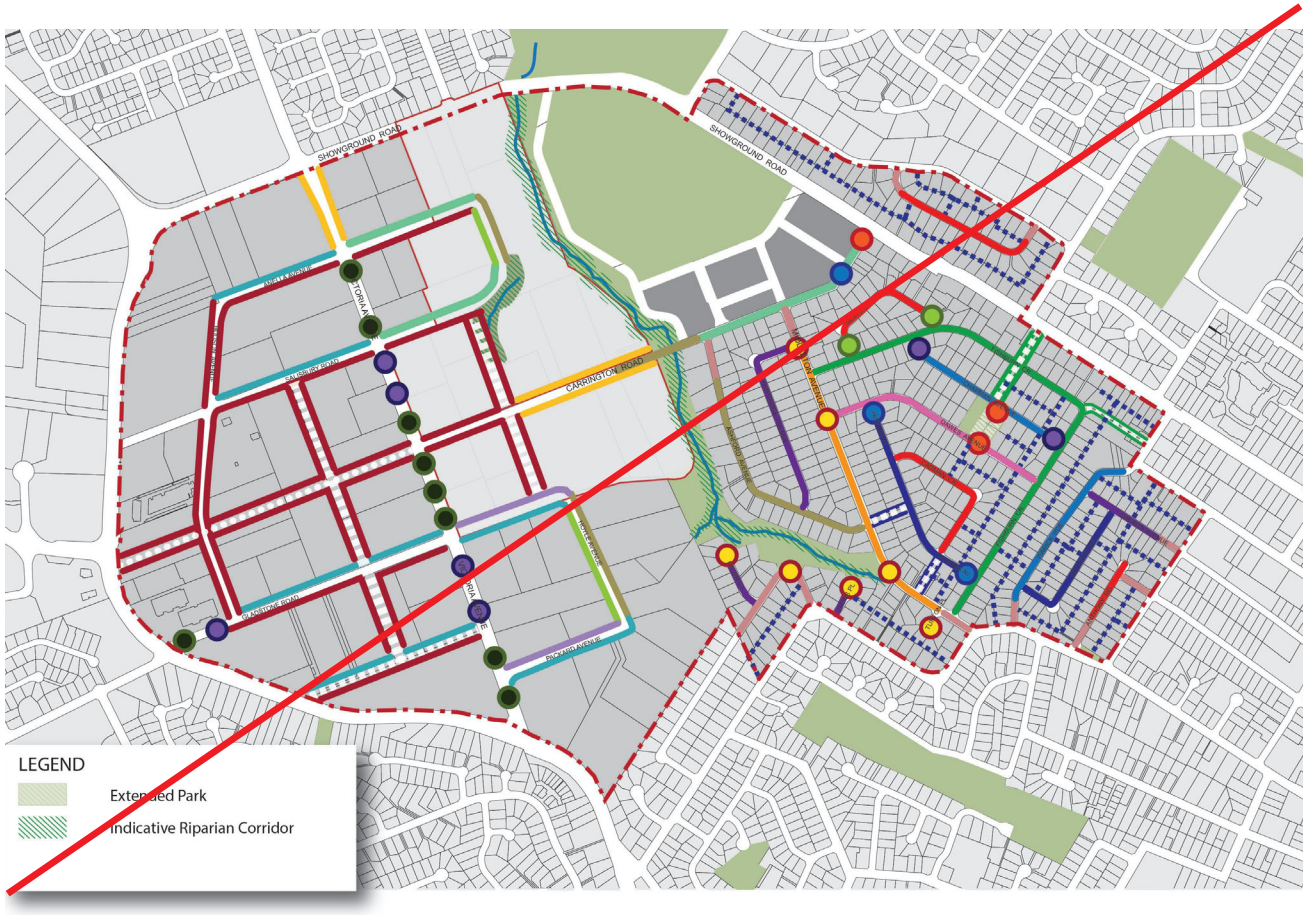
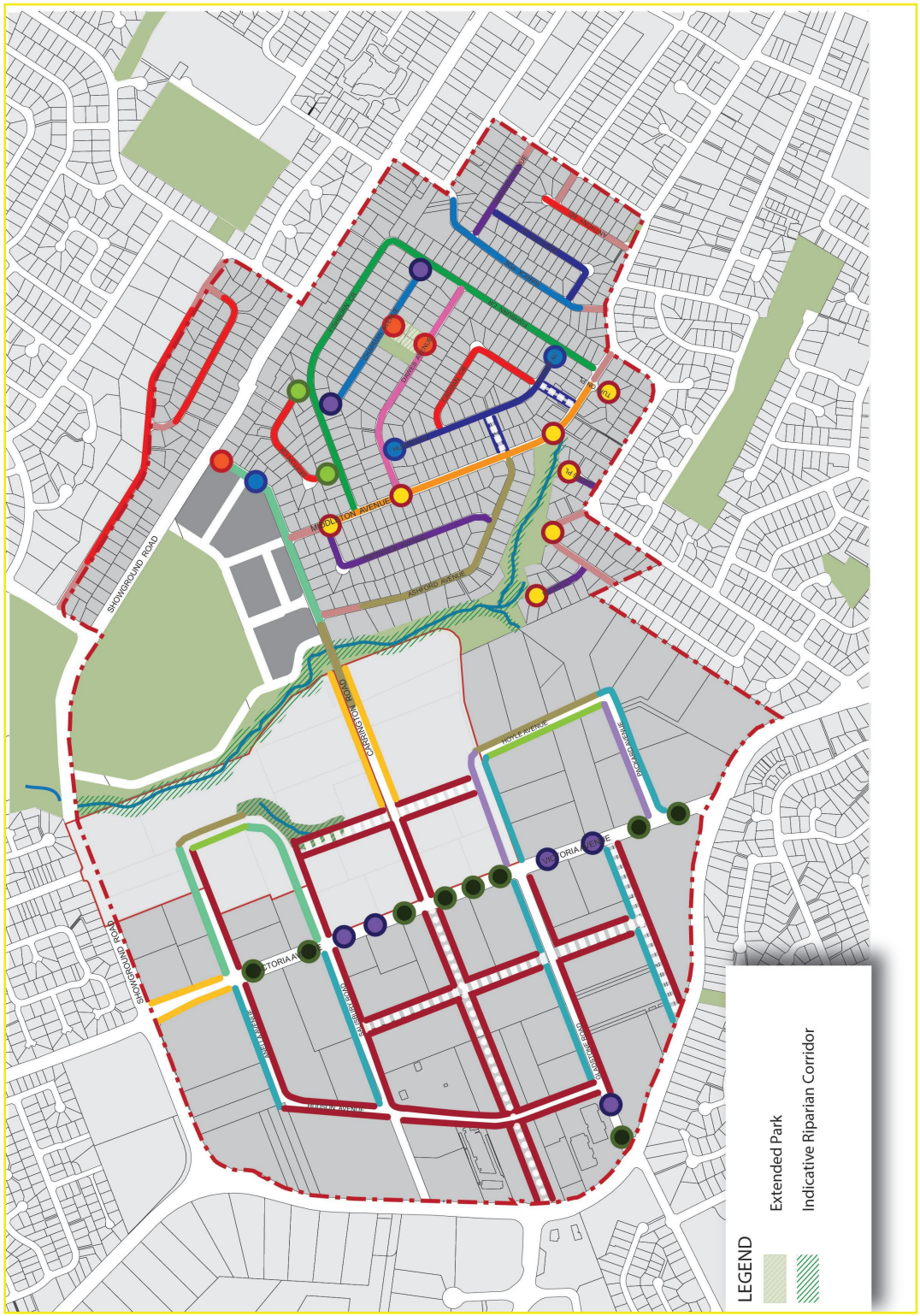


Figure 116 Street Tree Location

Note: Legend on the following page.


SHOWGROUND ROAD
MIDDLETON AVENUE
ASHFORD AVENUE
CHERMSIDE ROAD
HOYLE AVENUE
BOOKHAM AVENUE
VICTORIA AVENUE
SHOWGROUND ROAD
LEGEND
Extended Park
Indicative Riparian Corridor

STREET TREE KEY

Showground Precinct - Street Tree Planting Schedule Tree pit width < 1.5m (footpath present)		Showground Precinct - Street Tree Planting Schedule Tree pit width > 1.5m (no footpath present)	
BOTANICAL NAME	**COMMON NAME**	**BOTANICAL NAME**	**COMMON NAME**
Acmena smithii	Lilly Pilly (not CVs)	*Angophora floribunda*	Thin-Leaved Stringybark
Acmena smithii	Lilly Pilly (not CVs)	*Acmena smithii*	Lilly Pilly (not CVs)
Buckinghamia celsissima	Ivory Curl Tree	*Eucalyptus haemastoma*	Scribbly Gum
Callistemon viminalis	Weeping Bottlebrush	*Angophora costata*	Sydney Red Gum
Callistemon salignus	White Bottlebrush	*Angophora subvelutina*	Broad-Leaved Apple
Elaeocarpus reticulatus	Blueberry Ash	*Elaeocarpus reticulatus*	Blueberry Ash
Eucalyptus amplifolia	Cabbage Gum	*Eucalyptus amplifolia*	Cabbage Gum
Eucalyptus fibrosa	Broad-Leaved Stringybark	*Eucalyptus fibrosa*	Broad-Leaved Stringybark
Eucalyptus microcorys	Tallowood	*Eucalyptus microcorys*	Tallowood
Fraxinus excelsior 'Aurea'	Golden Ash	*Fraxinus excelsior*	Golden Ash
Fraxinus 'Raywoodii'	Claret Ash	*Fraxinus 'Raywoodii'*	Claret Ash
Glochidion ferdinandi	Cheese Tree	*Melaleuca quinquenervia*	Broad Leaf Paperbark
Gordonia axillaris	Fried Egg Plant	*Gordonia axillaris*	Fried Egg Plant
Jacaranda mimosifolia	Jacaranda	*Grevillea robusta*	Jacaranda
Lagerstroemia indica	Crepe Myrtle	*Lagerstroemia indica*	Crepe Myrtle
Callistemon salignus	White Bottlebrush	*Callistemon salignus*	White Bottlebrush
Leptospermum petersonii	Lemon-scented Tea Tree	*Eucalyptus tereticornis*	Forest Red Gum
Liquidamber styraciflua	Liquidamber	*Liquidamber styraciflua*	Liquidamber
Lophostemon confertus	Brush Box	*Lophostemon confertus*	Brush Box
Malus floribunda	Flowering Crab Apple	*Malus floribunda*	Flowering Crab Apple
Melaleuca decora	Feather Honey Myrtle	*Eucalyptus crebra*	Narrow-Leaved Ironbark
Melaleuca linariifolia	Snow in Summer	*Eucalyptus moluccana*	Grey Box
Tristaniopsis laurina	Water Gum	*Tristaniopsis laurina*	Water Gum
Waterhousia Floribuda	Weeping Lilly Pilly	*Waterhousia Floribuda*	Weeping Lilly Pilly
Ulmus parvifolia	Chinese Elm	*Araucaria-cunninghamii*	Hoop Pine

Table1-1 Street Tree Key

PLANTING SCHEDULE

Parkland Planting – Creek lines	
BOTANICAL NAME	**COMMON NAME**
Acmena smithii	Lilly Pilly (not CVs)
Callistemon salignus	White Bottlebrush
Casuarina cunninghamiana	River She Oak
Elaeocarpus reticulatus	Blueberry Ash
Eucalyptus amplifolia	Cabbage Gum
Eucalyptus fibrosa	Broad-Leaved Stringybark
Glochidion ferdinandi	Cheese Tree
Melaleuca decora	Feather Honey Myrtle
Melaleuca linariifolia	Snow in Summer
Tristaniopsis laurina	Water Gum

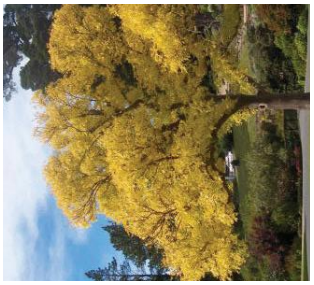
Table1-2 Tree schedule - Creek lines

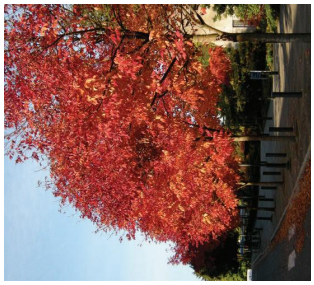
Parkland – Local Reserve	
BOTANICAL NAME	**COMMON NAME**
Araucaria cunninghamii	Hoop Pine
Acmena smithii	Lilly Pilly (not CVs)
Callistemon salignus	White Bottlebrush
Elaeocarpus reticulatus	Blueberry Ash
Eucalyptus saligna	Sydney Blue Gum
Fraxinus 'Raywoodii'	Claret Ash
Glochidion ferdinandi	Cheese Tree
Lagerstroemia indica	Crepe Myrtle
Leptospermum petersonii	Lemon-scented Tea Tree
Lophostemon confertus	Brush Box
Malus floribunda	Flowering Crab Apple
Melaleuca decora	Feather Honey Myrtle
Tristaniopsis laurina	Water Gum

Table1-3 Tree schedule - Chapman Reserve

TREE PLANTING IMAGERY SCHEDULE


Eucalyptus tereticornis


Fraxinus excelsior


Fraxinus 'Raywoodii'


Eucalyptus microcorys


Eucalyptus moluccana


Eucalyptus saligna

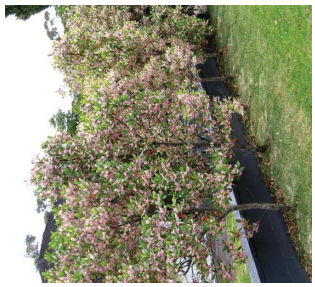

Eucalyptus amplifolia


Eucalyptus crebra


Eucalyptus fibrosa


Callistemon salignus


Casuarina cunninghamiana


Elaeocarpus reticulatus


Angophora subvelutina


Araucaria-cunninghamii

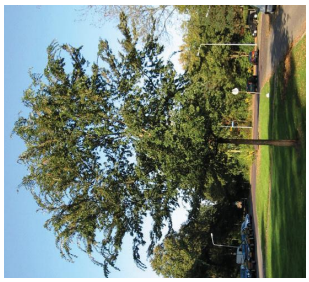

Buckinghamia celsissima


Acmena smithii


Angophora costata


Angophora floribunda

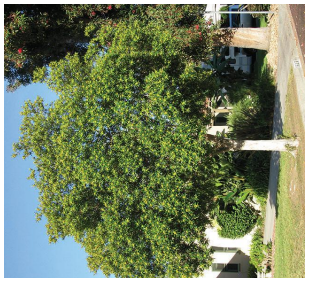
TREE PLANTING IMAGERY SCHEDULE

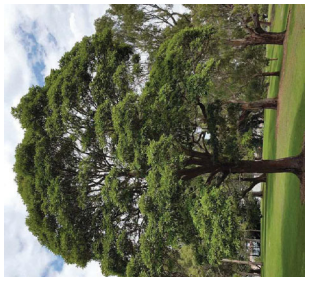

Ulmus parvifolia


Waterhousia floribunda


Melaleuca linariifolia


Melaleuca quinquenervia


Tristaniopsis laurina


Lophostemon confertus


Malus floribunda


Melaleuca decora

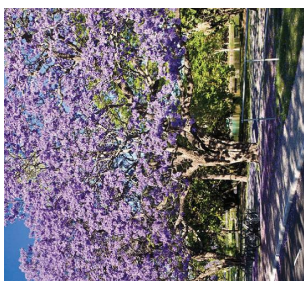

Lagerstroemia indica


Leptospermum petersonii


Liquidamber styraciflua


Glochidion ferdinandi


Gordonia axillaris


Jacaranda mimosifolia

UNDERSTOREY PLANTING SCHEDULE

Understorey Planting – Precinct wide	
BOTANICAL NAME	**COMMON NAME**
Westringia	Blue Gem
Gazania SPP (Pale Yellow)	Treasure Flower
Gazania SP (Blood Orange)	Treasure Flower
Callistemon salignus	White Bottlebrush
Callistemon	Little John
Dianella Caerulea	Breeze
Cordyline Australis	Cabbage Tree
Myoporm Pervifolium (white)	Creeping Boobillia
Lomandra	Silver Grace

Table1-4 Understorey schedule - Precinct wide

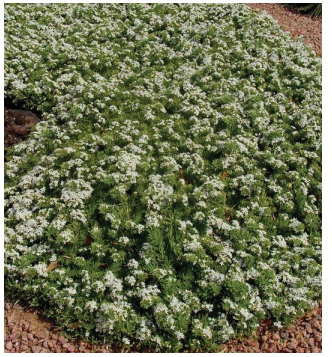

Callistemon salignus


Dianella Caerulea


Lomandra


Callistemon


Gazania SPP


Myoporum


Cordyline Australis


Gazania SP


Westringia

URBAN INFRASTRUCTURE

LIGHTING

Principles

- Provide sufficient illumination within the town centre to encourage pedestrians to use the centre during the evening.
- Enhance passive surveillance by providing light to pedestrian walkways.
- Encourage pedestrians to use pedestrian only walkways and laneways.
- Low maintenance and low energy consumption requirements.
- Improve the safety of pedestrians, residents and public transport users.
- To minimise the effect of excess light pollution on the night sky.
- Protect the natural wildlife by minimising the impact of lighting on nocturnal animals.

Strategies

- Provide street lighting along all roadways within the Precinct.
- Provide pedestrian pavement lighting for pedestrians along walkways.
- Location of lighting fixtures to not adversely impact upon adjoining properties.

Detail

- Consider the selection of products which do not have an upward light output ratio in excess of 5%.
- Select external luminaires with consideration of the night sky minimising light spill and excessive glare.

Figure 117 Public domain lighting Source: CoS

Figure 118 Public domain lighting Source: Cos

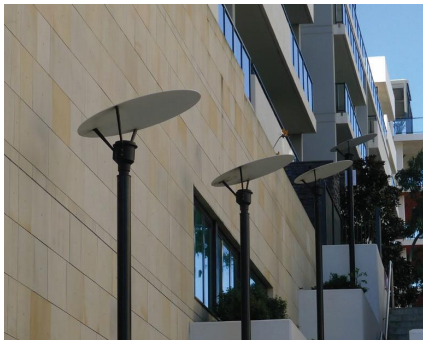


Figure 121 Public domain lighting

Figure 119 Bollard lighting

Figure 120 Bollard lighting

LIGHTING CATEGORIES

Lighting subcategory:

- V3 – Lighting used on arterial roads that predominantly carry through traffic from one region to another, forming principal avenues of communication for traffic movements.

Lighting subcategory:

- Through and local traffic.
- V5 – Lighting used on sub-arterial or principal roads which connect arterial or main roads to areas of development within a region, or which carry traffic directly from one part of a region to another part.

Operating Characteristics

- Moderate traffic volumes.
- P4 and P3 treatments are to be used for lighting of local roads, or streets used primarily for access to abutting properties, including residential properties. Pedestrian, cycleways, park paths and parks

Strategies

- Provide street lighting along all roadways within The Showground Precinct.
- Provide timed lighting to public open space between the hours of sunrise to 10pm (1hr before sunrise during winter). This includes the riparian corridor cross precinct link. Provide timed lighting for riparian corridor bridge structures.
- All lighting levels to be in accordance with Australian Standard 1158.

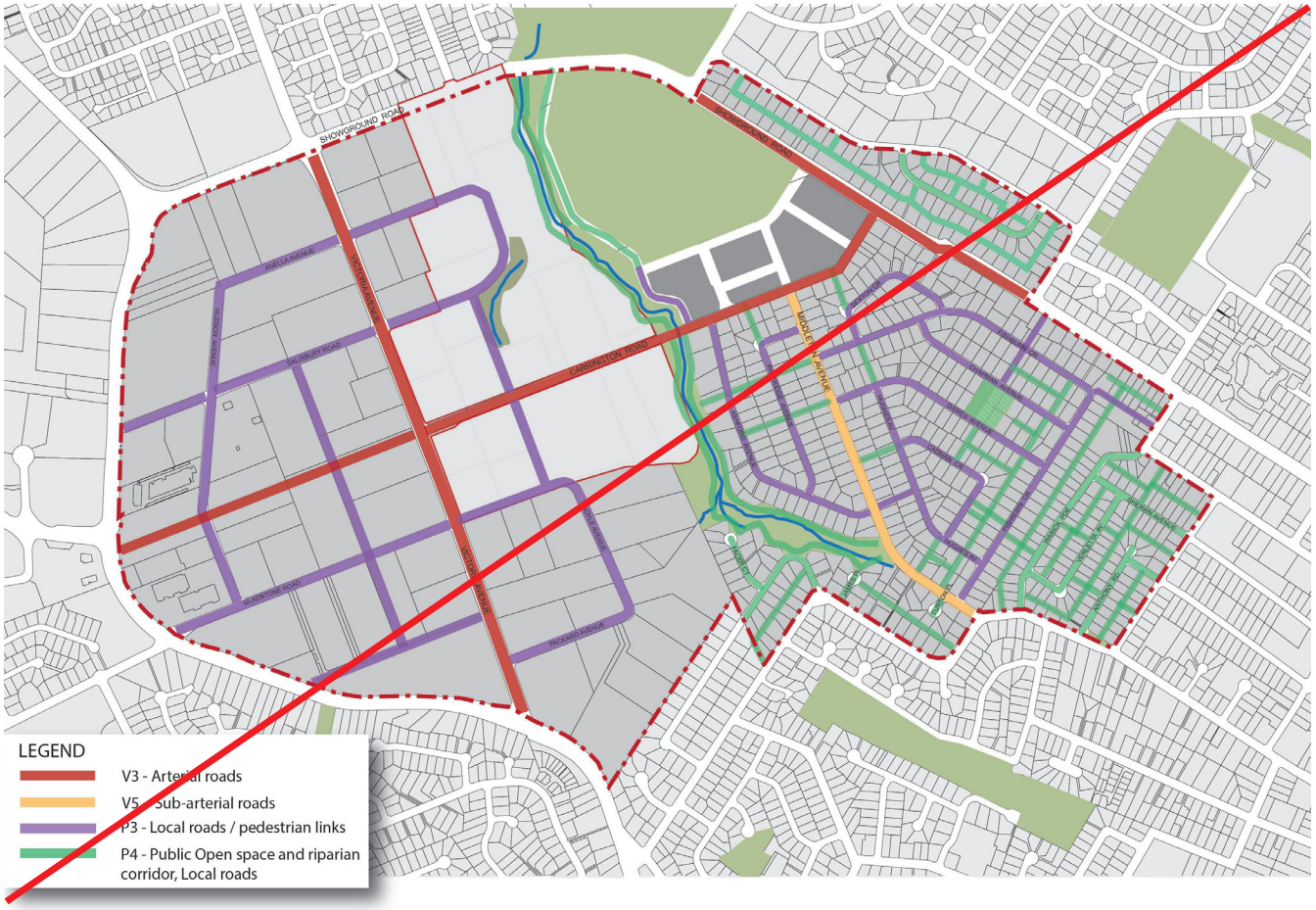
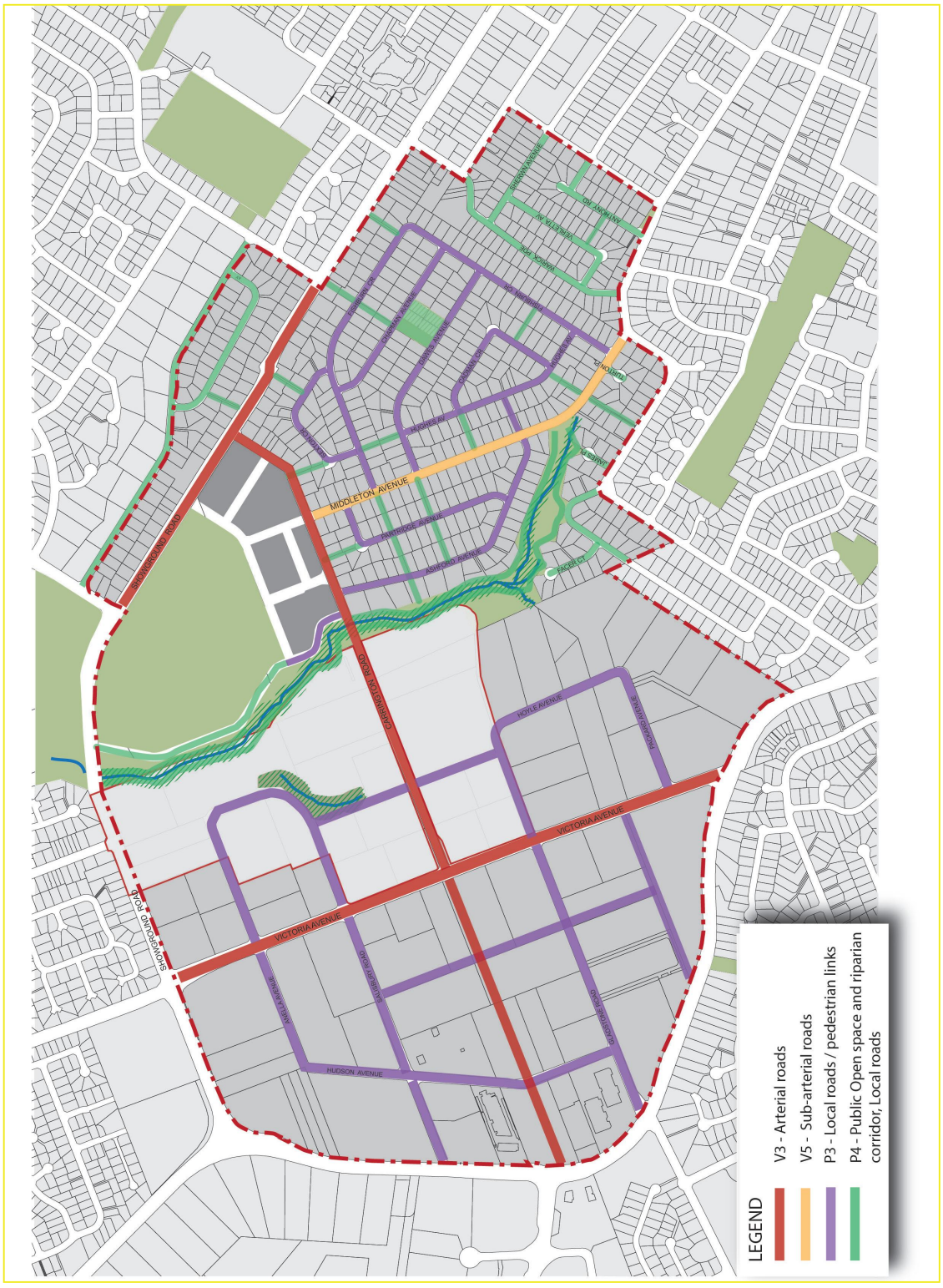


Figure 122 Lighting Strategy


MIDDLETON AVENUE
VICTORIA AVENUE
VICTORIA AVENUE
HUDSON AVENUE
HOYLE AVENUE
CHARLESTON ROAD
SHOWGROUND ROAD
SHOWGROUND ROAD
LEGEND
V3 - Arterial roads
V5 - Sub-arterial roads
P3 - Local roads / pedestrian links
P4 - Public Open space and riparian corridor, Local roads

BRIDGES

Principles

- To provide safe and convenient passage for pedestrians when existing topography makes road / terrain crossing difficult.
- Respect that pedestrian bridges are located in highly visual locations and impact on the visual identity of the precinct.

Bridge design is to:

- be structurally efficient and expressive.
- be visually pleasing and of a high quality finish.
- be appropriately designed for the intended use.
- be innovative, using modern materials and finishes and to use a minimal recessive colour palette.
- provide high quality detailing of the bridge structure to break up bulk and scale of structure.
- provide night lighting within the structure of the bridge (such as within hand rails or set within the pavement).

Strategies

- Provide pedestrian bridges where noted on the Pedestrian Connectivty Map.
- Provide high quality public domain and landscape treatments to the area surrounding the stairs and lift access.
- Where a pedestrian bridge is intended to also cater for cyclists, ensure the width of the passageway is in compliance with RMS guidelines for shared paths (Note this is a minimum width requirement).
- Where the bridge is located in an environmentally sensitive area, actions taken to ensure minimimal disturbance to the vegetation, natural features and systems is to be clearly documented and approved before construction by council.
- All bridges within the riparian corridor are to be constructed with consideration to flood impact.

Detail

- Stairs and wall structure to be clad in a high quality architectural finish such as sandstone.
- Colours to be recessive in nature to minimise visual obstruction of structure.
- All concrete is to be painted in a recessive colour palette subject to council approval.
- Provide a roof covering for bridges crossing a roadway.

Figure 123 Pedestrian bridge Source: KI Studio

Figure 125 Pedestrian bridge Source: KI Studio

Figure 124 Pedestrian/cycle bridge in riparian corridor
Source: Nationalparks.nsw.gov.au

Figure 126 Pedestrian/cycle bridge in riparian corridor
Source: Nationalparks.nsw.gov.au

INDENTED VERGE PARKING

Principles

- To provide safe and convenient on-street car parking on narrow streets with a road speed no greater than 50km.
- Maintain existing well established high canopy trees within the car parking zone.

Verge design is to:

- Be structurally efficient and minimise damge to the structural root zone of existing trees.
- Be visually pleasing and of a high quality finish.
- Be appropriately designed for the intended use.
- To use a minimal recessive colour palette comprising concrete edging and coloured stamped coloured concrete or ashphalt to match the road colour.
- Comply with AS 2890.5 Parking facilities, AS1428.2, RMS TTD 2014/004 July 2014.

Strategies

- Verge parking only to be provided on streets where land dedication is notated.
- Provide a tree between parking bays (subject to council aproval).
- Verge parking to provide for no more than two adjacent parking spaces.
- All trees within the street setback prior to construction of the proposed development are to be assessed by an arborist.
- Arborist report is to be sighted by the DA landscape architect for consideration.

Detail

- To comply with indicative council detail subject to site conditions, arborist report and council approval.
- Retained tree management and detail subject council landscape architect's approval.
- Provide 1:20 cross section through verge and plans and details subject to DA officers requirements.
- Refer to council details in the following Specific Details section for standard Roll Kerb and indicative verge parking detail.
- Verge parking is not to restrict access to existing utilities.

Specifications:

- Minimum parking bay width 2.5m.
- Maximum parking provision two adjacent spaces.
- Provide parking stops to prevent tree damage.
- Provide separation from the pedestrian footpath by a minimum of 2m verge planting.
- Compliance with TTD2014-004 ***Off-road parking provision on narrow roads***

Figure 127 Retention of street trees
Source: Pedestrian council of Australia.

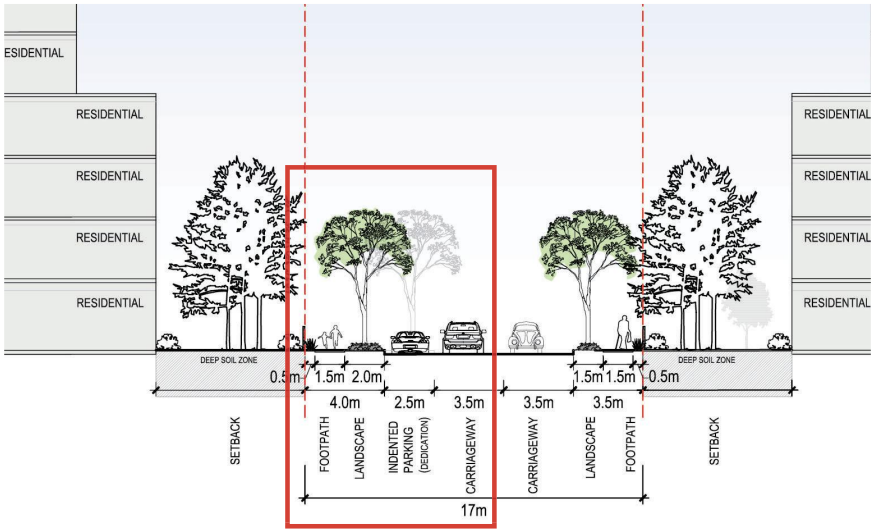


Figure 128 Local road cross section

STREET FURNITURE

OUTDOOR SEATING

Principles

- Provide convenient high quality seating in appropriate locations to encourage community interaction.
- Provide furniture that is durable in all conditions.
- Provide an abundance of seating to cater to disabled and elderly residents, as well as visitors to the area.
- Minimise ongoing maintenance.
- Provide benches for resting, gathering, observing and eating.
- Seats to be located in safe and accessible areas.

Strategies

- Provide standard seating selection per THSC standard.
- Provide standard public seating along on a needs basis and in all upgarded public domain areas including parks.
- Provide seats which are appropriate to the character of the setting.
- Incorporate seating within landscape treatments to provide for areas of respite and repose.

Figure 129 Standard seating

Figure 130 Indicative integrated seating

BINS

Principles

- Provide high quality bins in appropriate locations within the Precinct.
- Provide bins that are durable in all conditions.

Strategies

- Bin selection to match THSC specifcation or similar subject to council approval.
- Provide bins which are easily accessible.
- Provide bins which are easily visible in high use areas.
- Provide bins which are attractive and robust.

Note: The final design of the bins will include side and rear plates around the opening. This will reduce the potential for birds to remove rubbish from the bin.

Figure 131 Standard THSC bins

CYCLE RACKS

Principles

- Provide cycle racks at key destination points to encourage integrated public transport opportunities.
- Provide cycle racks to encourage cycling across the precinct and the use of cross precinct links.
- Provide high quality and durable cycle racks.
- Provide an appropriate number of cycle racks in high use locations.

Strategies

- Provide cycle racks which are easily accessible and do not impede pedestrian traffic.
- Provide cycle racks which are easily visible in high use areas.
- Provide cycle racks which are attractive and robust.

Figure 132 Bicycle parking at a park

Figure 133 Street bicycle parking
Source: HUB-S206-Bike-Rack

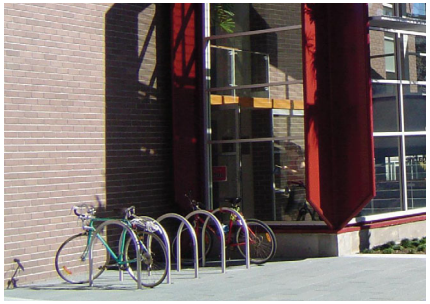


Figure 134 Bicycle parking

WATER FOUNTAINS

Principles

- Provide waterfountains in appropriate locations within the precinct such as public parks and in areas of high recreational use.
- Provide waterfountains that are aesthetically pleasing, functional, easy to use and durable.
- Provide waterfountains that allow for the refilling of waterbottles.

Strategies

- Provide a waterfountain in the Chapman Reserve Local Park.
- Provide a waterfountain in Cockayne Reserve, park area accessed from White Ceder Drive.
- Provide waterfountans on an as needs basis in the Riparian Corridor subject to demand.
- Provide waterfountains in a highly visible location.

Figure 135 Indicative water fountain
Source: HUB-S308-Drinking -fountain

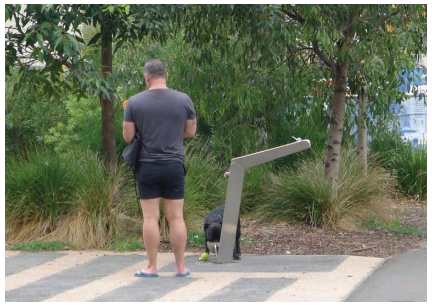


Figure 136 Water fountain in use

BUS SHELTER DESIGN

Principles

- Provide attractive bus shelters to encourage public transport use.
- Highly durable and vanadal resistant requiring little maintanance.
- Provide bus shelters which allow for custom precinct signage opportunities.

Strategies

- Provide shelters and rain protection at stops which have high patronage.
- Incorporate seating.
- Predominantly steel frames with silver metallic finish.
- Incorporate translucent panel elements.
- Provide legible timetables and wayfinding information.

Figure 137 Typical THSC bus shelter treatment

BOLLARD DESIGN

Principles

- Provide bollards at all locations where crowds and vehicular traffic conflicts may occur during periods of special events.
- Provide bollards and or crash protection elements where loss of vehicular control is a possibility.
- Bollards to be aesthetically pleasing, attractive and durable.

Strategies

- Provide removeable bollards where emergency vehicular access may be required.
- Predominantly silver metallic finish.
- Incorporate aesthetic features to permanent bollard placement.
- Incorporate bollards with furniture elements such as shaped concrete concrete seating elements.

Figure 140 Removable bollards

Figure 141 Planters with bollards incorporated
Source: www.sf-planning.org

Figure 139 Vegetation to screen safety elements

Figure 138 Seating as a permanent barrier
Source: BKK architects

SIGNAGE AND WAYFINDING

General Principles

- To provide ease of wayfinding for residents and visitors.
- To encourage use of pedestrian and cycle routes.
- To increase community understanding of the significance of a place or item.
- Provide directional signage for key locations.
- Incorprate lighting into signage element subject to need.

Strategies

- Provide signage that is clear and legible.
- Provide signage in locations where orientation is not easily perceivable.
- Signage to be robust and durable.
- Signage to belong to a suite of signage elements which are consistant across The Hills Shire Council area.
- Provide interpretative signage within Riparian Corridor (subject to a later scope of work within Public Art Strategy).

Indicative Directional Signage

- Provide directional signage to key locations within the precinct.

Strategies

- As per THSC signage strategy.

Figure 142 Directional signage
Source: City of Sydney

Figure 145 Wayfinding signage
Source: City of Sydney

Indicative Interpretive Signage

- Provide interpretive signage signage to the precinct.

Strategies

- Subject to completion of Cockayne park embellishment.
- Bespoke signage subject to Council's review.

Figure 143 Interpretive signage

Figure 144 Subtle durable signage

Source: Geckogroup

INDICATIVE SIGNAGE LOCATIONS

Principles

- To provide a sense of identity and belonging.
- To promote in precinct connectivity.

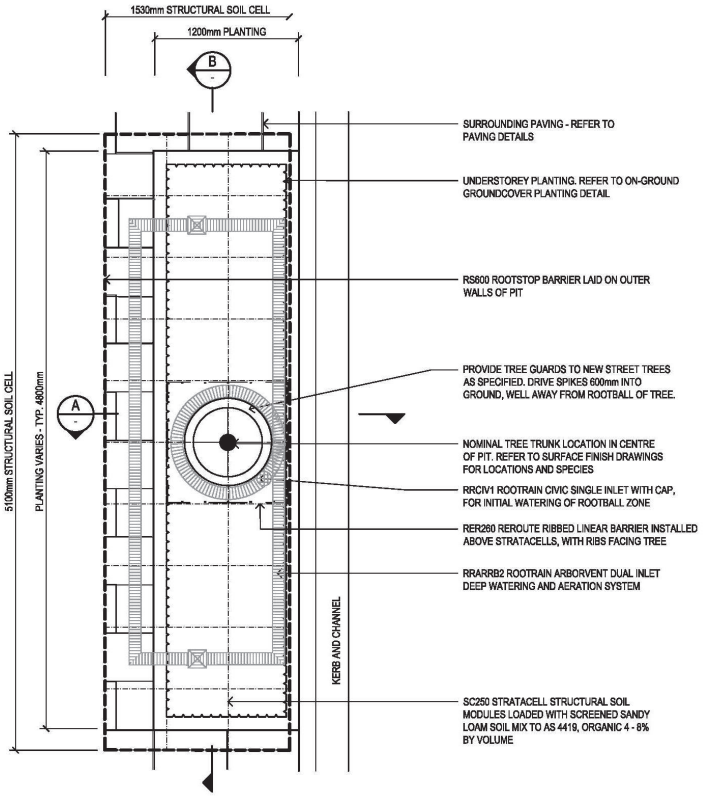
Strategies

- Provide sigange as per Signage diagram.

Figure 146 Signage Strategy

SPECIFIC PUBLIC DOMAIN TREATMENTS

STREET TREE PLANTING DETAIL



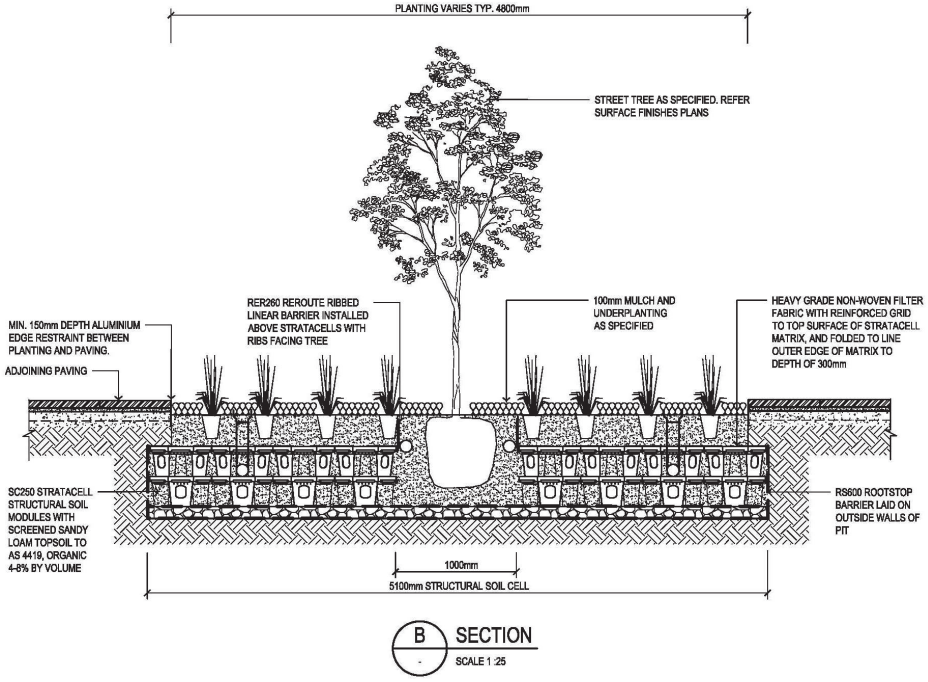


Figure 147 Typical tree planting treatment

STREET TREE PLANTING DETAIL

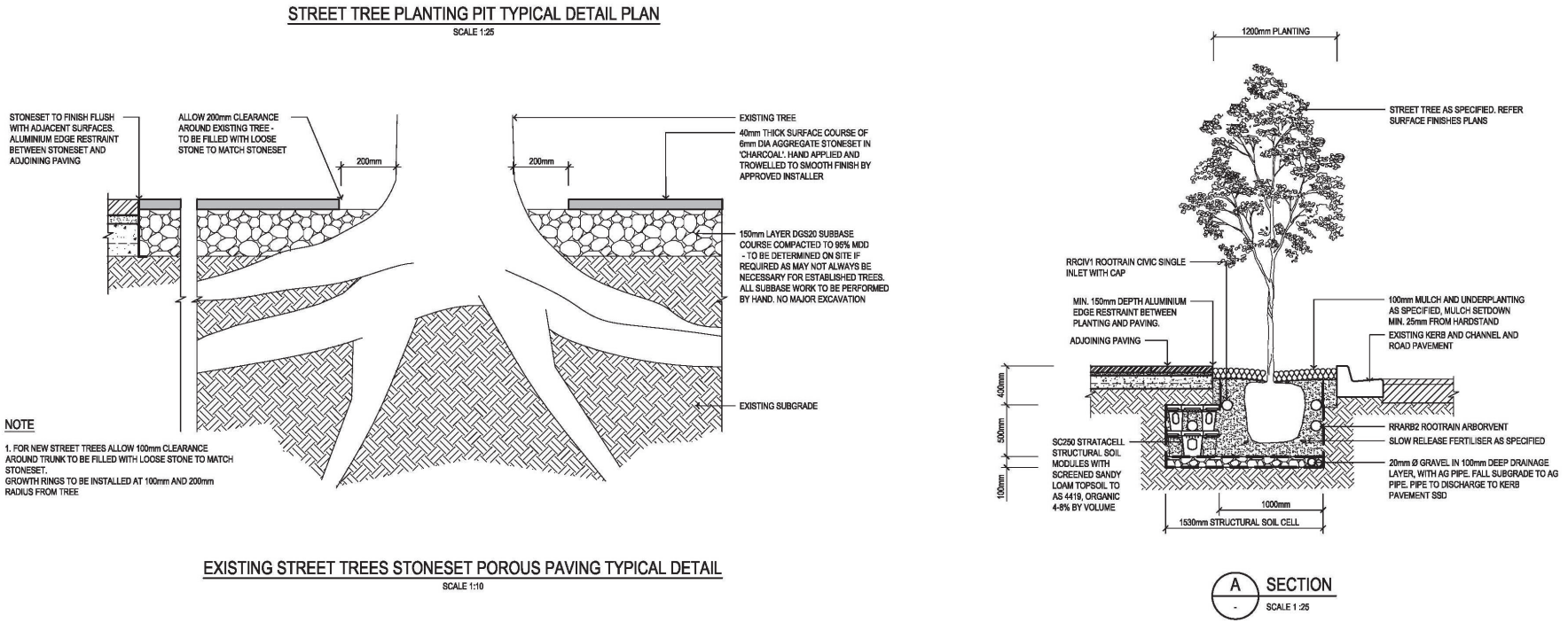


Figure 148 Typical tree planting treatment

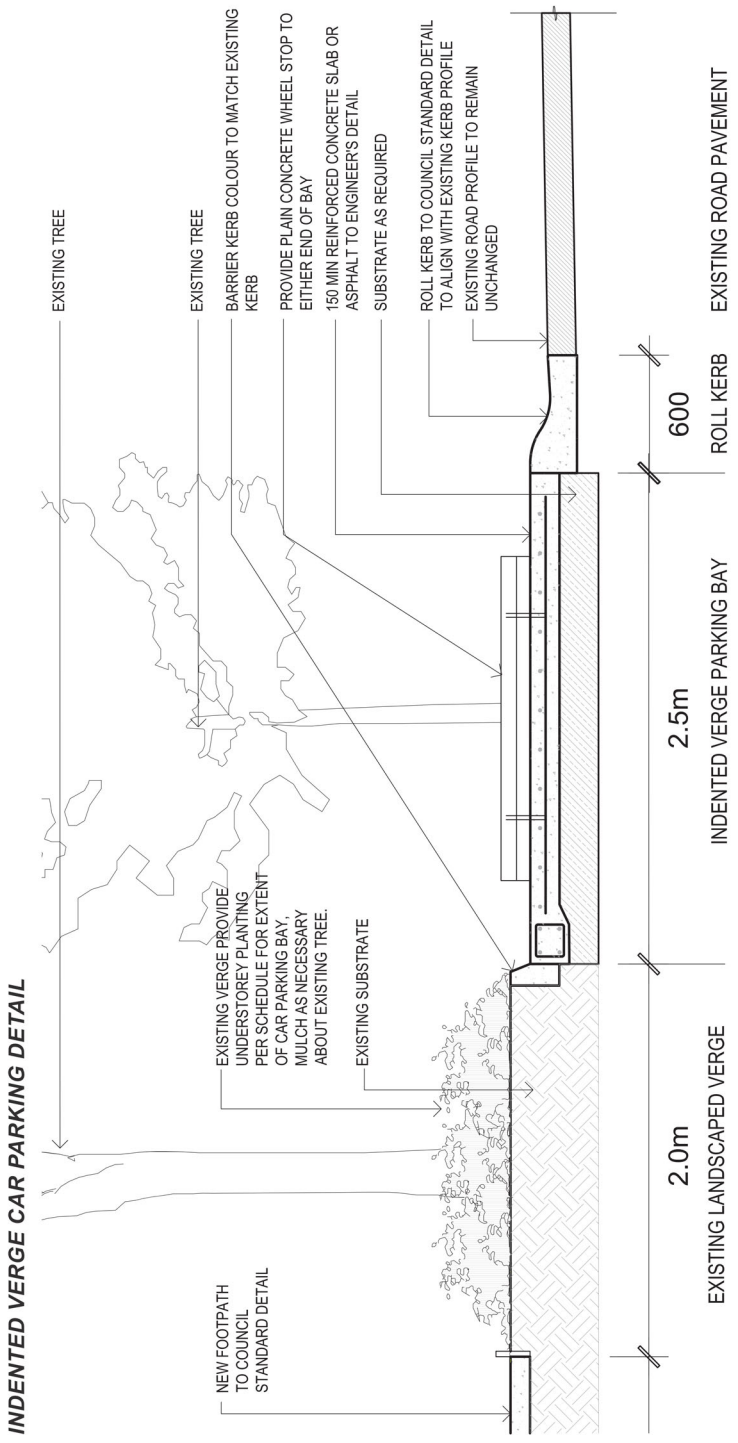


Figure 149 Indicative indented verge car parking section

INDENTED VERGE CAR PARKING DETAIL

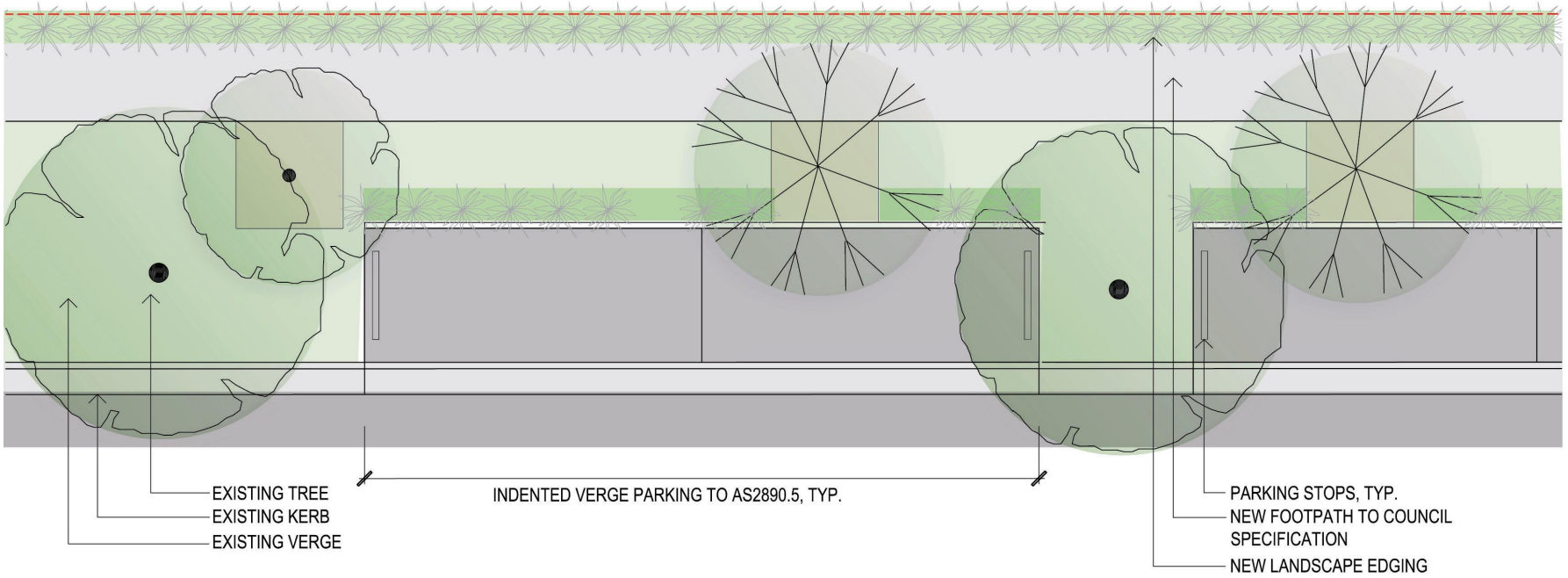


Figure 150 Indicative indented verge car parking plan

SPECIFIC PAVING TYPES 1 AND 2

Principles

- Paving treatment 2 has been specified oppposite the station entry way along Carrington Road to match station precinct paving treatment.
- Paving treatment is nominated as being Secondary Plaza 'movement' paving.
- Refer to Paving Map for extent of paving.

Figure 151 Indicative paving imagery

Source: NWRLOTS-NRT page 04-21

Installation

As per NWRL specification.

Material finish

- As per station precinct finish.

PV105, 600 x 300 x 40 (120D Finish) concrete pavers,Note: subject to change confirm NWRL final design specification.

Pattern: OFFSET STACKBOND.

Sealant: SURE SEAL 24/7 STONE IMPREGNATOR.

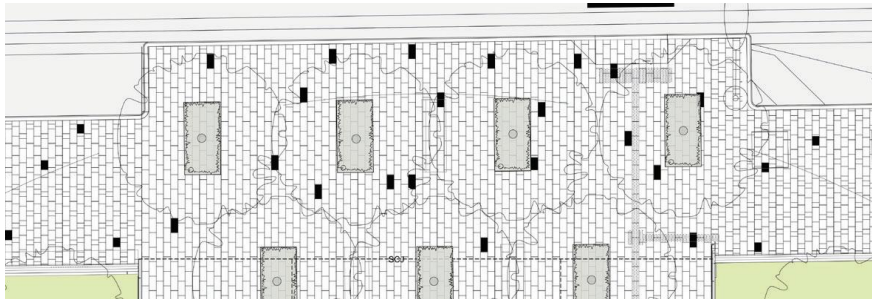


Figure 152 Indicative paving layout

Source: NWRLOTS-NRT page 04-20

Manufacturer's details

To match NWRL specification.

SPECIFIC PAVING TYPE 3

Principles

- Paving treatment 3 has been specified in higher density areas close to the Station.
- Paving type 3 is also indicated as a treatment to the pavement adjoining public open space.
- Refer to Paving Map for extent of paving.

Installation

Refer to Council's standard drawing for footpath.

Material finish

- Granite or Bluestone banding set in concrete footpath with broom finish perpendicular to path of travel. Concrete colour to lighter paving colour of station precinct.

Material selection subject to council landscape architect's approval

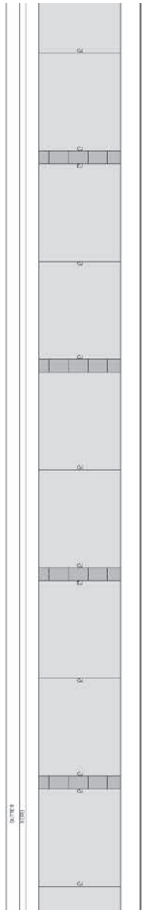


Figure 153 Paving type 3 detail

SPECIFIC PAVING TYPE PEDESTRIAN LINKS

Principles

- This paving treatment has been specified for pedestrian links between streets throughout the precinct.
- Refer to Paving Map for extent and location of paving.

Installation

Refer to Council's standard drawing for footpath.

Material finish

- Granite or Bluestone banding set in concrete footpath with broom finish perpendicular to path of travel. Concrete colour to match concrete colour in paving type 2.

Material selection subject to council landscape architect's approval

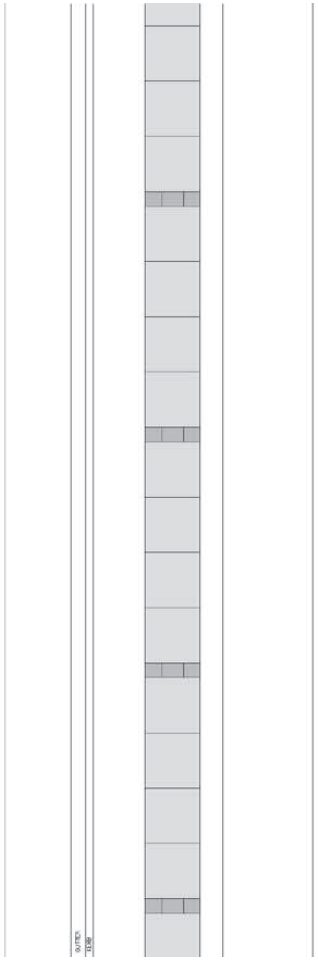
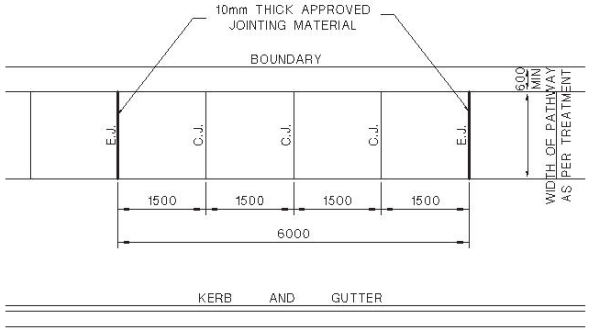


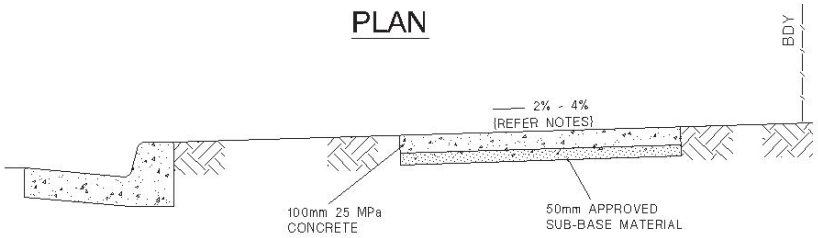
Figure 154 Pedestrian cross site link paving detail

TYPICAL PAVEMENT DETAIL

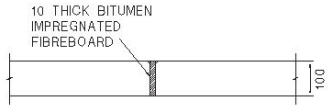


NOTES
1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. RAMP TO BE PROVIDED WITH NON SLIP (BROOM) FINISH.
3. PREFERRED CROSSFALL SHALL BE 2.5%.
4. WHERE CONSTRUCTED ADJACENT TO VACANT LAND, INCREASE CONCRETE DEPTH TO 125mm WITH F62 MESH.
5. WHERE THERE IS AN EXISTING DRIVEWAY, INCREASE CONCRETE DEPTH TO 125mm WITH F62 MESH FOR 1.5m ON EACH SIDE OF DRIVEWAY.
6. ALL EXPOSED CONCRETE EDGES TO BE ROUNDED TO A 5mm RADIUS.

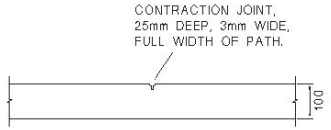
E.J. - EXPANSION JOINT (FULL DEPTH OF CONCRETE).
C.J. - CONTRACTION JOINT.



TYPICAL SECTION



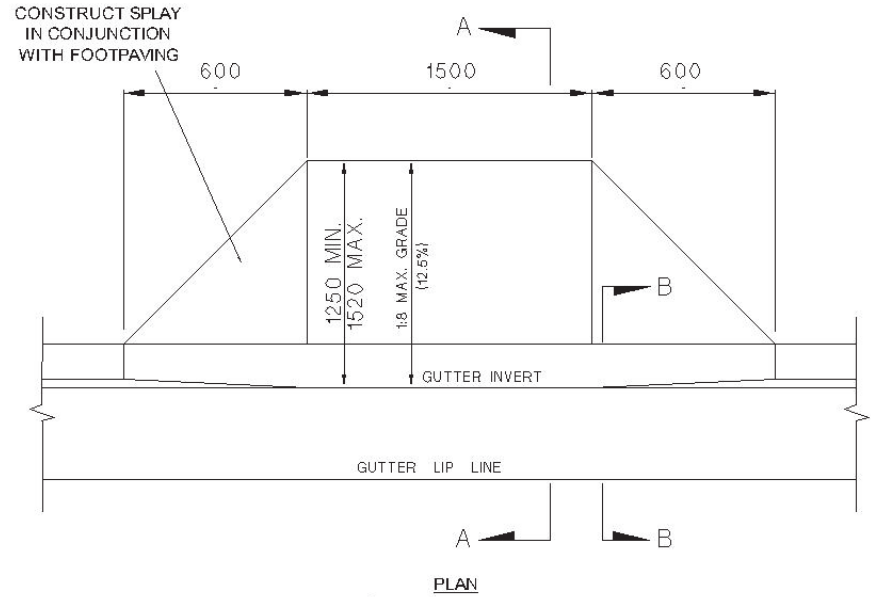
EXPANSION JOINT
AT 12000 MAX. INTERVALS



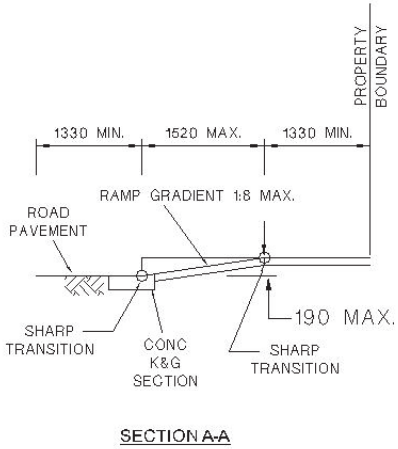
TRANSVERSE CONTRACTION JOINT
AT 3000 MAX. SPACING

2
-
Typical Details - Pathway

TYPICAL PEDESTRIAN RAMP DETAIL



PLAN



SECTION A-A

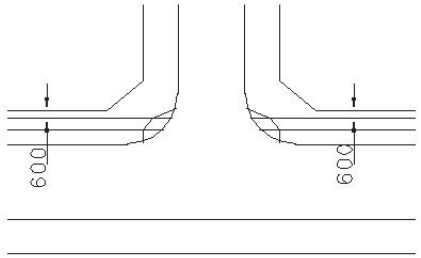


DIAGRAM SHOWING LOCATION
OF PEDESTRIAN RAMPS
AT INTERSECTIONS

SECTION B-B
BARRIER KERB

SECTION B-B
ROLL KERB

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. RAMP TO BE PROVIDED WITH NON SLIP (BROOM) FINISH.
3. RAMP SHALL BE MINIMUM 125mm THICK ON 50mm THICK APPROVED SUB-BASE MATERIAL.

2 / - Typical Plan - Pedestrian Ramp
Scale 1:100

PIT LID SPECIFICATIONS

Principle

- Service pit lid to be infilled.

Material/Finish

- Infill with honed shotblast concrete pavers or to match paving type of sourrounding pavement treatment.

Figure 155 Typical service pit treatment

VEHICULAR KERB TREATMENT

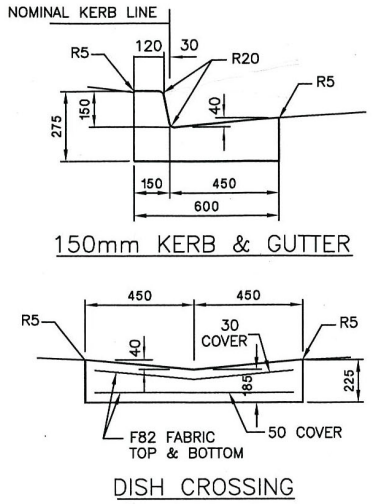
Principle

- Kerb and gutter type 1 is to be used as a standard treatment.
- Kerb and gutter type 2 is to be used in the Pavement type 1 area.
- Kerb and gutter type 2 is to be used for verge parking treatments where road dedication is notated.

Material/Finish

- Grey concrete.

Detail 1



Detail 2

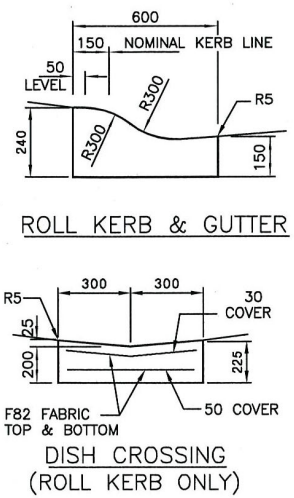


Figure 156 Typical kerb treatment
Source: THSC

5.IMPLEMENTATION OF WORKS

INTRODUCTION

The guiding vision, aims and objectives contained within this Plan form the basis from which detailed design works, public consultation and funding sources may be established for the long-term implementation of the public domain improvements.

The staging and implementation of the proposed works will be influenced by:

- Availability and allocation of funding for maintenance and new works,
- Construction of the Showground Station,
- Community expectations and engagement,
- Formation of partnerships with representatives from the corporate sector and/or state and federal government,
- Political and socioeconomic forces at the state and local level,
- Council priorities, for example the need to address risks and liabilities such as uneven pavement surfaces,
- Major construction works.

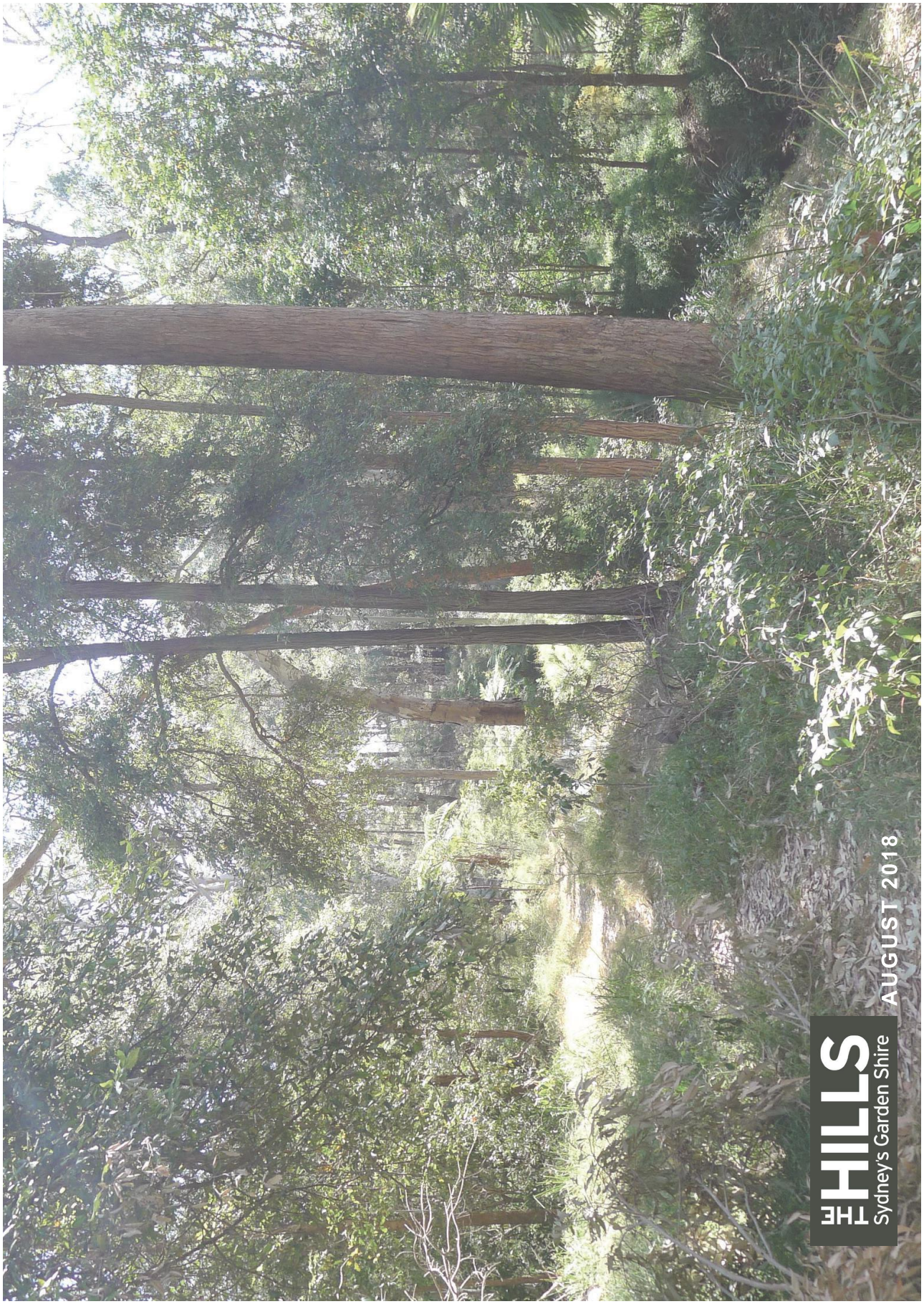
STAGING

In support of the planning for the Showground Precinct a Development Contributions Plan as been prepared to levy development for the provision of local infrastructure.

The public domain improvements can be implemented by Council through it's works program or by developers through a work in kind agreement. It is anticipated that the public domain improvements will occur as development occurs throughout the Precinct.

This Public Domain Plan excludes:

- Work on the Showground which is subject to an alternative masterplan process.
- Riparian Corridor works Part A and Part B which are subject to an ongoing project led by the Department of Planning. Should the works stall then it is proposed that works to the Riparian Corridor Part A and Part B are undertaken as a later stage of works subject to detail landscape design in order to complete the north south pedestrian cycle link which connects into regional link and provides needed public open space.



TO STRIVE FOR BETTER THINGS

ATTACHMENT 3

TECHNICAL DETAIL OF FSR AND HEIGHT TESTING FOR SHOWGROUND PRECINCT

1. Introduction

This document presents the findings of a review of the mismatch between the floor space ratio (FSR) and height of building standards applying to the high density residential area of the Showground Precinct.

2. Site Description

The subject land includes the residential high density area bound by Showground Road to the east, Carrington Road to the north, Cattai Creek to the west and medium density zoned land to the south.

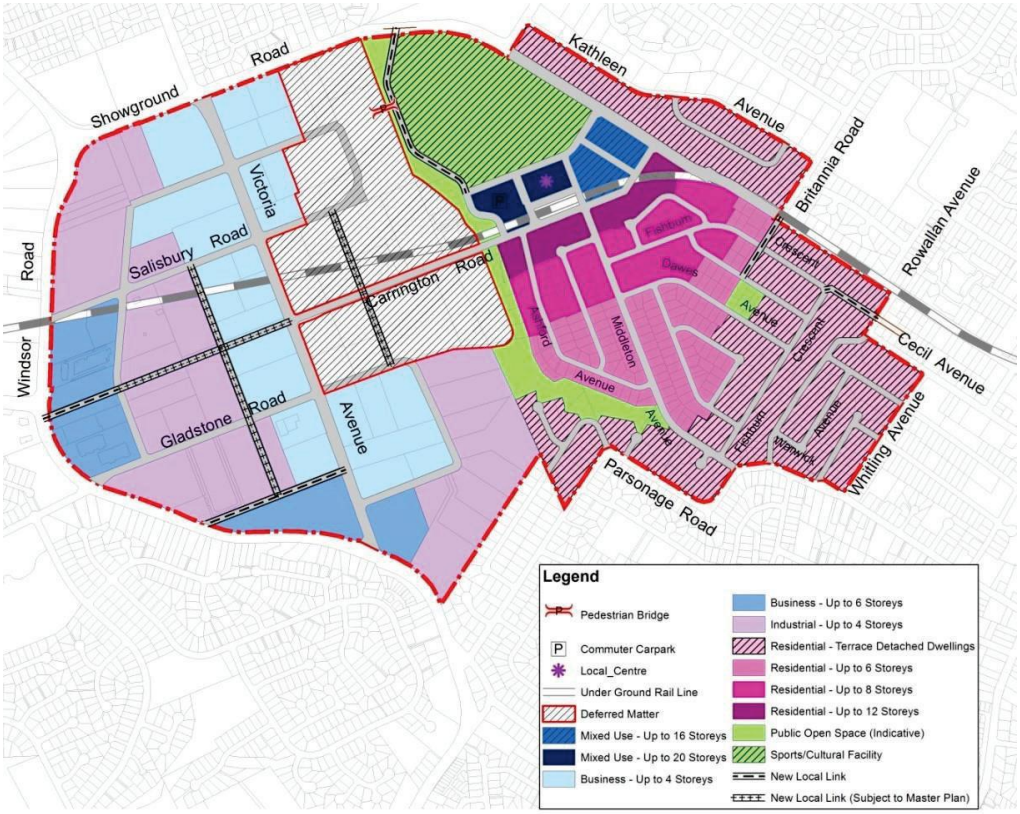


Figure 1
Showground Precinct Structure Plan

3. Review of FSR and Height Mismatch

A review has been undertaken of the typical height non-compliances that will be experienced when trying to achieve the maximum incentivised under the LEP. The table below demonstrates the height non-compliance (in metres) that a development will typically present when trying to achieve 6, 8 and 12 storeys.

Density Zone	Base FSR	LEP Height	DCP height in storeys	Incentive FSR	LEP Height	ADG height Base (+2m)	ADG Height with roof stair	ADG height with garden + stair	% height non-compliance
T	1.6	21m	6	2.3	21m	21.2	24.2	25.2	20%
U	1.9	27m	8	2.7	27m	27.4	30.4	31.4	16%
V2	2.1	40m	12	3.1	40m	39.8	42.8	43.8	9.5%

Table 1
Basic testing of height non-compliances utilising ADG guidance heights

Note: The following accepted heights within Part 2 Developing Controls in the ADG were utilised to test the overall heights of buildings:

- *3.7m Ground floor level (3.3m floor to ceiling plus 0.4m for structure)*
- *3.1m per level for residential levels*
- *2m for topography*
- *3m for roof top stair enclosure for roof access*
- *1m roof top / podium garden*

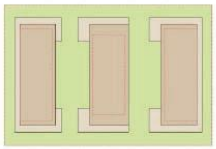
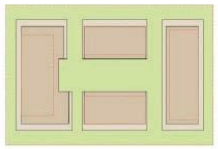
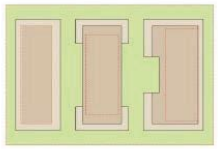
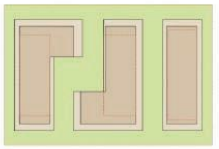
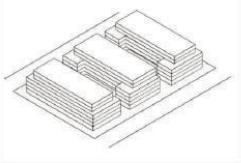
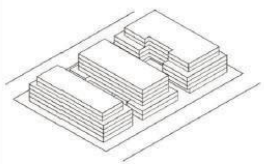
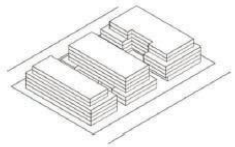
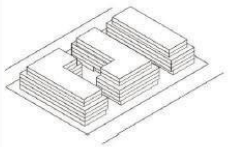
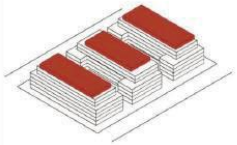
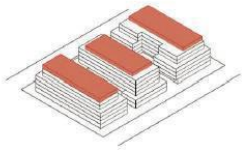
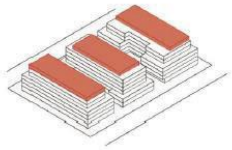
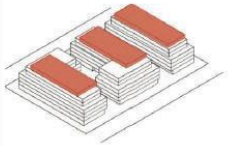
4. Modelling Results

A hypothetical massing study on a flat 10,000sqm site (free from slope constraints) was undertaken reviewing 4 possible massing arrangements. A typical lot depth was used applying current DCP controls. The modelling results are presented below and generally result in an additional storey being required to achieve the incentivised FSR (with the exception of the V2 zone where an amendment is only required to the LEP height).

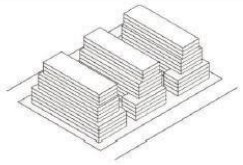
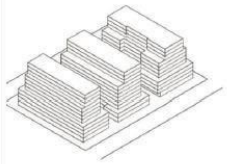
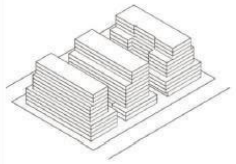
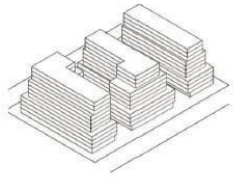
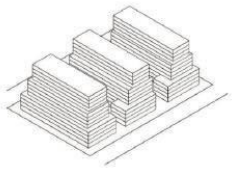
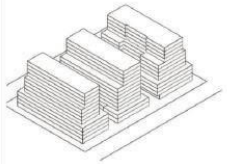
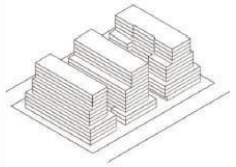
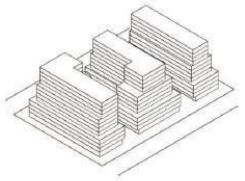
The required height adjustments to the LEP and DCP as determined through the modelling are also summarised in the table below.

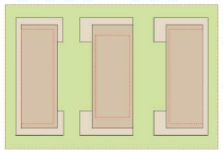
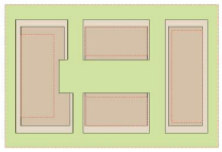
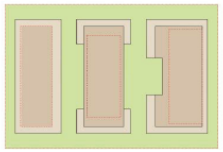
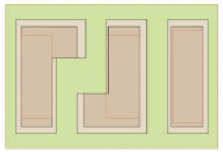
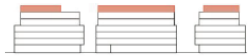
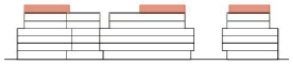
Density Zone	Base FSR	LEP Height	Required DCP Height in storeys	Required height variation	Incentivised FSR	Revised LEP Height
T	1.6	21m	7	+1 storey	2.3	**26.3m**
U	1.9	27m	9	+1 storey	2.7	**32.5m**
V2	2.1	40m	12	No change	3.1	**41.8m**

Table 2
Required LEP and DCP Height Adjustments

Storey & height	FSR V1	Layout 1	FSR V2	Layout 2	FSR V3	Layout 3	FSR V4	Layout 4	FSR Range
	Site Plan		Site Plan		Site Plan		Site Plan		
6 23.2m	2.09:1		2.08:1		2.08:1		2.09:1		2.08-2.09:1
7 26.3m	2.30:1 78 % 7th level		2.30:1 79 % 7th level		2.30:1 80 % 7th level		2.30:1 67% 7th level		2.30:1 76% 7th level Incentive FSR 6 storey zone
INCENTIVISED FSR OF 2.3:1 FOR THE ABOVE CONFIGURATIONS ARE ACHIEVED models are 7 storeys and achieve the incentivised FSR for the 21m height band; however they have a smaller floor space than the lower levels. An additional storey is required to achieve the incentivised FSR for each configuration.									

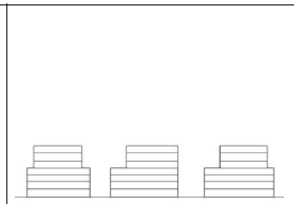
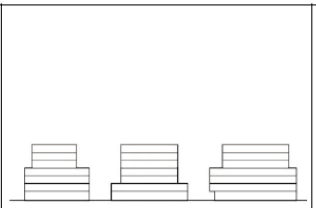
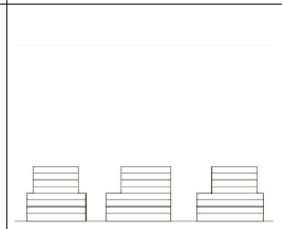
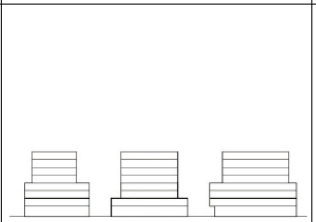
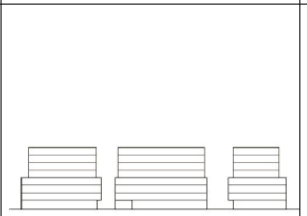
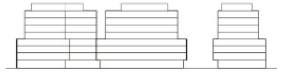
7 26.3m	2.37:1		2.36:1		2.37:1		2.39:1		2.36-2.39:1				
8 29.4m	2.65:1		2.65:1		2.66:1		2.69:1		2.65-2.69:1 Incentive FSR 8 storey zone				
9 32.5m	2.87:1		2.86:1		2.87:1		2.89:1		2.8-2.89:1 Incentive FSR 8 storey zone				
10 35.6m	3.09:1		3.07:1		3.08:1		3.09:1		3.07-3.09:1				

11 38.7m	3.30:1		3.28:1		3.3:1		3.28:1		3.28–3.3:1 Incentive FSR 12 storey zone
12 41.8m	3.52:1		3.49:1		3.51:1		3.48:1		3.48-3.52:1 Incentive FSR 12 storey zone

Storey & height	FSR V1	Layout 1	FSR V2	Layout 2	FSR V3	Layout 3	FSR V4	Layout 4	FSR Range
	Site Plan		Site Plan		Site Plan		Site Plan		
6 23.2m	2.09:1		2.08:1		2.08:1		2.09:1		2.08-2.09:1
7 26.3m	2.30:1 78 % 7th level		2.30:1 79 % 7th level		2.30:1 80 % 7th level		2.30:1 67% 7th level		2.30:1 76% 7th level Incentive FSR 6 storey zone

INCENTIVISED FSR OF 2.3:1 FOR THE ABOVE CONFIGURATIONS ARE ACHIEVED

models are 7 storeys and achieve the incentivised FSR for the 21m height band; however they have a smaller floor space than the lower levels. An additional storey is required to achieve the incentivised FSR for each configuration.

7 26.3m	2.37:1		2.36:1		2.37:1		2.39:1		2.36-2.39:1
8 29.4m	2.65:1		2.65:1		2.66:1		2.69:1		2.65-2.69:1 Incentive FSR 8 storey zone
9 32.5m	2.87:1		2.86:1		2.87:1		2.89:1		2.8-2.89:1 Incentive FSR 8 storey zone

10 35.6m	3.09:1		3.07:1		3.08:1		3.09:1		3.07-3.09:1		
11 38.7m	3.30:1		3.28:1		3.3:1		3.28:1		3.28-3.3:1 Incentive FSR 12 storey zone		
12 41.8m	3.52:1		3.49:1		3.51:1		3.48:1		3.48-3.52:1 Incentive FSR 12 storey zone		

Reference Documents
The Hills Local Environmental Plan 2019
The Hills Development Control Plan 2012
Apartment Design Guide, NSW Department of Planning and Environment