Riseley Street Activity Centre
Master Plan - Streetscapes

Prepared by KCTT on behalf of the City of Melville

December 2017

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Introduction

In March 2015 City of Melville endorsed a Riseley Street Activity Centre Structure Plan that is to be used as an overarching guiding document in the process of the Centre Redevelopment.

This Master Plan document is a supplementary document that will guide redevelopment of the Riseley Street Activity Centre alongside the Structure Plan document.

Introduction

The City of Melville is one of the largest local government areas in the Perth Metropolitan Area and considered developmentally and demographically mature. It is located on the southern bank of Swan River comprising of 18 suburbs. Within the City of Melville are contained one secondary activity centre (Booragoon) and several district centres (Bull Creek, Canning Bridge, Kardinya, Melville, Petra Street and Riseley Street), and all of them will have some renewal. The City of Melville is well placed strategically in terms of transport routes, as well and is actively promoting alternative means of transport to reduce car dependency.

Riseley Street Activity Centre (RSAC) is located on the boundary of suburbs Applecross and Ardross and is already established as a district centre. The main intention of the previous planning process resulting in the Structure Plan and Master Plan document is to ensure RSAC's position as small-business, micro economy oriented district centre as it develops in future.

A number of strategic infrastructure projects have been envisaged that will further support redevelopment of this centre. Including National Broadband Network rollout, to Canning Bridge Activity Centre development to redevelopment of Canning Highway and introduction of public transportation priority concepts. All of this will help develop local economic climate and increase desirability of the Centre as a place of business.

Structure plans inform the future local planning framework for an area and provide direction on matters such as: building form and height, zoning, land use, access and transport. A structure plan is an important document that will guide the future redevelopment of the area. Structure plan demonstrates the City's regard for the need to proactively plan for the future and guide change that is in the best interest of its community.

The purpose of the Riseley Activity Centre Structure Plan is to set out a clear vision for the future development of the Riseley Activity Centre.

The Riseley Centre was identified as an important town centre for the area. Riseley Centre is situated in the interchange between east-west services along Canning Highway and north-south services along Riseley Street, allowing connection between the suburbs north of Canning Highway and Booragoon. It's bound by the rear line of properties facing Conon Street to the west, Macleod Road to the northwest, Macrae Road to the north, Tain Street to the east, Simpson Street to the south east, Willcock Street to the south. Within the Riseley Activity Centre Structure Plan are multiple roads, including: Canning Highway, Riseley Street, Kearns Crescent and Fletcher Street.

Activity Centre Structure Plan is consists of residential, retail shopping, boutiques, small-scale offices, restaurants and other commercial activities, medical practitioners and etc. One of the key objectives for the Riseley Activity Centre is transport i.e. appropriately manage traffic, parking and accessibility issues.

Compared to other centres, Riseley Street District Centre performed relatively well in the category of urban quality. Urban quality could be improved with more attractive features, such as advanced trees and public art, and fewer visible car parks and vacant lots. It is likely as the centre matures and intensifies these aspects of the public realm will addressed.

Traffic Impact

In order to sustain local micro economies, Riseley Street Activity Centre will be redeveloped with a strong focus on pedestrian and cycling traffic and place-making. The objective is to generate a mode share shift in order to create a healthier, more walkable and sustainable community. Riseley Street Activity Centre can leverage off the high exposure to the passing traffic on Canning Highway while maintaining a pedestrian-scaled core.

Traffic Impact

Traffic impact is directly correlated with the quantum and type of proposed land uses. While the density and amount of residential and commercial floor space will be increased in the Riseley Street Activity Centre, there is a strong intention of facilitating behavioural change. With improved pedestrian and cycling infrastructure, combined with a strong focus on public transport, there will be a general tendency toward a reduction of car dependency and generation of vehicular trips.

Land Uses

The Riseley Street Activity Centre is centred generally around the corner of Canning Highway and Riseley Street and currently has a commercial core that is surrounded by low density residential uses. The proposed land uses will see an increase in the quantity of leasable floor space and residential units where commercial uses will be extended beyond the existing core while residential units will be introduced into the existing commercial core to develop it is a mixed-use precinct.

Comparison of proposed and existing land use types

Existing Area	Use	Future Area
300 dwellings	**Residential**	600 dwellings
8,000m2 [GFA]; 7.200m2 [NLA]	**Shops**	10,400m2 [GFA] 9.300m2 [NLA]
16,500m2 [GFA]	**Office and Commercial Area**	24,750m2 [GFA]
5,400m2 [GFA]	**Restaurants / Cafe / Fast food / Lunch bar**	8,100m2 [GFA]
1,960 m2 [GFA] App 10 practitioners	**Medical Centre**	3,920 m2 [GFA] App 20 practitioners
3,300m2 [GFA]	**Health Clubs**	4,950m2 [GFA]
1,000m2 [GFA]	**Showrooms**	1,250m2 [GFA]

According to the Structure Plan, the Activity Centre area will be developed through the following five distinct character precincts, as defined in the Structure Plan document:

Precinct 1 - Riseley Core: Predominantly retail shopping, boutiques, small-scale offices, restaurants and other commercial activities and residential use. The mixed-use area is envisaged as a vibrant, pedestrian-scaled area with a range of commercial uses sustaining local economies located on ground floors while residential areas are located in the upper levels of buildings. This creates instant walkability inside the core and will result in a reduction on private vehicle reliance for shopping and social trips when compared with the Perth Metropolitan region.

Precinct 2 - Canning Corridor: The Canning Corridor can benefit through high exposure to passing traffic; therefore the focus is on various types of commercial uses on “eye” level. Upper levels of buildings can be dedicated to offices and residential uses that will benefit from some of the strongest public transportation links in the Perth Metropolitan region.

Precinct 3 - The Crescent: The Crescent is the lively core of the activity centre with a variety of boutique shops, hospitality venues and entertainment activities on the ground floor. Residential dwellings and commercial uses are envisaged on upper levels of buildings.

Precinct 4 - Transitional Frame: This precinct will function as predominantly a residential area with low key commercial uses however over time the intensity of use is expected to increase and the composition of uses is expected to change to feature more commercial uses. The objective in this zone becomes providing strong pedestrian and cyclist linkage to the Core, the Corridor and The Crescent.

Precinct 5 - Residential Frame: The Residential Frame is intended to remain as a predominately residential area with increased density suitable for a residential precinct adjoining a vibrant activity centre.

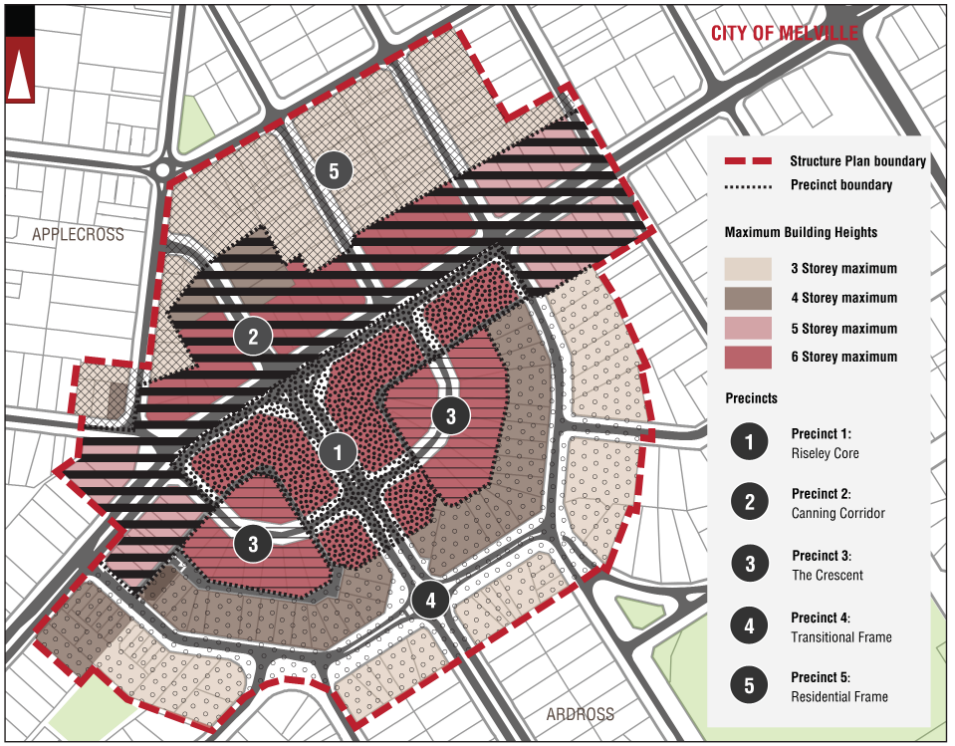


Figure 01 - Map showing location of the proposed precincts and allowed building heights

Figure 02 - Indicative Development Plan

Local Road Network Information

All roads within the Riseley Street Activity Centre (RSAC) are under the jurisdiction of the City of Melville with the exception of Canning Highway which is under the jurisdiction of Main Roads WA. The main vehicular transit axes are Canning Highway (providing connectivity to Fremantle to the southwest and the Canning Bridge Precinct, Kwinana Freeway, Albany Highway and Great Eastern Highway to the northeast) and Riseley Street (providing connectivity between Canning Highway to the north and the Booragoon centre and Leach Highway to the south).

The main corridors are:

Canning Highway

Canning Highway is a 17 kilometre arterial road in Perth, linking the inner Perth suburb of Victoria Park in the north-east, to the port city of Fremantle in the south-west.

Main Roads WA have a medium to long term strategy for the upgrading of Canning Highway with particular focus on enhancing pedestrian amenity along Canning Highway. Dedicated bus lanes are proposed that would see the reduction of movement at the intersection of Kearns Crescent (west) and Canning Hwy to 'left out' only.

As the density of the development increases, vehicular access directly from Canning Highway shall not be permitted within the commercial core of RSAC. The access will be enabled via rear laneway or secondary streets that abut each respective property. Eliminating driveway manoeuvring will limit the number of conflict situations on this portion of Canning Highway and will allow for the creation of pedestrian focused verges as well as increasing the potential for improved traffic flow in Canning Highway.

The median on Canning Highway could be utilised for the application of Water Sensitive Urban Design principles, however agreement for any such structures will be required from Main Roads WA, and will need to be in accordance with all Main Roads WA and Austroads Standards.

Riseley Street

Riseley Street is envisaged as one of the main hubs of activity in the redeveloped RSAC. At present Riseley Street carries approximately 13,000 vpd in vicinity of the intersection with Canning Highway. This volume of vehicular traffic at the same time provides great exposure for the businesses facing, however has the adverse impact of lessening coherence of the Centre. The proximity between the Riseley Street Activity Centre to the Canning Bridge precinct and the Melville City Centre / Booragoon Centre, coupled with the access between these centres by high frequency public transport services make this an important location in terms of the future growth of the City.

The focus of the strategy will be to improve the proportional mix of uses surrounding Riseley Street as well as balancing the requirements of vehicular traffic and pedestrian amenity. Riseley Street could be redeveloped with a general precedent being Beaufort Street in Mount Lawley as an overarching guide – vibrant pedestrian zones, vehicular speeds reduced to 40km/h and AM/PM bus lanes that will be used as parking areas outside of the peak hours. Vehicular access to the developments should be arranged from the laneways and other street frontages.

Constraining the geometry of Riseley Street in order to enhance the sense of place is likely to slow down the growth of traffic volumes and a potential increase in motorists choosing alternative routes could be expected.

The intersection of Kearns Crescent and Riseley Street for example could be raised and / or paved, acting as a visual cue and a traffic calming element on Riseley Street, coupled with the change in grade in the approach to the Canning Highway intersection.

Kearns Crescent

Kearns Crescent has the potential to become the vibrant heart of the activity centre with a variety of fine-grained shops and entertainment activities. The current major limitation of Kearns Crescent is the lack of pedestrian amenities. The intention is to create active, pedestrian-scaled and orientated zones throughout Kearns Crescent, which will be a major improvement on the current vehicular traffic and parking dominated streetscape.

The introduction of mixed use in this area will see major increases in activity, however the goal in building the streetscape will be constraining vehicular traffic and maximising place function.

In future, Kearns Crescent may be converted to one way traffic with well managed parallel parking. Intersections with Canning Highway, (which will be under the jurisdiction of Main Roads WA) and Riseley Street require particular attention as they play the important role of traffic management and distribution, as well as place making.

Traffic Volumes

The most recent traffic data were collected from the City of Melville and Main Roads WA. At present Canning Highway carries roughly 40,000 vehicles per day, while Riseley Street caries roughly 13,000 in vicinity of the intersection with Canning Highway. Riseley Street on the northern side of Canning Highway carries roughly 6,000 – 7,000 vehicles per day.

The increase in redevelopment yields is likely to increase the volume of traffic in the area. Given that strong programs for paradigm shift are in place, it is not expected that the rise in vehicular volumes will be directly proportional to the increase in development yields. This is highly tied however to the strength of the streetscape enhancement program and to providing high quality pedestrian and cyclist connectivity. The image below shows current and expected traffic volumes.

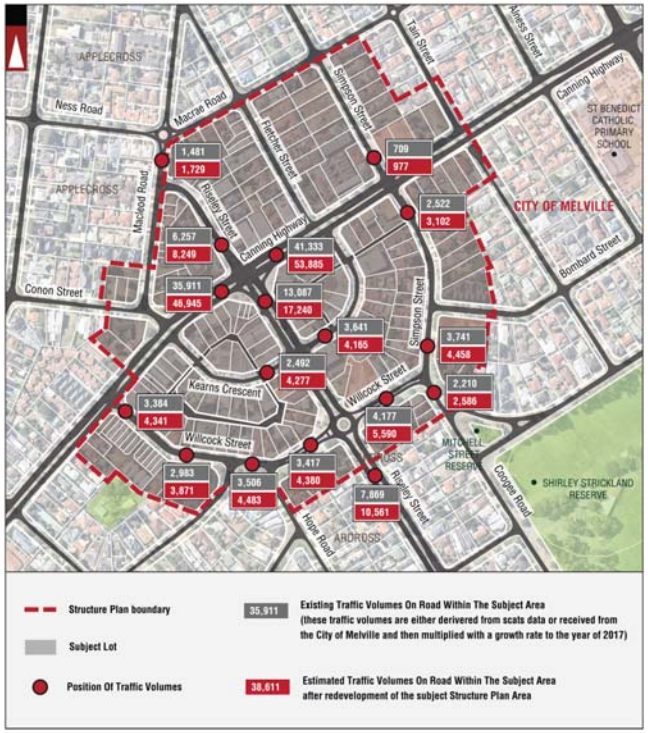


Figure 03 - Current and expected traffic volumes in Riseley Street Activity Centre Area

Vehicular Crash Information

Review of the Main Roads WA database for crashes and incidents between the 1st January 2012 and 31st December 2016 revealed that on average all crash rates for this location are significantly lower than the network average. The majority of accidents in this area are the typical types of accidents expected in an activity centre area, consisting of rear-end and exiting / entering driveway collisions. The severity of these incidents is generally low.

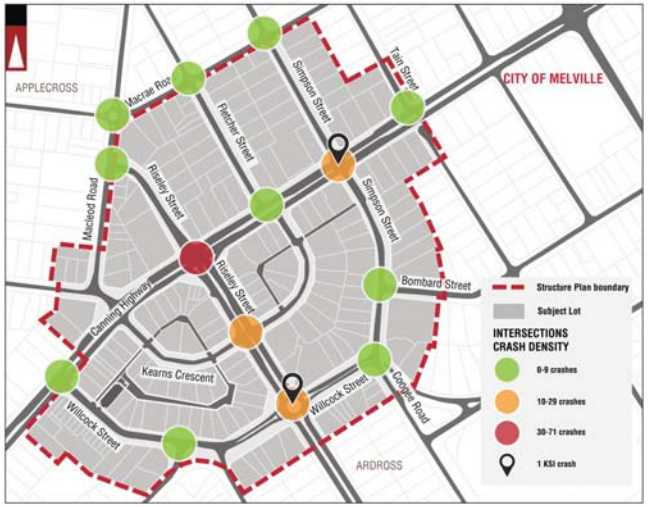


Figure 04 - Intersections Crash Density in period 2011-2016

Figure 05 - Road Sections Crash Density in period 2011-2016

A section of Wilcock Street was recently upgraded as a part of the Black Spot program where approaches to the intersection with Riseley Street have been modified to regulate operating speeds more effectively.

Public Transport Accessibility

RSAC enjoys a high level of connectivity when it comes to public transport. Within 5 minutes' walk are a number of bus routes available providing fast connections across the metropolitan region. The high frequency bus route No 910 (Perth - Fremantle Station) is available on Canning Highway. Others bus routes are 111 (Perth - Fremantle Station via Kwinana Freeway & Canning Highway); 114 (Perth – Munster via Booragoon Bus Station); 115 (Perth - Hamilton Hill via Booragoon Bus Station); 148 (Applecross - Fremantle Station via Bicton & Attadale) and 158 (Perth - Fremantle Station via Bicton & Attadale).

Medium to long term plan for upgrading the entire Canning Highway corridor would include dedicated bus lanes on Canning Highway. This will enable the introduction of additional bus routes that will provide stronger connection to the Canning Bridge interchange.

Dedicated AM/PM bus lanes on Riseley Street should be considered for establishing solid public transportation links through the centre given the high number of buses that operate between Canning Hwy and Booragoon.

Pedestrian Infrastructure

The Riseley Street Activity Centre has average walkability. Most errands can be accomplished on foot. Pedestrian paths exist on all gazetted roads, with a minimum of one per street, however significant improvements are required in sections, in particular in portions of Kearns Crescent.

The local street network provides good pedestrian connections in the areas surrounding the centre although pedestrian access, safety and attractiveness require greater improvement within the Core or centre. Canning Highway, Kearns Crescent, Riseley Street (section between Canning Highway and Willcock Street) and the existing access laneways will benefit from improvement of pedestrian facilities.

Pedestrian crossings throughout the Centre will also be considered with improvements to suit universal access requirements.

Cycling Infrastructure

Within an 800-metre radius of the subject site, Perth Bicycle Network (PBN) Continuous Signed Routes are Matheson Road (south of Ness Road) and Macrae Road. The following streets can be classified as "Good Road Riding Environment": Ardross Street, Bombard Street, Coogee Road, Wilcock Street (between Hope Road and Bombard Street), Millington Street, Matheson Road

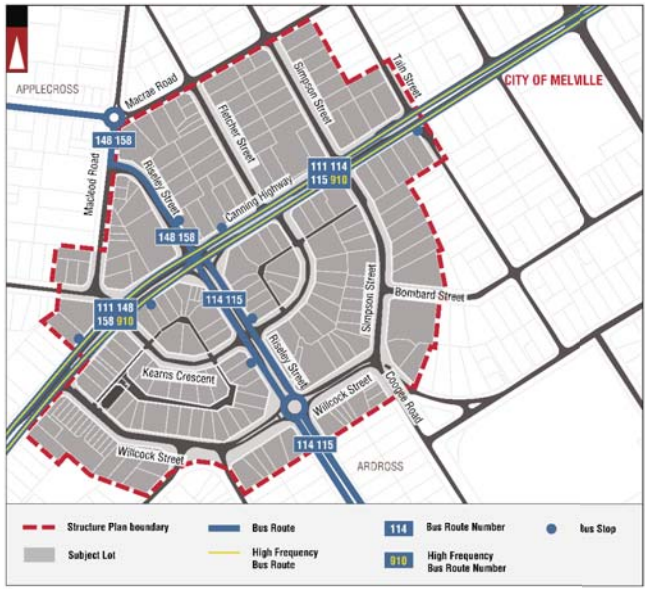


Figure 06 - Existing public transport routes

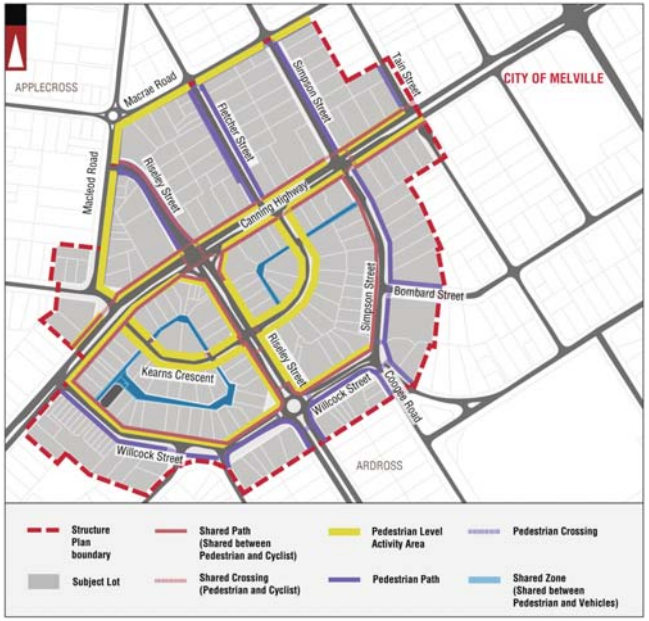


Figure 07 - Existing and proposed pedestrian paths

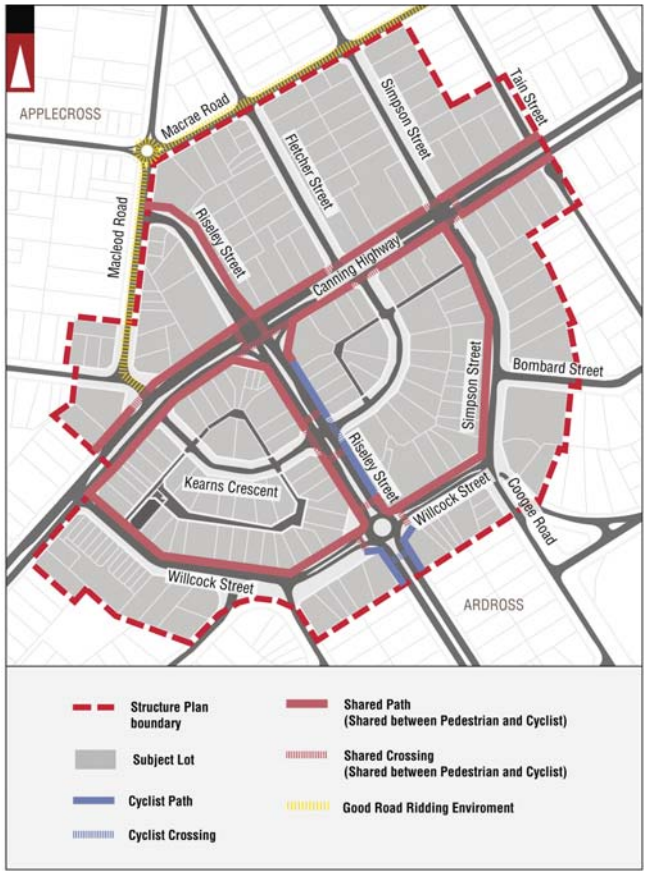


Figure 08 - Existing and proposed cycling paths

(north of Ness Road), McCallum Crescent (south of Millington Street). Bicycle lanes are present on Riseley Street and Reynolds Road.

While the RSAC has solid accessibility level for cycling at present, numerous improvements can be made to enhance cyclists' amenities. Paths can be upgraded along Wilcock Street and Simpson Street in particular to allow for easier access for cyclists.

All future development should cater appropriately for end-of-trip facilities, while bicycle racks can be placed sporadically in verges in areas of high pedestrian and cycling activity where they can be used as urban design elements to reinforce the visual amenity of the Centre.

Vehicular Parking

The City of Melville commenced the implementation of a comprehensive parking management system in order to effectively manage parking demand through rational use of the existing resources rather than through the introduction of new resources (parking bays).

Through redevelopment of the Centre this tendency will continue. New developments will independently cater for parking requirements within the building envelope, while on-street parking will be parallel with strict time limits ranging from 5 minutes to 2 hours. There is the possibility for incorporating centralised parking stations as long as they fit within the urban form guidelines outlined in the Structure Plan document.

Parking areas should be adequately landscaped to reduce the urban heat effect as much as possible. On-street parking areas should be broken down with vegetation allowing for a maximum of 4 consecutive parking bays.

New business owners and developers in the area should be encouraged to prepare and successfully execute travel demand management plans and parking management plans. Promotion of alternative transport modal choice should be a high consideration in all future development in this zone.

ACROD Parking

New developments should closely follow the BCA requirements for ACROD parking. In order to make the Centre an enjoyable experience for all users, ACROD enabled access is imperative in key locations of the Riseley Street Activity Centre.

Delivery and Service Vehicles

It is expected that delivery and service vehicles (such as waste removal vehicles) servicing the residential area will not require designated parking spaces given that they can operate safely within the road reserve.

In areas featuring high levels of commercial / office / hospitality / retail activities, provisions for delivery vehicles are an important operative component of these precincts. Reciprocal use should be applied and parking areas denoted for parking of delivery vehicles should be utilised by other parking users outside of strictly defined delivery times. Where possible access to delivery vehicles should be enabled from rear laneways and lower-order roads.

Urban Water Management Considerations

Water Sensitive Urban Design (WSUD) is an important component of this project. The integration of WSUD involves an understanding of the urban water cycle, incorporating water supply, wastewater, stormwater and groundwater management, urban design, and environmental protection as defined by the Joint Steering Committee for Water Sensitive Cities in July 2009. WSUD provides the dual benefit of improved streetscape aesthetics with improved water quality and use of finite resources such as water.

The over-arching goal of WSUD in this document is to look at the capture of stormwater drainage runoff as an asset, both in terms of the aesthetic value of the infrastructure that will be built to capture the runoff and in terms of the use and re-use of the water itself providing economic benefits.

Identification of Potential Locations for WSUD Features

The key objectives for locating WSUD interventions include:

- Is the existing drainage system fit for purpose?
- Is there sufficient space in the road reservation to provide high quality aesthetics in an increased area for drainage purposes?
- Does the design intent match the local theme?
- Can we improve pedestrian and cyclist connectivity, plus implement the proposed system?
- Is the system safe?

WSUD Guidelines in the Riseley Street Activity Centre

The guidelines have been based on The Joint Steering Committee for Water Sensitive Cities in July 2009, which have been slightly modified to only include the guidelines applicable to the Riseley Street Activity Centre.

- Aesthetic Value / Urban Design
- Water Quality – Hydrological Management
- Water Supply
- Natural Function and Amenity
- Functionality and Operational Issues

The above-mentioned guidelines ensure functionality, sustainability, life-cycle costs, and provisions of maintenance plans regarding any WSUD asset.

Guidelines for Techniques to Maximise WSUD Locations Within the Riseley Street Activity Centre

Riseley Street Activity Centre water capture is predominantly reliant on utilising stormwater runoff from adjoining developments as a resource. Matrix can be developed for the assessment based on the above criteria, for which a ranking system can be utilised with each WSUD intervention ranked at each location based on;

a. the ease of intervention (in terms of constructability)

b. the cost of the intervention

c. effectiveness of the intervention on a WSUD score (this requires an understanding of the drainage catchments and how much drainage needs to be / can be used as an asset.

d. adherence to design requirements (i.e. road / pedestrian / cyclist requirements)

e. its aesthetic / placemaking value

f. ongoing maintenance and operation costs

The ranking system can be a simple 1 to 5, 1 being a low score where the quality of the intervention rates lowly and 5 being where the quality of the intervention is high for each criterion.

The interventions include:

- Raingardens / Bio-Retention Basins / Linear Bio Retention Treatments
- Water Features (e.g. water fountains, open drainage)
- Buffer Strips
- Pervious and Porous Pavements

Raingardens / Bio-Retention Basins / Linear Bio Retention Treatments

Naturally rain gardens and bio retention basins that are either built around, or in-lieu of stormwater drainage pits are interventions that are well suited for smaller catchments. These bio-retention basins can be sized to cater for larger catchments.

- Kearns Crescent provides many opportunities for raingardens, tree pits, grated tree pits and bio-retention basins utilising existing trees. Pocket parking can be implemented to compliment the tree pits.

  Potential for Linear Bio Retention treatment along existing grassed areas of Canning Hwy median.

Water Features

Water features are an excellent example of creating a hard landscaping feature for aesthetic purposes. The design requirements for water features are very important. The systems require a strong understanding of drainage catchment calculations, and lend themselves to utilising the runoff from larger catchments as opposed to being localised, small catchment devices.

- The intersection of Kearns Crescent with Canning Hwy provides excellent opportunities for spray water features.
- Wide pavement along Kearns Crescent also poses as an opportunity for the implementation of water features including open water drains.
- Canning Hwy median has the potential to incorporate an open water drain.

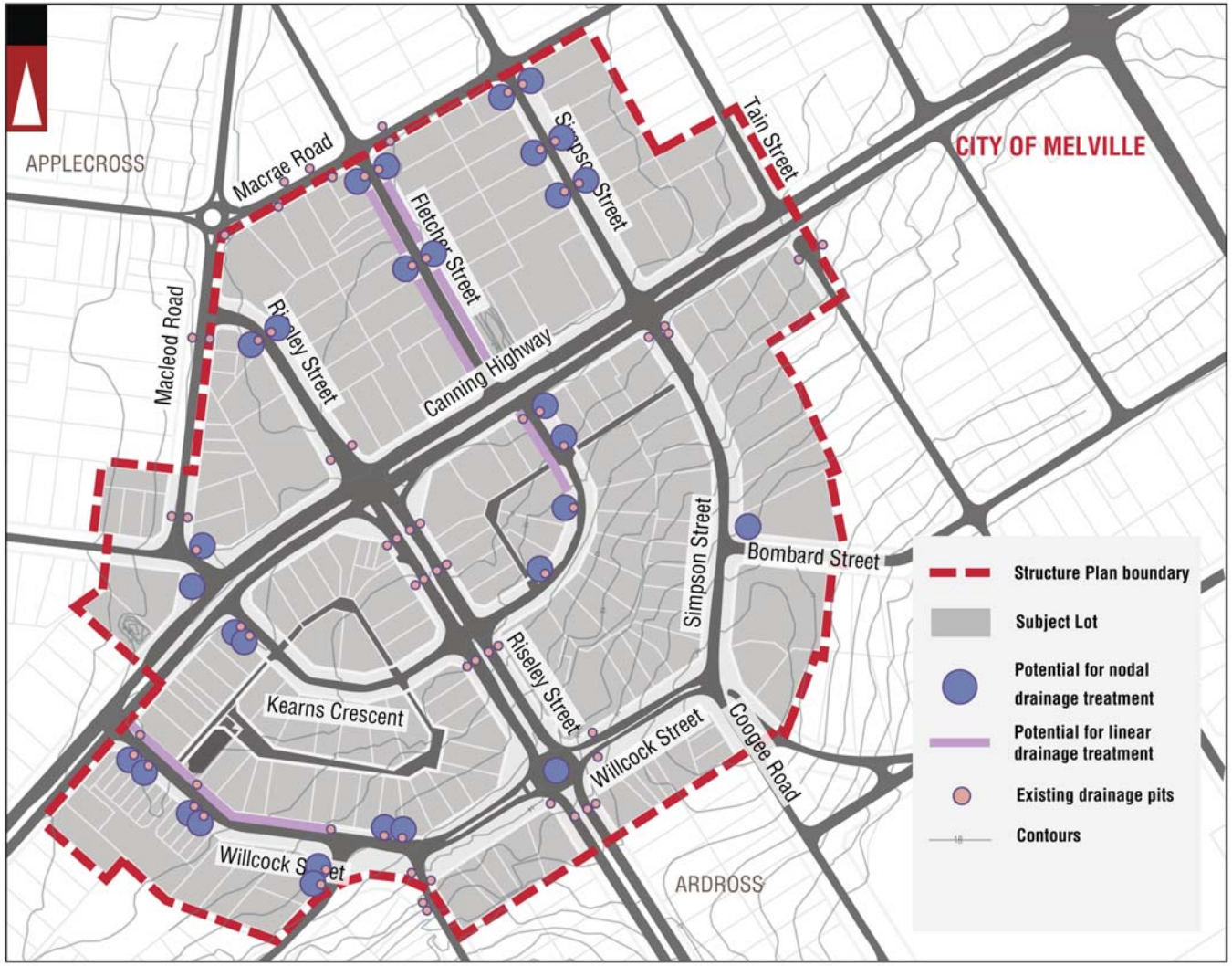


Figure 09 - Drainage Plan

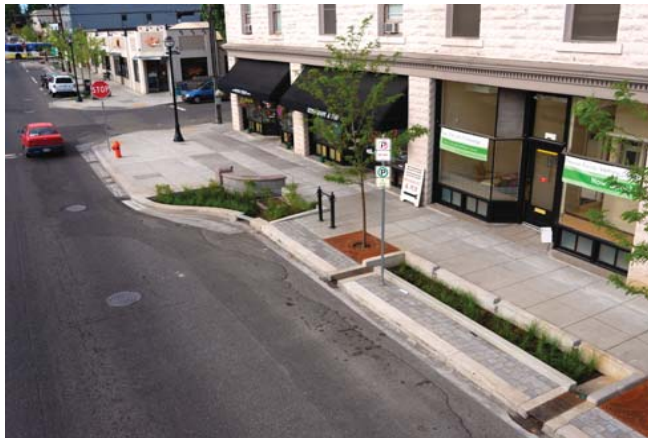


Figure 10 - Incorporating WUSD elements (buffer strips, tree pits and rain gardens) into effective pedestrian area

Buffer Strips

Buffer strips are thin sections of landscaping that capture localised surface flows from smaller catchments.

City of Yarra Water Sensitive Urban Design Guidelines – Factsheets states the following guidelines regarding buffer strips. *' Buffer strips should be set down from the road surface to account for sediment accumulation over time. The set down required is a trade-off between creating scour from runoff and providing sufficient build up space for accumulated sediment. Generally, between 40 and 50 mm set down from the paved surface will be adequate with a pavement surface that is tapered down towards the buffer strip.'*

- Buffers between the parking bays and pavement along Kearns Crescent could incorporate the use of buffer strips.

Pervious and Porous Pavements

Pervious pavements are pavements that allow the seepage of stormwater runoff at the surface, and through the pavement median. These systems lower the coefficient of runoff in an area. The more pervious the pavement, the less runoff is generated, which reduces the size of drainage conveyance infrastructure, and more importantly, the conveyance of stormwater runoff into downstream natural environments. They also allow for localized infiltration which provides the added benefit of recharging the local groundwater.

- Existing wide pavement along Kearns Crescent, Riseley Street and Canning Hwy provide good opportunity for upgrade into pervious and porous pavement.
- Portions of Canning Hwy median that are paved can be transformed into pervious and porous pavement.

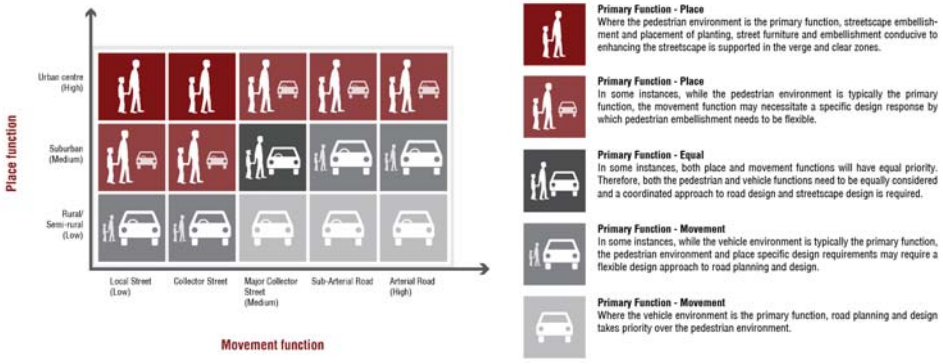
Streetscape Design Guidelines

Streetscapes are an important part of any urban area and are vital in activity cores and centres as they provide a physical frame for the communication of the intended urban design. Streetscapes shape and stimulate the mental images generated of a place for all users and the shape the way users, (pedestrians, cyclists and motorists) interact with the space. Attractive and memorable streetscapes encourage contact, enhance the pride and well-being of residents and users and they can create continued real estate value. Great streetscapes act as social catalysts and provide sound grounds for building strong communities with solid senses of their identity. Well designed and maintained streetscapes open opportunities for developing sustainable local economies. Safe and attractive urban spaces have strong positive impacts on retail and hospitality services by providing opportunities to integrate land-uses with the streetscape.

Place and Movement

Streetscapes are inherently shared spaces with a myriad of roles and requirements that must be catered for simultaneously. However, two main roles of streetscapes are the provision for safe means of transportation and the creation of a sense of place that will act as a social catalyst. Frequently these two roles are considered to be at odds with each other, particularly when viewed in isolation, however we believe they are not mutually exclusive when considered together and in the context of urban design.

The Place/Movement matrix is utilised to describe priorities which the road reservation needs to accommodate to service its primary function – safe means of transportation. Streets with higher "place" function will give higher priority to pedestrians over vehicles. This should be reflected in the surrounding land uses, the intended vehicular operating speeds, the pavement treatments, the choice of urban furniture and greenery. The goal is to create safe, navigable spaces that will attract and retain the attention of pedestrians. Streets with higher movement functions have emphasis on the efficiency of motorised movement over pedestrian comfort. The needs of pedestrians are viewed through the prism of safety and accessibility, rather than ambience. However even in these locations the choice of streetscape design should assist in evening the balance between motor vehicle movement and create some level of amenity for pedestrians.



Streetscape Design Principles

Streets and thoroughfares within the Riseley Street Activity Centre can be organised into three main groups based on the general character:

- **Tier 1 -** activity core area (encompassing Kearns Crescent, Riseley Street, Simpson Street and all inter-block laneways in this area).
- **Tier 2 –** secondary activity area (encompassing Simpson Street south of the intersection with Canning Highway, Canning Highway between the intersections with Wilcock Street, Wilcock Street, and portions of Simpson Street north of Canning Highway, Fletcher Street, Tain Street, MacLeod Road and Conon Road that are contained within the Canning Corridor precinct and all inter-block laneways in this area)
- **Tier 3 –** predominantly residential area (the reminder of the streets and thoroughfares within the Activity Centre)

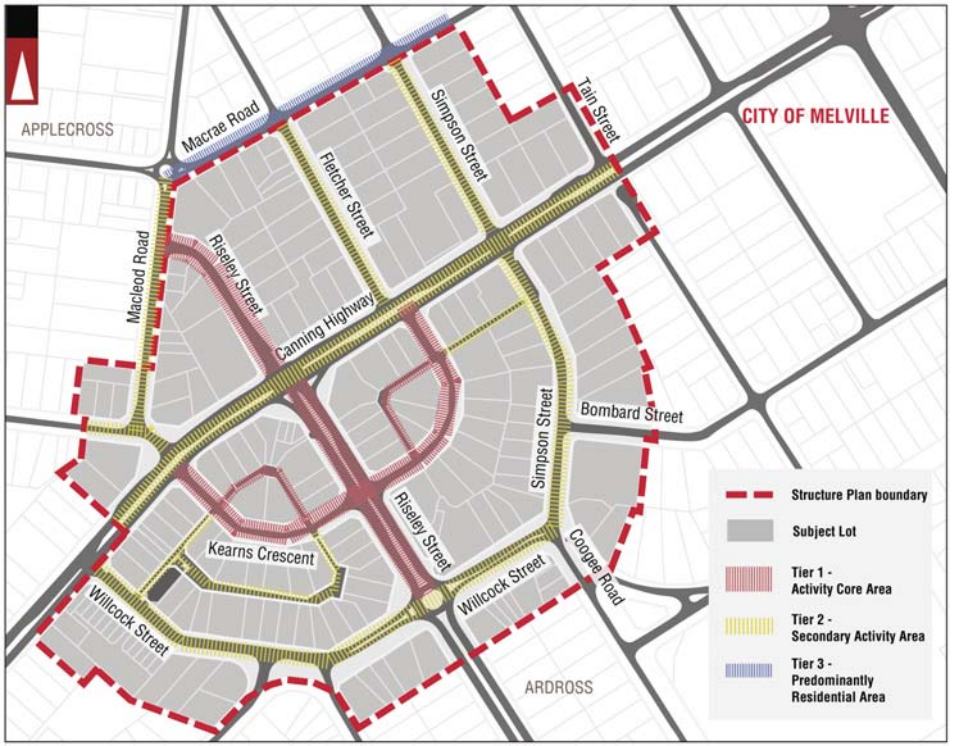


Figure 11 - Streetscapes Amenity

Tier 1 streetscapes must facilitate high levels of pedestrian traffic and activity utilising the streetscape regardless of the street function. The methods of facilitation will differ from Canning Highway to Kearns Crescent, however the goal in both environments is the same – enhancing the streetscape experience for pedestrians and providing place-making opportunities that become part of the fabric of the Riseley Street Activity Centre.

Tier 2 streetscapes will provide a balanced approach to cater for the requirements of pedestrians and vehicles. The level of activation is lower than in streetscapes belonging to Tier 1, however the design of the streetscape should allow for the occasional increase in activity (market stalls, pop up stands etc.) during events and place-making.

Tier 3 streetscapes will predominantly cater for the requirements of local residential use. Activation of streetscapes should be at a lowest level; however street furniture and pedestrian / cyclist connectivity to the Activity Centre Core are the key components.

While details of streetscape elements are provided in the appendix of this document, following principles should be considered when designing streetscapes:

Size

The size of the streetscapes should generally correspond to their relative position in the place/movement matrix. Movement oriented streets require greater levels of separation of the respective traffic modes primarily due to safety aspects, particularly when the operating speeds of vehicles are higher. Place orientated streetscapes tend to work better if there are higher densities of various activities, therefore while the comfort of each participant is of great importance – bigger is not necessarily better. Naturally, streets need to be dimensioned to accommodate appropriate urban furniture and function "spill" onto the pedestrian realm (alfresco areas, pop up stands etc).

Figure 12 - Permanent activation of the street frontage

Permanent activation of the street frontage can be achieved in a number of ways where alfresco areas are the most common in recent practice. However, activation can be achieved though bringing service to the pedestrian zone as illustrated above. This is particularly suitable for constrained spaces where activation is a desirable outcome.

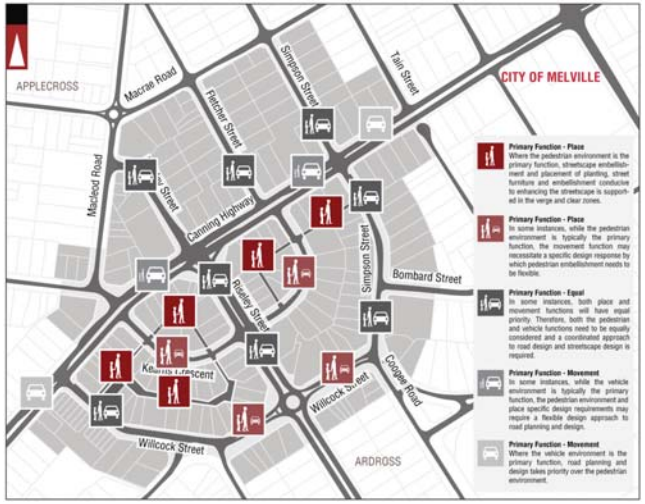


Figure 13 - Place-Movement Map

Activation

Activated streetscapes are a cornerstone in the establishment of the local economy within activity centres as they encourage participants' activity. Streetscapes can be activated in a number of ways through permanent and temporary land uses. Active frontages provided by boutique retail (shops, café / restaurants, other hospitality services) set the basis of the local economy from where temporary uses can build upon. Events such as local markets / fairs, pop up stands, street food vendors enhance the streetscape activation and engagement of participants. These can be well received in areas with less surveillance, i.e. in front of offices, areas without retail / hospitality etc. Attractive and appropriate street furniture, lighting, vegetation and art significantly contribute to street activation as they help establish a positive identity and a sense of place. The level of activation should correspond to the surrounding use – lower levels of activation are required for precincts with high residential function, with the key streetscape function reverting to promoting alternative transportation modal share.

Safety

For participants in the activity centre to feel at ease they must perceive the environment as safe first. In streetscape context, feelings of safety can be looked at on two levels – the basic requirement is to feel safe from crime and aggression, with the second requirement being based on road safety. Road safety can be provided for through careful consideration of requirements for various traffic modes – separation of traffic modes where applicable, safe sight and stopping distances, speed limits appropriate for place /movement quality of the area and the application of appropriate traffic management methods.

Safety from crime and aggression can be enhanced through application some of Design Out Crime (DOC) principles. Additional to road safety, careful transport planning assists in removing the opportunity for crime in urban landscapes. This will be carried out through the strategic location of pedestrian and cycling facilities adjacent to land uses to increase the passive surveillance of the area. The provision of large amounts of parking facilities in one area will be avoided to eliminate opportunity for crime related activities in these areas. Urban design and planning measures also decrease opportunity for crime and increase safety. Appropriate land use and streetscape activation discussed above greatly contributes to passive surveillance. Appropriate mix of compatible land uses will result in consistent flux of people and eyes on the street throughout all times of the day. This will further reinforce the feeling of safety and prolong active hours on the street. Appropriate urban design is a key, lighting and ensuring good views and sight lines are important in relation to general safety as well as road safety. Lighting is a strong consideration in these locations, with lighting mixes needed to adequately light areas which have strong vegetation and shade components.

Figure 14 - Consistent street furniture in combination with WUSD elements strongly contributes to visual amenity and identity of the place

Figure 15 - Relatively simple street furniture elements with a splash of bright colour contribute to overall visual amenity

Figure 16 - Combination of seating arrangements and WUSD elements requiring low level of maintenance.

Figure 17 - Dual use street furniture can function quite well in dense built out areas.

Figure 18 - Visual marker

Figure 19 - Art in urban space - outstanding result can be achieved in simple means

Vegetation and Shade

Shaded streetscapes are generally more comfortable and attractive to the community than unshaded streets. While the mature canopy of a shade tree or a vine-covered pergola provides excellent spaces for participants to come together and interact, medium to small shrubs and plants soften paved/ asphalted urban areas. Further to this vegetation helps reduce the effect of urban heat emissions.

While vegetation could be used to create intimate spaces within the streetscape, it should generally follow Design Out Crime principles and avoid obstruction of sight lines and lighting design around these interventions is a key consideration.

Street Furniture

Street furniture aids activity facilitation. Seating should be plentiful at transport nodes and core activity areas. Seating should be incorporated into overall urban design where other elements of streetscape such as retaining walls can be designed to include seating. Further to this, bins, drinking fountains, bollards, shelters, bike racks, tree grates and other elements should be considered in the same context. While their primary function is to satisfy basic requirements of street users, they can be used for defining the identity of the place. Street furniture should follow a consistent theme. Further if elements can be utilised for multiple purposes (i.e. a retaining wall with seating function) this allows the provision of high quality streetscapes in smaller areas.

Signage

While creation of visual markers that will shape a mental map of area is imperative, signage is a significant aid in navigating the streetscape. Signage and way-finding strategies should be incorporated in the overall urban design strategy and should consider various types of signs, their function and their appearance within the streetscape. Signage may include directional and transit signs, informational / way-finding signs, street signs, neighbourhood signs, interpretive signs and advertising signage. Although imperative, the provision of signage will be kept to a minimum within the precinct. This will allow other forms of way finding and visual clues to be utilised as signage while maximising the streetscapes through reducing visual clutter, allowing the space to be used

Figure 20 - Indicative map of strategic artwork and parklet locations

for alternative uses and enhancing sense of place and local identity.

Art

Art has a profound impact on the creation of a local identity in urban nodes and streets with a high 'place function'. The space is activated through engagement of users' senses as they experience colour, texture, light, shade and patterning. This is an excellent platform for engagement of local artists and an opportunity for them to leave a mark in their own community. Art in urban spaces have to satisfy basic safety requirements and is generally most economically viable when combined with street furniture and signage, however this is dependent on the aspirational goal of the artwork and its function in the streetscape. Art pieces, especially repeating or linear pieces act as signage material as they create aesthetically pleasing wayfinding throughout urban spaces without the visual clutter of large amounts of signage.

Streetscape Elements

Carriageway

The carriageway needs to be dimensioned appropriately to cater safely for all intended modes of transport. The absolute minimum width of traffic lane on streets carrying public transport needs to be 3.2m to satisfy Public Transport Authority requirements, with a push for preferred widths to 3.5 metres. Structure Plan area should not have lanes narrower than 3.0m where two-way traffic is permitted or 4.5m where one way traffic is permitted, excluding laneways.

The carriageway should cater for cycling transport as well in Tier 1 and Tier 2 streetscapes either through the provision of cycling lanes or cycling appropriate paving.

The carriageway in Tier 1 streetscapes should be dimensioned so that it contributes to visual side friction ensuring that operating speed is appropriate for high levels of streetscape activity.

Pedestrian Zone

The pedestrian zone in Tier 1 streetscapes can be viewed as the remainder of the road reservation that doesn't cater for vehicles. In accordance with the Place/Movement matrix the primary function of this Tier is place which is enhanced by pedestrian activity. The pedestrian zone caters for positioning of vegetation and street trees, alfresco areas, pop-up areas, artworks, street furniture and the flow of pedestrian traffic.

Figure 21 - High activity pedestrian zones must feature seating areas that can effectively incorporate WUSD elements

Figure 22 - High activity pedestrian zones can feature "charge-your-device" pop up areas

The pedestrian zone in Tier 2 should be separated from the zone of vehicles through the use of landscaping strips (pedestrian areas are positioned adjacent to the lot boundary). In accordance with the Place/Movement matrix the main function on Tier 2 primarily serves as a pedestrian environment. However, this zone recognises that the movement function of other forms of transportation is still necessary and forms an important part of the urban fabric. The pedestrian zone in Tier 2 is flexible and functions cohesively with alternative modes of transportation.

The pedestrian zone in Tier 3 streetscapes should cater for alternative modes of transport such as cycling. In accordance with the Place/Movement matrix the main function of Tier 3 is a space inclusive to other modes of transportation as the level of pedestrian movement is relatively low. Pedestrian paths should be either aligned to the kerb side (with 0.5m paved offset from the kerb) or to the lot boundary.

Vegetation

Vegetation should be plentiful in pedestrian zones. Provision of visually soft edges should be balanced with appropriate sight distances and Design Out Crime principles. Appropriate species requiring lower levels of maintenance should have preferential treatment, particularly in WSUD treatment trains (linear and nodal treatments).

Appendix of this document provides guidance on vegetation species (trees, bushes and shrubs) that are to be considered in RSAC area.

Parking

Perpendicular on-street parking should be avoided as it usurps a significant amount of space within the road reservation and is generally the least safe on-street parking option where expected vehicular volumes go above 1,000 vehicles per day.

Parallel parking is provided on almost all gazetted streets. A line of formalised parallel parking should be broken down with nibs (preferably housing appropriate vegetation) in order to avoid less than optimal urban design outcomes. No more than 4 consecutive parking bays should be provided without visual relief in the streetscape.

Stormwater Management Systems

Given the proximity of the river and the terrain of the subject area, the efficient management of stormwater is of very high importance. Water Sensitive Urban Design principles should be implemented where possible to achieve sustainable water management systems and desirable urban design outcomes. While the initial cost of maintenance might be slightly higher when compared to traditional stormwater management methods, sustainable principles will provide long term benefits to both stormwater quality outputs to the Swan River and will provide aesthetic benefits as part of the overall place-making within the Riseley Street Activity Centre.

Street lights

Canning Highway is under the jurisdiction of Main Roads Western Australia (MRWA), therefore all lighting within the road reservation must conform to strict MRWA requirements. At present, street lighting is located centrally in the median. While this provides an optimum level of lighting for vehicular traffic, the pedestrian zone appears to be reliant on private lighting (commercial and residential premises abutting the road reservation) and spill from the median lighting. In order to create attractive pedestrian zones along this corridor, pedestrian lighting needs to be upgraded.

Internal roads are generally well lit however appropriate lighting objects should be well suited to create ambience and should follow a common theme with street furniture. The provision of lighting should also consider the provision of street trees – bollard lighting should be used, or even in pavement lighting to create mood, effect and improved spill under areas featuring vegetation over 1.2 metres in height.

Festoon lighting and canopy lighting are attractive lighting solutions that create a feeling of comfort and safety and could be implemented into multiple locations within the Riseley Street Activity Centre – particularly along Kearns Crescent nearby the restaurants. These types of lighting would assist in creating a warm and inviting atmosphere within the precinct, whilst also providing aesthetical value to the centre.

Figure 23 - Intimate yet safe atmosphere achieved with street lighting

A)

B)

C)

Figure 24 - Images a, b and c demonstrate various ways how street lighting may be incorperated into the built form (canopy lighting and festoon lighting).

Figure 25 - Laneway mood lighting - LED tubes

Figure 26 - Street lighting attached to street furniture. Attaching lighting directly onto the built form is a

Figure 27 - Combination of canopy lighting and festoon lighting for a maximum effect.

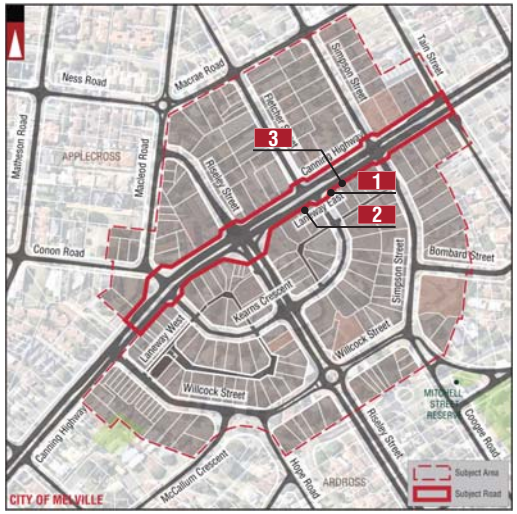
Canning Highway

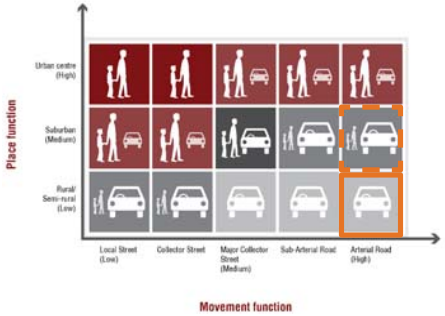
(between the intersection with Willcock Street and Simpson Street)

Current Configuration

Canning Highway is a 17 kilometre arterial road in Perth, linking the inner Perth suburb of Victoria Park in the north-east with the port city of Fremantle in the south-west.

Number of Lanes	2 (two) way 4 (four) lane
Central median	YES (5.5m)
Road Reservation Width	30m
Road Pavement Width	7m+7m
Classification	Urban Highway/ Primary Distributor
Speed Limit	60kph
Bus Route	111, 114, 115, 148, 158, 910
On-street parking	NO
Current traffic count	~ 41,000 vehicles per day





Canning Highway at present has low place function and low level of pedestrian amenity.

Although business interfacing Canning Highway have very good exposure to passing traffic, businesses often face away from it.

Road reservation is fairly large and is not easily crossed by pedestrians firstly due to strong traffic volumes. Pram ramps at present are steep and hard to navigate for people with impaired mobility or parents with prams.

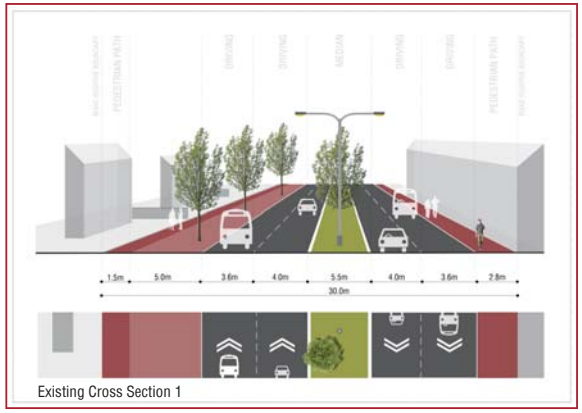
Canning Highway is a major arterial road that currently carries roughly 41,000 vehicles per day through Riseley Street Activity Centre. Such volume of traffic undeniably divides the Centre area into two almost independent parts.

At present, Canning Highway can not be described as a pedestrian friendly environment as most of commercial uses are not accessible from Canning Highway. Relatively narrow pedestrian paths and proximity of strong vehicular flow does not make stroll down Canning Highway very enjoyable. Lack of street furniture sends subliminal message that pedestrians are not meant to dwell in this are.

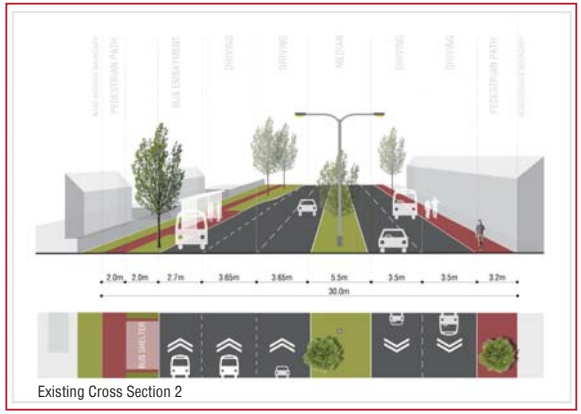
Water Sensitive Urban Design Opportunities

Existing median on Canning Highway is 5.5m wide and is to be retained in all known proposals for upgrade of Canning Highway corridor.

The width of the median can be well used to implement Water Sensitive Urban Design principles without compromising safety of the traffic. Drainage elements can be incorporated in raingardens with water wise planting (which is to be maintained appropriately to ensure safe sight distances).



Existing Cross Section 1



Existing Cross Section 2

There are several bus lines on Canning Highway that provide connectivity to various areas of Perth metro area. At present buses and cars share the existing lanes.

There are no designated cycling facilities at present.

A number of properties interfacing Canning Highway still have vehicular direct access / egress from the corridor which disrupts pedestrian flows further.

Place / Movement function

Given that Canning Highway is expected to carry over 40,000 vehicles per day in future movement function can not be reduced. However due to nature of the precinct it is essential that place function is improved.

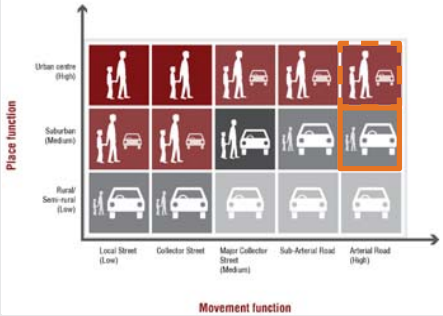
Commercial component will be intensified and oriented towards Canning Highway. In order to create sustainable environment, enhancement of the pedestrian amenity along this corridor is essential.

Canning Highway is under jurisdiction of Main Roads Western Australia (MRWA), therefore the final design for upgrade of the corridor must be endorsed by MRWA. Draft design drawings that are available at the time of writing of this report show proposed bus only lanes and cycling lanes on Canning Highway.

We believe that better safety outcome would be provision of wider verges and shared paths as the number of conflicting movements between buses and cyclist is drastically reduced.

PROPOSED MODIFICATION

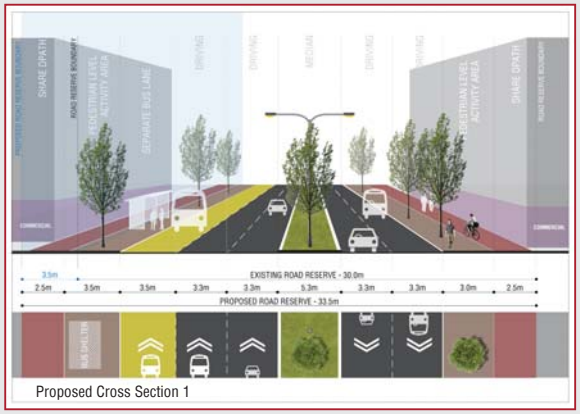
Canning Highway



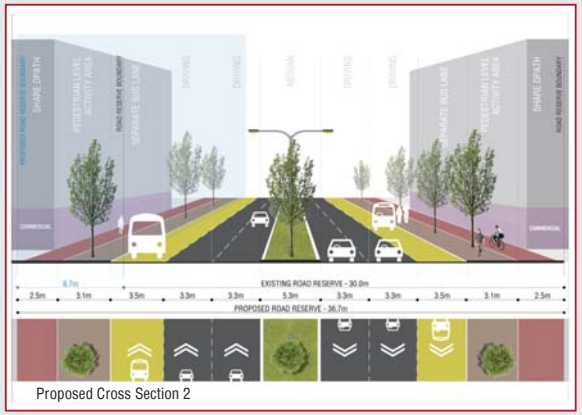
Place / Movement function

Canning Highway requires high movement given the significance of the road, however enhancement of place function will be crucial for longevity of the area.

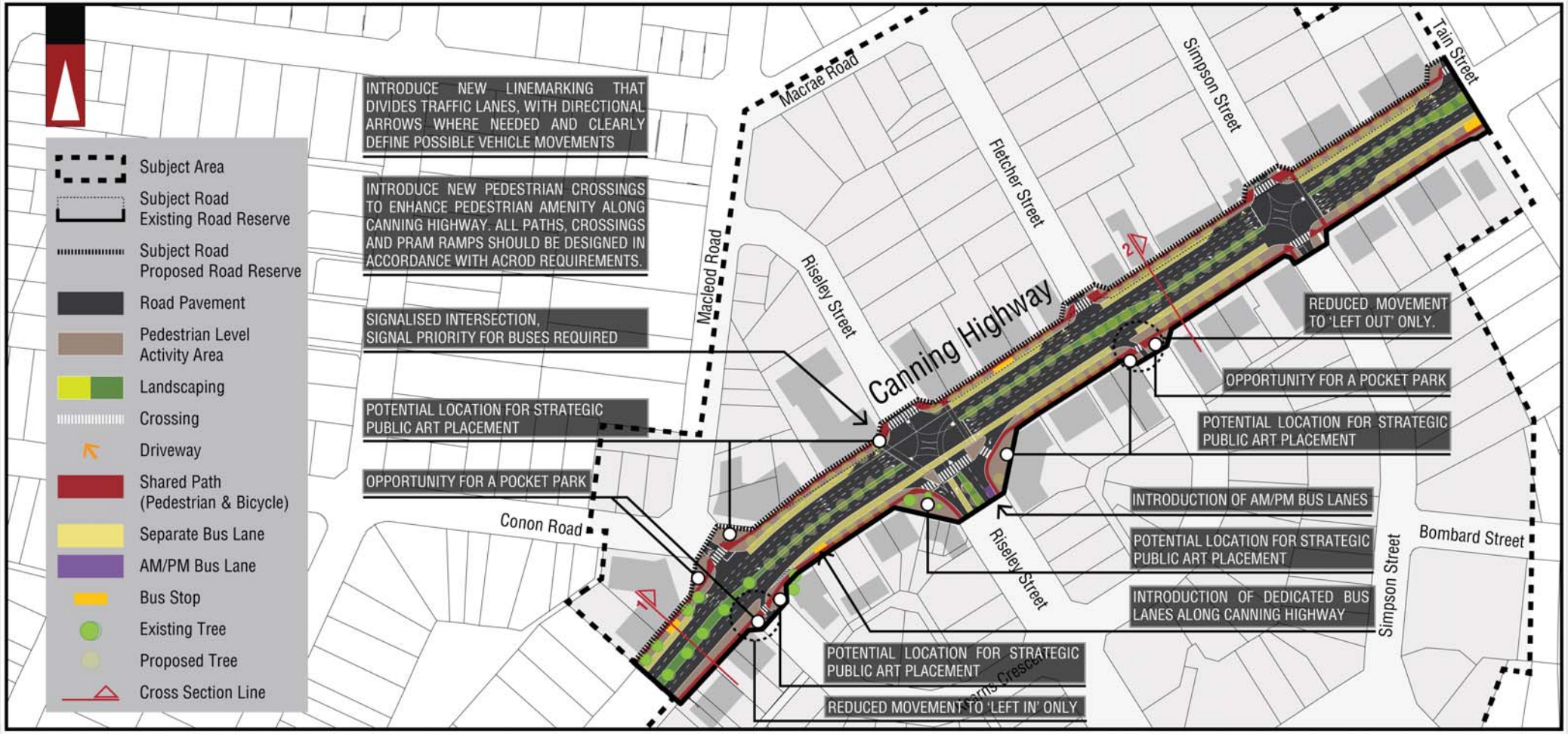
Enhancement of the place function will enhance pedestrian amenity along Canning Highway, and invite them further into the precinct.



Proposed Cross Section 1



Proposed Cross Section 2

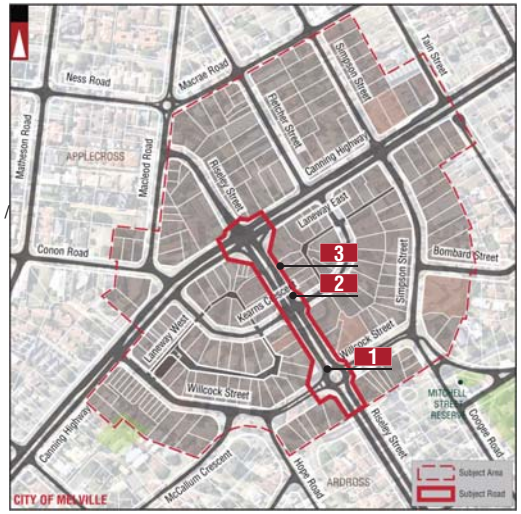


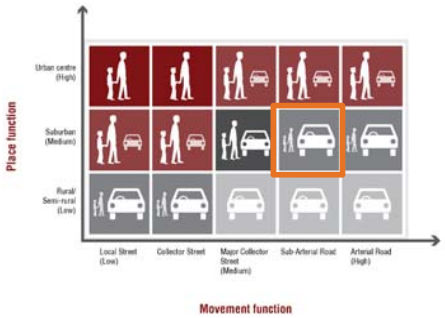
Riseley Street (South)

(between the intersection with Canning Highway and Willcock Street)

Current Configuration

Number of Lanes	2 (two) way 4 (four) lanes
Central median	YES (1.5 to 8.8m)
Road Reservation Width	30m
Road Pavement Width	7m+7m
Classification	Significant Urban Local Road / Distributor A
Speed Limit	60kph
Bus Route	114, 115
On-street parking	YES
Current traffic count	~13,000 vpd





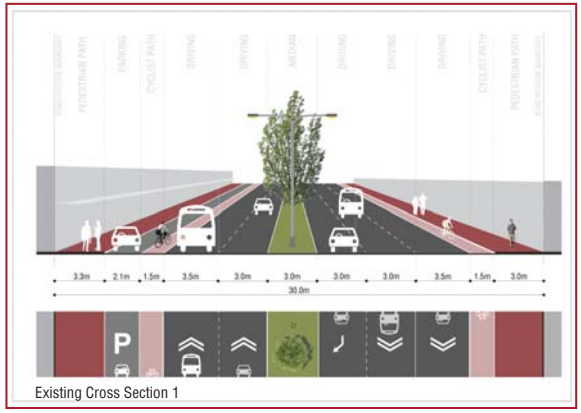
Place / Movement function

Riseley Street in this area requires high movement function. High intensity of activity in pedestrian zone will inevitably increase pedestrian traffic.

While significance of Riseley Street for vehicular traffic cannot be disputed, this corridor is also an important part of pedestrian experience of Riseley Street Activity Centre.

Water Sensitive Urban Design Opportunities

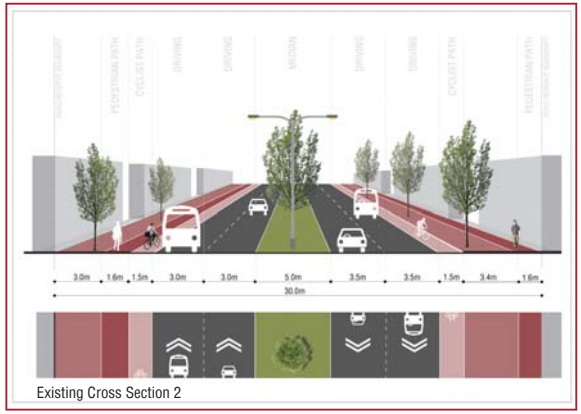
High density and limited amount of available space within the road reservation narrow the spectrum of WUSD opportunities to nodal systems.Tree pits appear to be the most suitable WUSD element for pedestrian area with strong level of activity.



Existing Cross Section 1

Riseley Street can be divided into three distinctive zones based on the street profile. While north from the intersection with Canning Highway road reservation is narrower, land use is less intense when compared to the southern portion of Riseley Street.

At present, Riseley Street has a boulevard character south from the intersection with Canning Highway. Given it is a Distributor road, high traffic volumes create strong separation between eastern and western side of Riseley Street.



Existing Cross Section 2

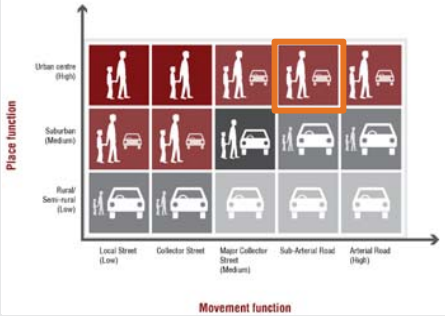
STREETSCAPE ELEMENTS

Carriageway

Lanes are proposed to be 3.3m wide. Introduction of AM/ PM bus priority lane that can work as parking area outside of peak hours is proposed (similar to Beaufort Street - City of Vincent / City of Stirling). Introduced bike lanes should remain and form coherent cycling network.

PROPOSED MODIFICATION

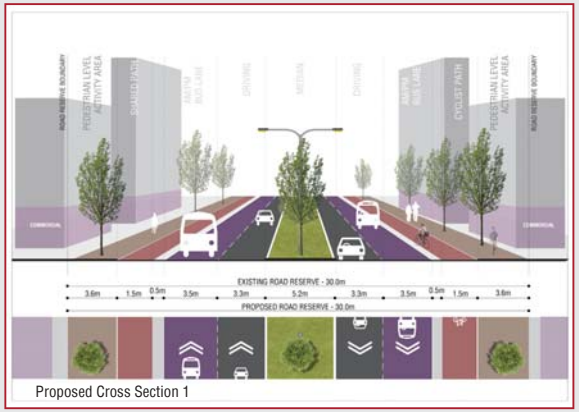
Riseley Street (South)



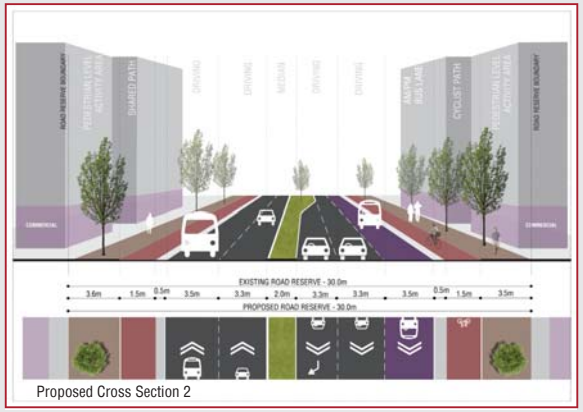
Place / Movement function

Riseley Street in this area requires high movement function. High intensity of activity in pedestrian zone will inevitably increase pedestrian traffic.

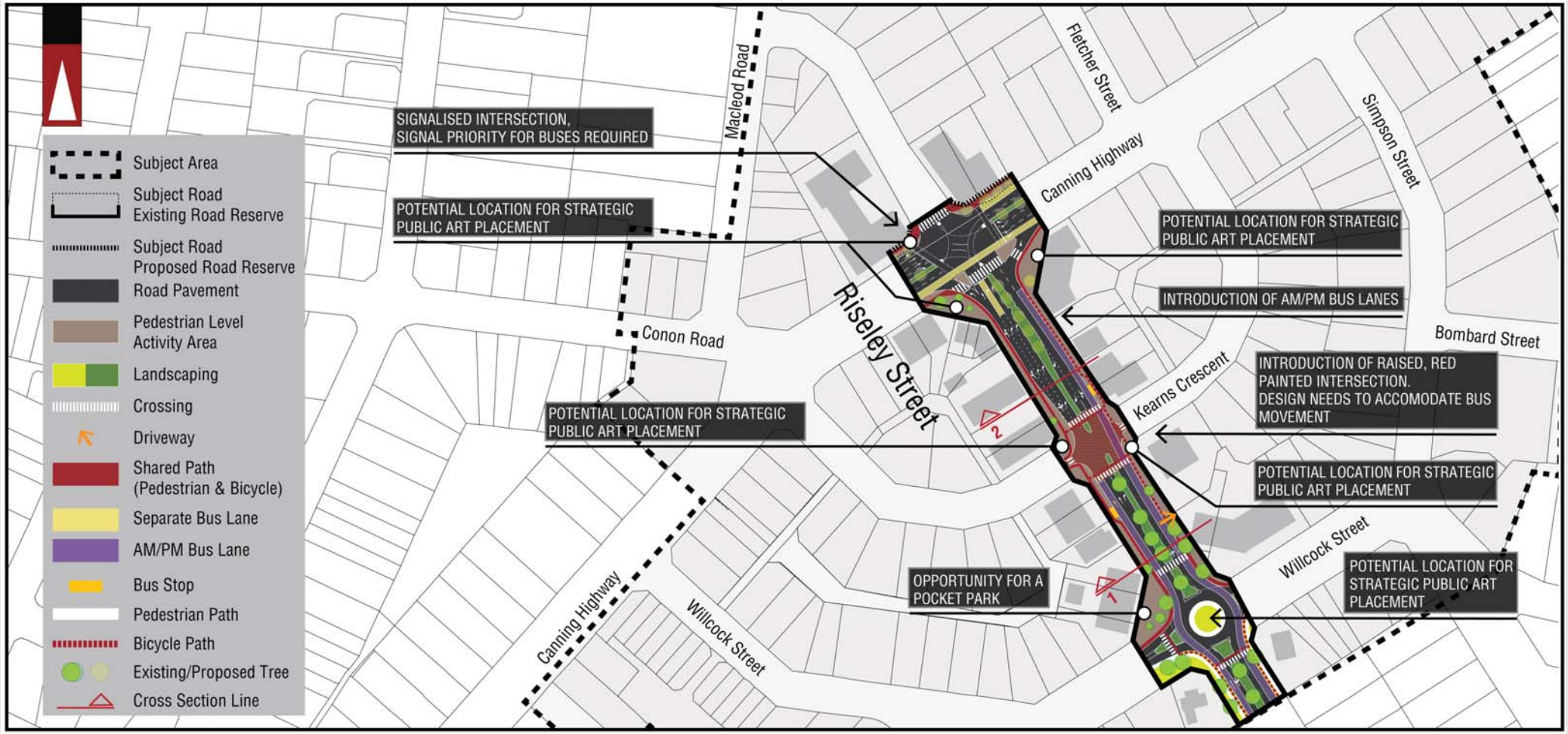
While significance of Riseley Street for vehicular traffic cannot be disputed, this corridor is also an important part of pedestrian experience of Riseley Street Activity Centre.



Proposed Cross Section 1



Proposed Cross Section 2

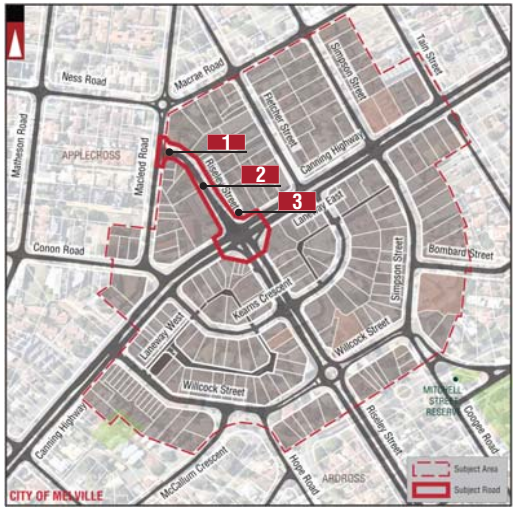


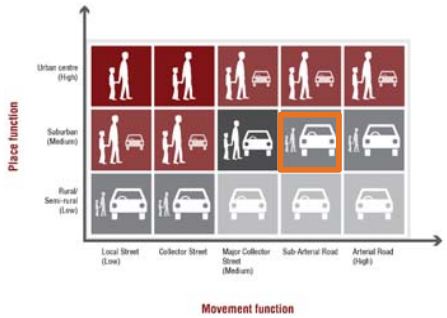
Riseley Street (North)

(between the intersection with Canning Highway and Maclaod Road)

Current Configuration

	North of Canning Hwy
Number of Lanes	2 (two) way 2 (two) lanes
Central median	NO
Road Reservation Width	20m
Road Pavement Width	9m
Classification	Significant Urban Local Road / Local Distributor
Speed Limit	50kph
Bus Route	148, 158
On-street parking	NO
Current traffic count	~ 6,000 vpd





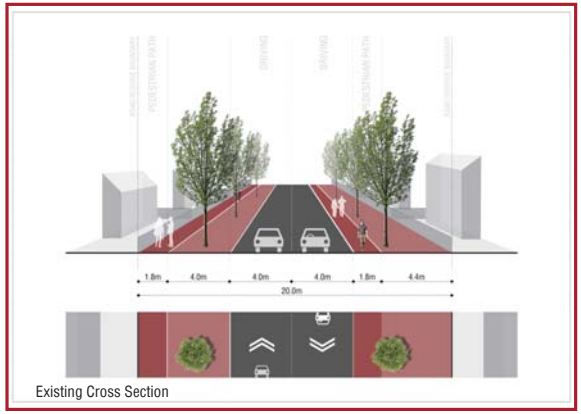
Place / Movement function

Riseley Street north of the intersection with Canning Highway is a Local Distributor - lower order connection when compared to the portion south of the intersection.

Although traffic volumes on this portion of Riseley Street are relatively low, place function is not highly developed.

Water Sensitive Urban Design Opportunities

Minor linear or nodal WUSD elements can be considered.



Existing Cross Section

Riseley Street south of the intersection is a local distributor with undivided carriageway.

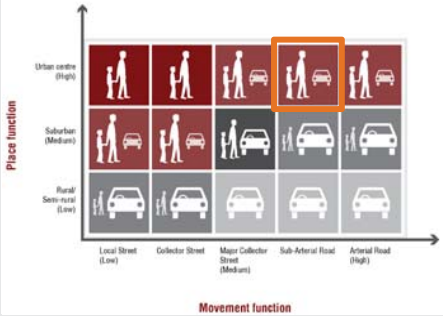
Existing mature trees provide good basis for enhancement of pedestrian zones.

While shade is providing somewhat pleasant atmosphere for pedestrians, lack of street furniture precludes any further pedestrian activity.

In order to create an attractive area for pedestrians and cyclists, some higher quality street furniture is required.

PROPOSED MODIFICATION

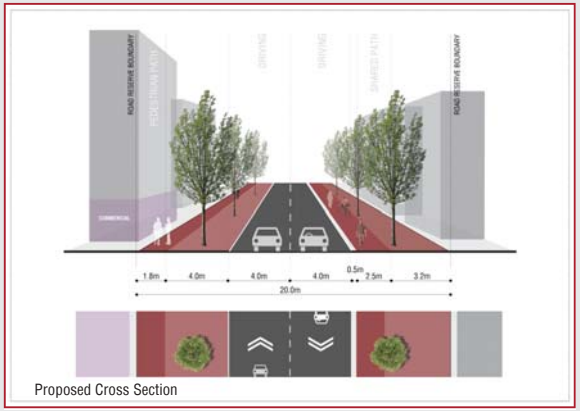
Riseley Street (North)



Place / Movement function

Riseley Street north of the intersection should be developed with enhanced place function, given that movement function is not as dominant as it is in the southern portion of the street.

Mixed use development will generate / attract higher amount of pedestrians therefore pedestrian zones should be safe and attractive.



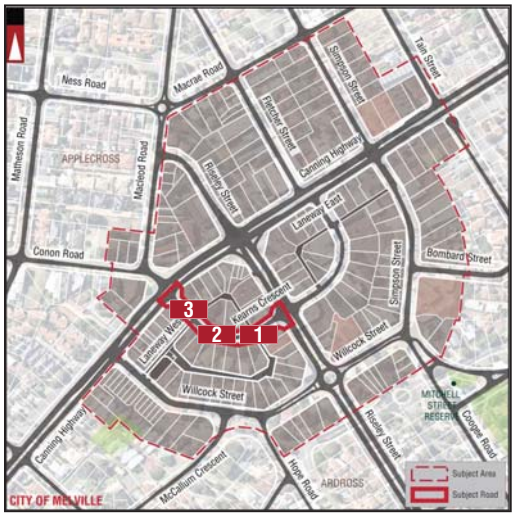
Proposed Cross Section

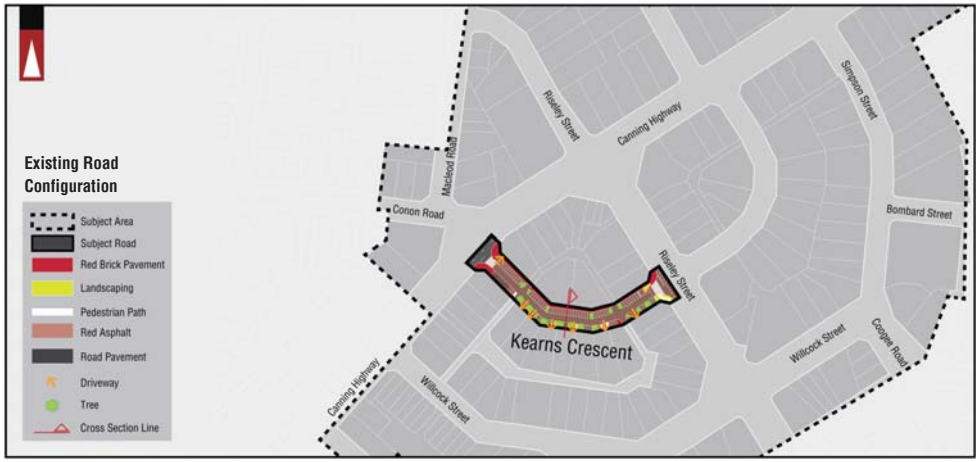
Kearns Crescent (West)

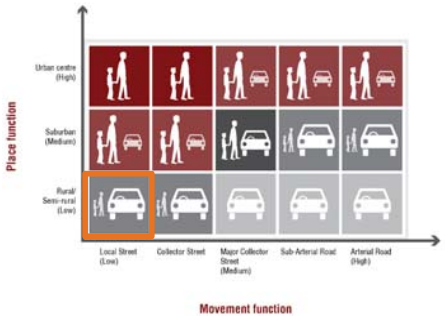
(between the intersections with Riseley Street and Canning Highway)

Current Configuration

Number of Lanes	2 (two) way, 2 (two) lanes
Central median	NO
Road Reservation Width	20m
Road Pavement Width	7m
Classification	Urban local Road / Access Road
Speed Limit	50kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 2,500 vehicles per day





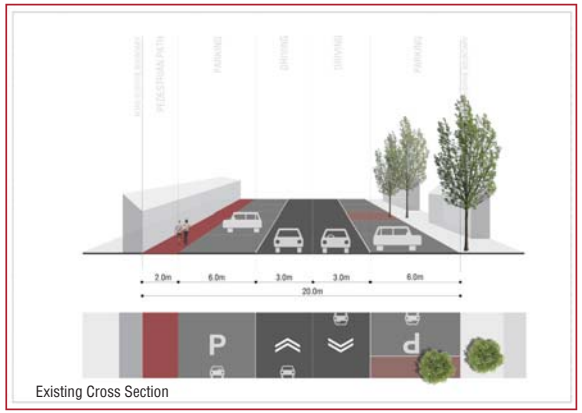


Kearns Crescent is a local street that is carries roughly 2,500 vehicles per day at present.

It is envisaged as core area of activity centre with high place function, however at present the environment is dominated by vehicles (moving and stationary) with limited areas dedicated to pedestrians.

Water Sensitive Urban Design Opportunities

Linear and nodal WUSD elements can be considered in this zone.



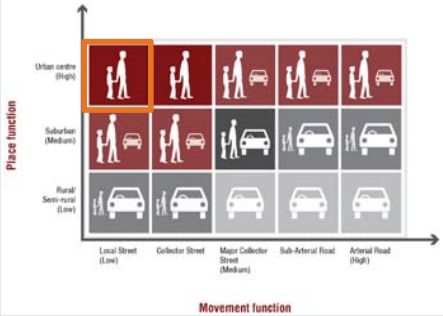
Existing Cross Section

Kearns Crescent West features well developed mature vegetation that is providing some shade and is visually softening the environment.

Perpendicular parking occupies a significant portion of road reservation. It is noted that lack of wheelstops in this portion of Kearns Crescent causes vehicles to park at the very kerb at the expense of designated pedestrian paths.

PROPOSED MODIFICATION

Kearns Crescent (West)



Place / Movement function

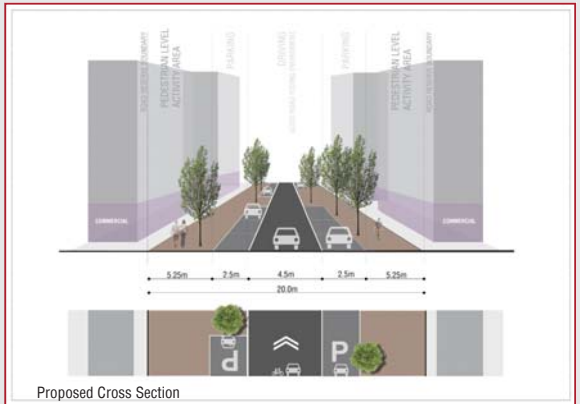
Kearns Crescent is envisaged as a predominantly pedestrian area. This doesn't preclude vehicular access, however it is expected that vehicular movement in this area will be significantly reduced through conversion into one-way street.

The final design of the intersection of Kearns Crescent West and Canning Highway will depend on MRWA's final plans for widening of Canning Highway.

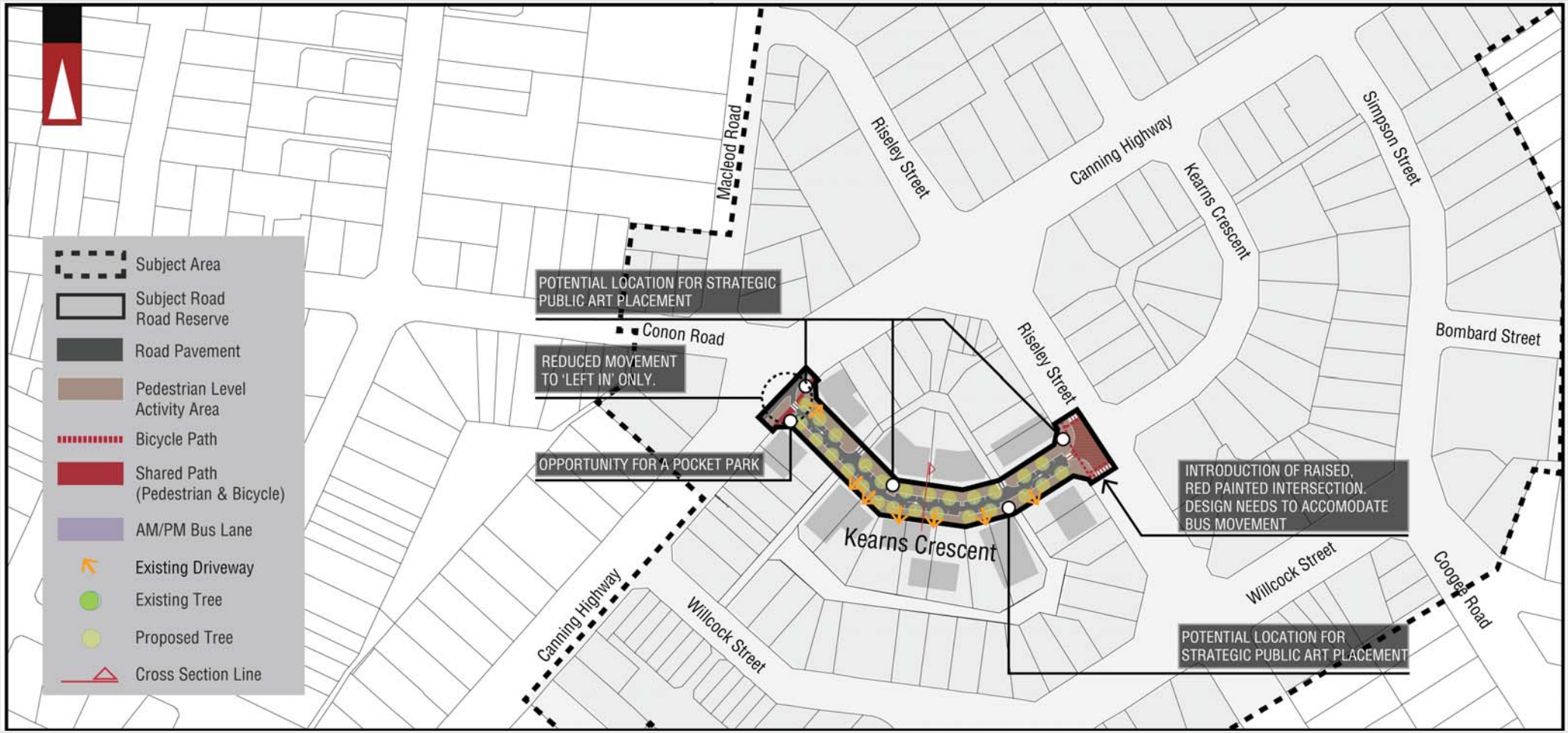
The main focus of redevelopment is on retaining the mature trees, expanding pedestrian and activity areas and re-organising on-street parking.

Parallel parking will create much needed space for expanding alfresco areas and creation of attractive spaces for pedestrians.

Conversion of one-way traffic will allow for safe on-road cycling conditions.



Proposed Cross Section

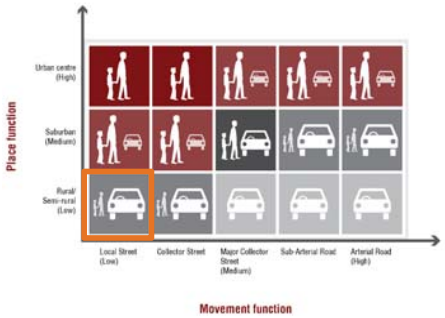


Kearns Crescent (East)

(between the intersections with Riseley Street and Canning Highway)

Current Configuration

Number of Lanes	2 (two) way, 2 (two) lanes
Central median	NO
Road Reservation Width	20m
Road Pavement Width	7m
Classification	Urban local Road / Access Road
Speed Limit	50kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 3,000 vehicles per day

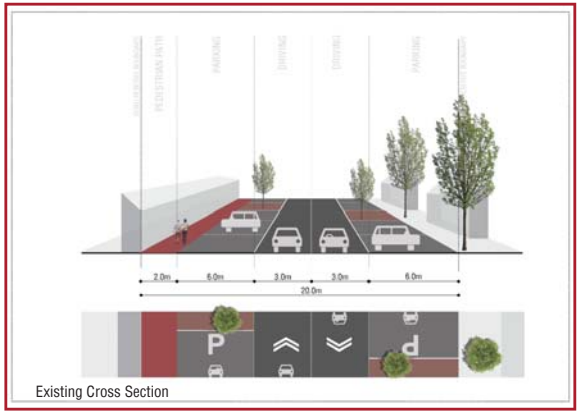


Kearns Crescent is a local street that is carries roughly 2,500 vehicles per day at present.

At present the environment is dominated by vehicles (moving and stationary) with limited areas dedicated to pedestrians.

Water Sensitive Urban Design Opportunities

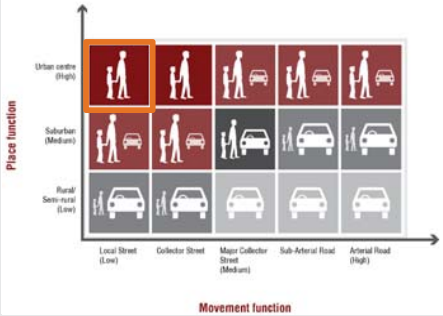
Linear and nodal WUSD elements can be considered in this zone.



Existing Cross Section

PROPOSED MODIFICATION

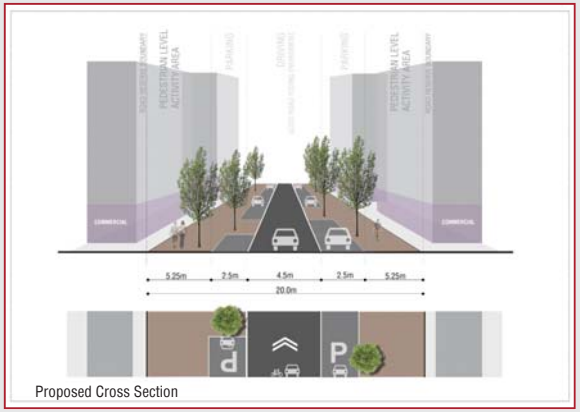
Kearns Crescent (East)



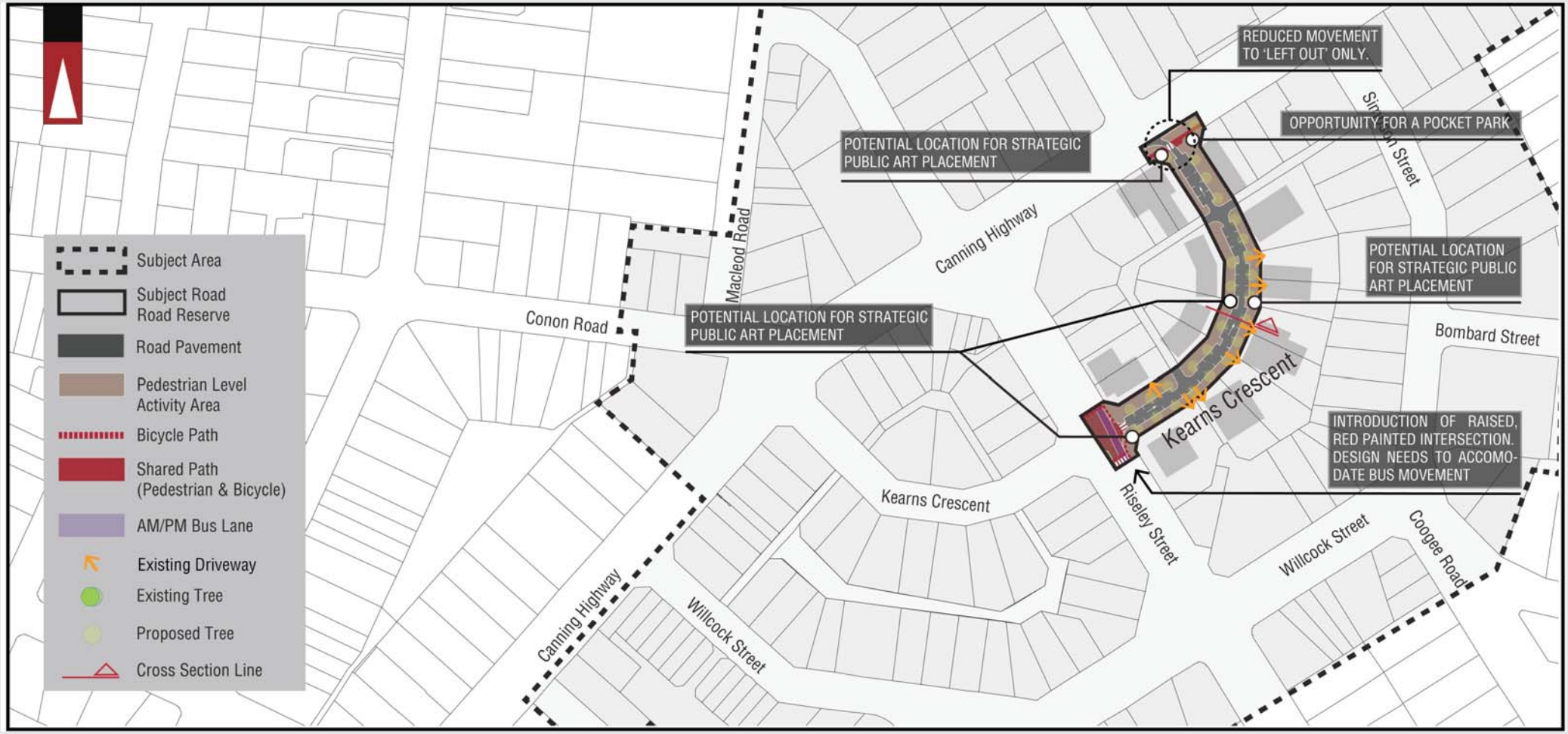
Place / Movement function

Kearns Crescent is envisaged as a predominantly pedestrian area. This doesn't preclude vehicular access, however it is expected that vehicular movement in this area will be significantly reduced through conversion into one-way street.

The final design of the intersection of Kearns Crescent West and Canning Highway will depend on MRWA's final plans for widening of Canning Highway.



Proposed Cross Section

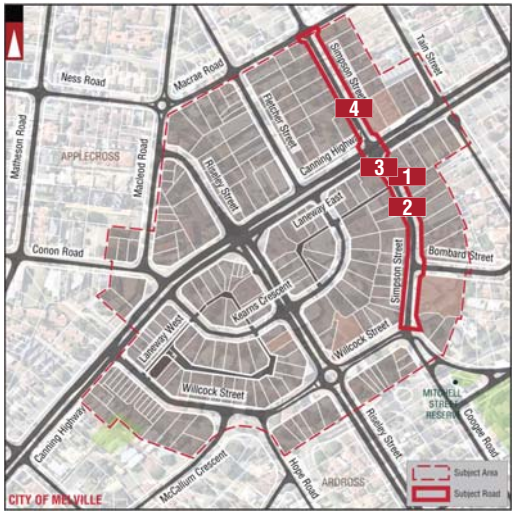


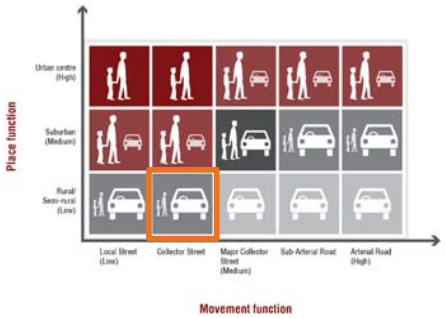
Simpson Street

(between the intersection with Macrae Road and Willcock Street)

Current Configuration

Number of Lanes	2(two) way, 1(one) lane
Central median	NO
Road Reservation Width	20m
Road Pavement Width	7m
Classification	North of intersection with Canning Highway-Urban local Road / Access Road South of intersection with Canning Highway-Significant Urban Local Road / Local Distributor
Speed Limit	50kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 3,000 vpd south from Canning Highway ~ 600 vpd north from Canning Highway





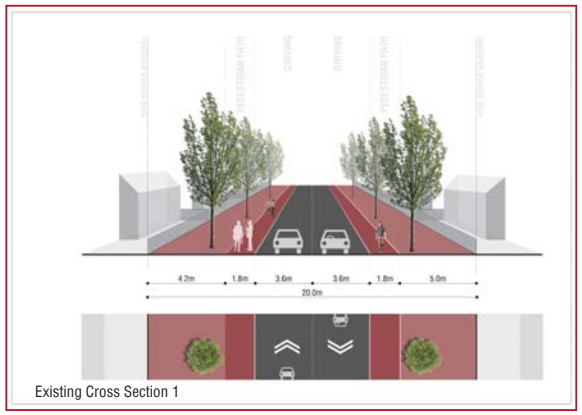
Simpson Street has pedestrian paths and mature vegetation on both sides of the road reservation enhancing pedestrian experience of the street. However the focus remains strongly on vehicular activity in both segments of the street.

Future development should seek to change this predominantly through change of land use that will induce stronger pedestrian activity. Existing pedestrian infrastructure is of a good standard however pedestrians are not motivated to use this street for more than simple connector from point A to point B.

Water Sensitive Urban Design Opportunities

There is opportunity for implementing linear and nodal water sensitive urban design elements along Simpson Street.

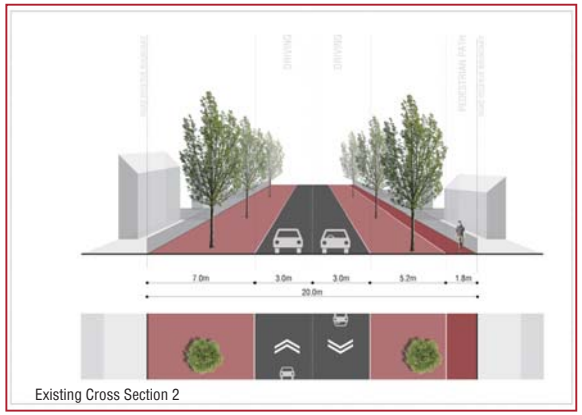
Given the grade of Simpson Street between the intersections with Bombard Street and Canning Highway, linear or nodal WSUD systems can be considered.



Existing Cross Section 1

Simpson Street consists of two distinct sections - north and south of the intersection with Canning Highway. These two sections have distinctive characters as well - the northern section has a function of a local street with less than 1,000 vpd; while the southern section operates as a local distributor / collector street.

Simpson Street south of Canning Highway has general road reservation width of 20 metres, however this is expanded to 21.5m in approach to the intersection with Canning Highway. Formalised parallel parking is provided in vicinity of the intersection with Canning Highway to support commercial use.
Pedestrian paths are provided on both sides of the road reservation and are positioned adjacent to the carriageway.



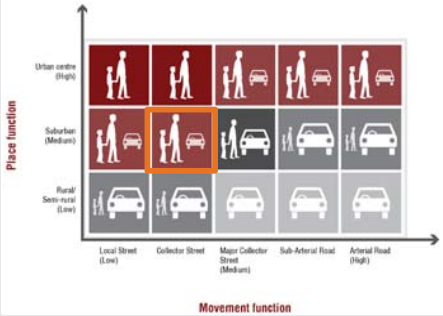
Existing Cross Section 2

Simpson Street north of Canning Highway has wide verges in 20 metre wide road reservation that allow for verge parking, however no formalised parking is provided at present.

Pedestrian path on the eastern side of the road reservation is positioned along road reservation boundary.

PROPOSED MODIFICATION

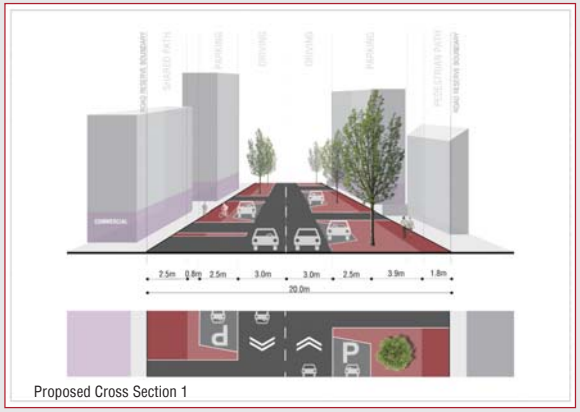
Simpson Street

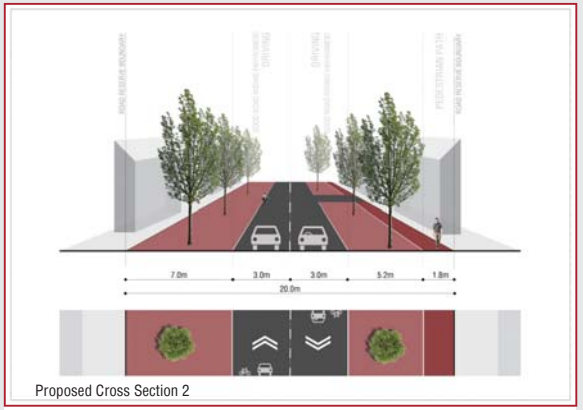


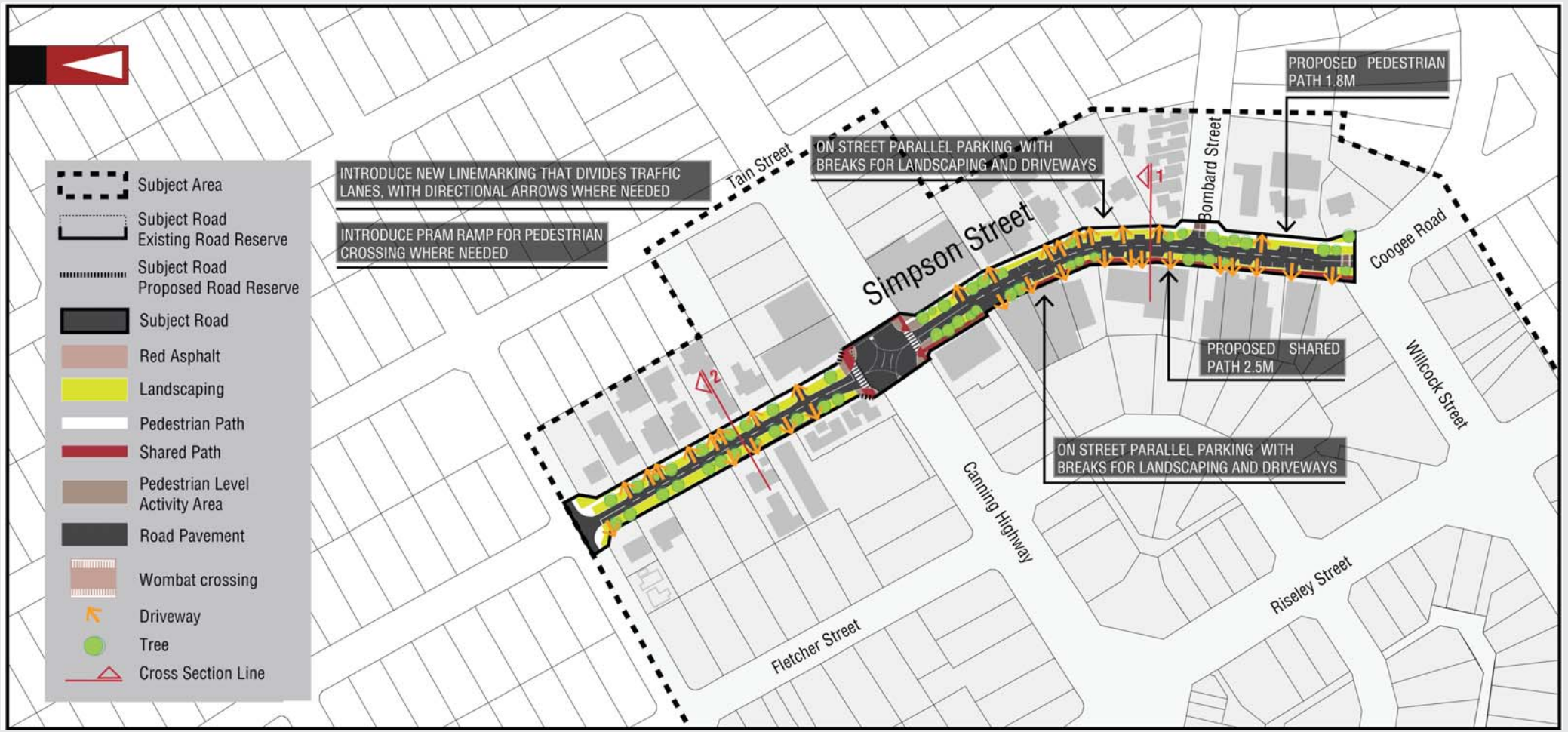
Place / Movement function

Simpson Street south of the intersection with Canning Highway will require stronger place function to facilitate the expected increase in pedestrian traffic.

Appropriate paving, urban furniture and potentially public art will help facilitate this. Landscaping elements can be used to gently delineate pedestrian zone from vehicular zone.


Proposed Cross Section 1


Proposed Cross Section 2

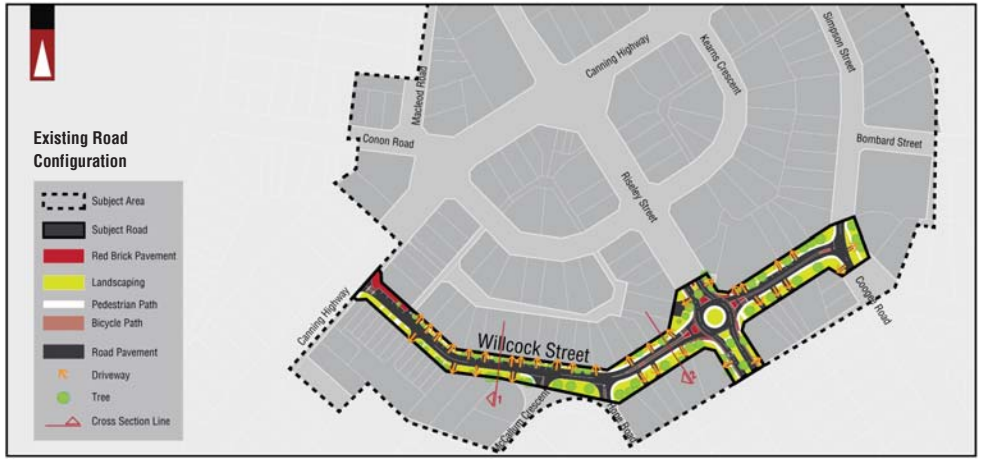


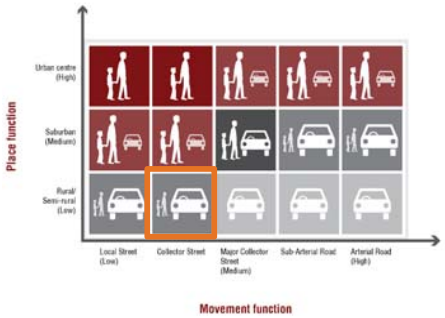
Willcock Street

(between the intersection with Simpson Street and Canning Highway)

Current Configuration

Number of Lanes	2 (two) way, 2 (two) lanes
Central median	Between intersection with Simpson Street and Hope Road
Road Reservation Width	20m
Road Pavement Width	9m
Classification	Urban local Road / Access Road
Speed Limit	50kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 3,000 vpd south from Canning Highway





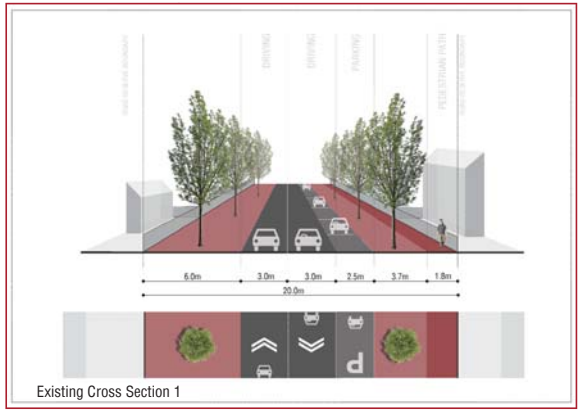
Willcock Street has pedestrian paths on both sides only for a portion of the road. Continuous footpath is currently provided only on the northern side of the road reservation for the entire length of the street.

While there is some commercial use around the perimeter, pedestrian traffic is not stimulated. Streetscape is dominated by vehicles (stationary and moving).

While mature vegetation creates pleasant ambiance for portions of the road, no street furniture is provided.

Water Sensitive Urban Design Opportunities

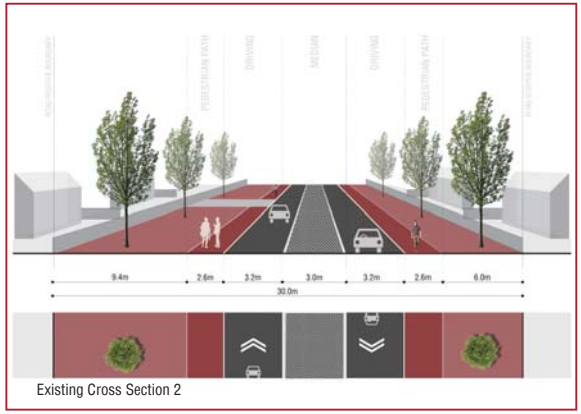
There is opportunity for implementing nodal and linear water sensitive urban design elements along Willcock Street. Willcock Street has a steady change of grade that can be utilised for implementing linear WUSD elements along verges. Roundabout at the intersection with Riseley Street can also be utilised for implementation of WUSD elements.



Existing Cross Section 1

Willcock Street acts as a collector street providing connectivity to Riseley Street and Canning Highway.

Willcock Street has two distinctive sections. Recently upgraded section between the intersections with Simpson Street and Hope Road features central median and wombat crossing which are effective traffic calming tools.



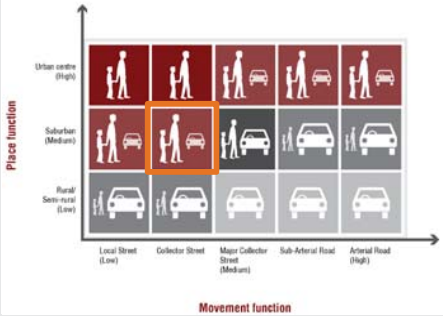
Existing Cross Section 2

Section of Willcock Street between intersections with Hope Street and Canning Highway features undivided carriageway with on-street parking.

Road reservation is narrowed down to 20m.

PROPOSED MODIFICATION

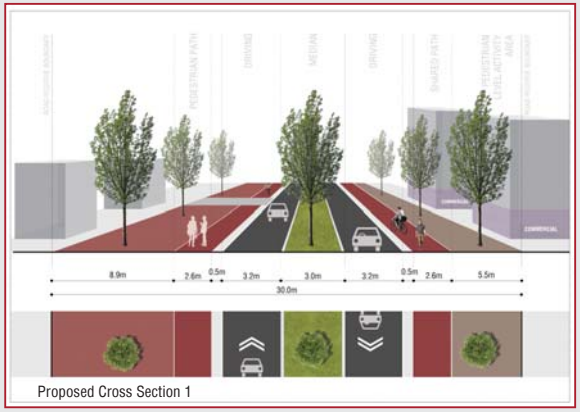
Willcock Street

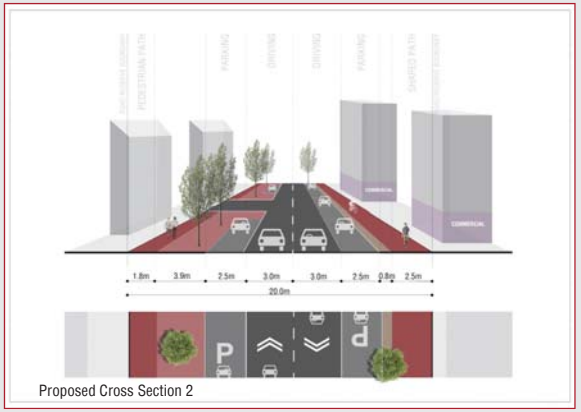


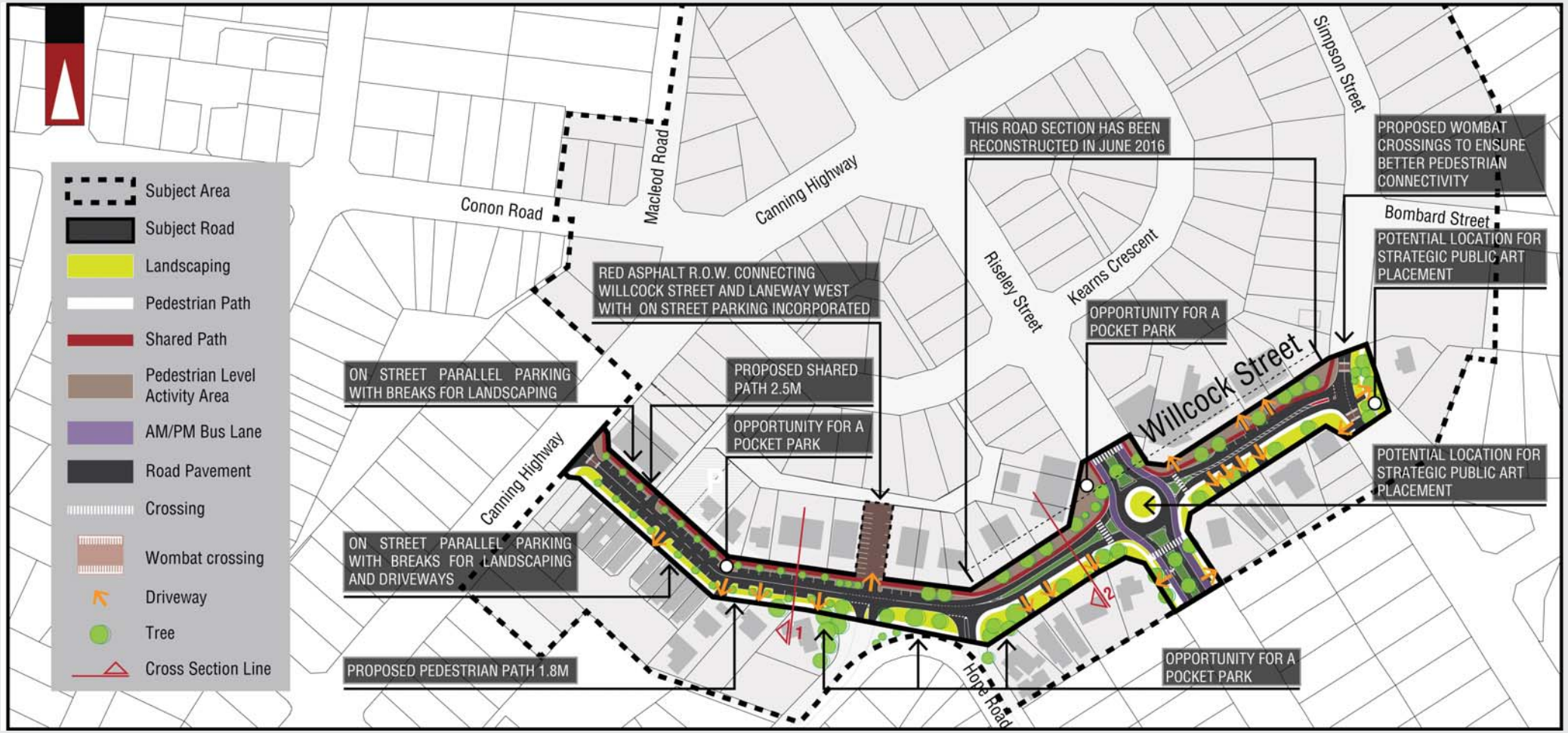
Place / Movement function

Increased place function is expected in particular in vicinity of the intersection with Canning Highway.

Appropriate paving, urban furniture and potentially public art will help facilitate this. Landscaping elements can be used to gently delineate pedestrian zone from vehicular zone.


Proposed Cross Section 1


Proposed Cross Section 2



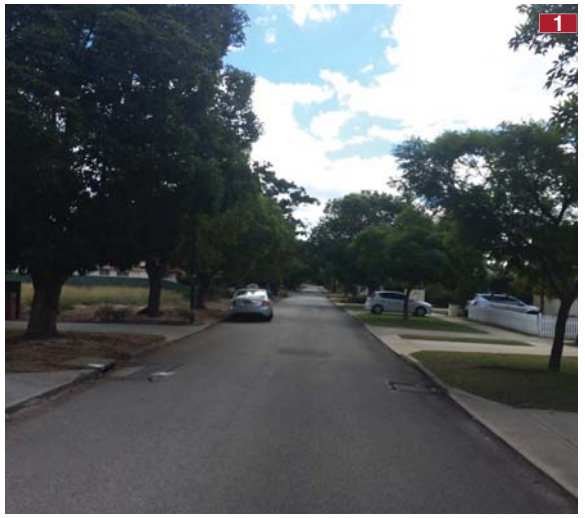
Fletcher Street

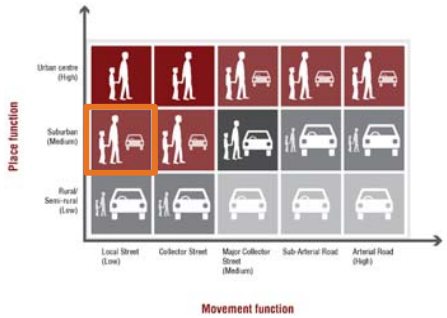
(between the intersection with Macrae Road and Canning Highway)

Current Configuration

Number of Lanes	2 (two), 1 (one) lane
Central median	NO
Road Reservation Width	20m
Road Pavement Width	7.5m
Classification	Urban local Road / Access Road
Speed Limit	50kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 3,000 vpd

Left In / Left Out (LILO) restriction at the intersection with Canning Highway





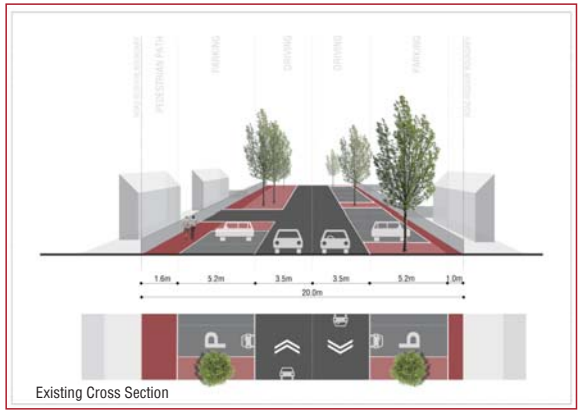
Place / Movement function

Fletcher Street has a good balance between place function and movement function today.

Mature vegetation and dedicated pedestrian paths provide pleasant and safe experience for pedestrians, while generous carriageway allows for unobstructed movement of vehicles along this street

Water Sensitive Urban Design Opportunities

There are opportunities for implementing linear and nodal WSUD options. This can be successfully paired with street furniture to enhance the place function.



Existing Cross Section

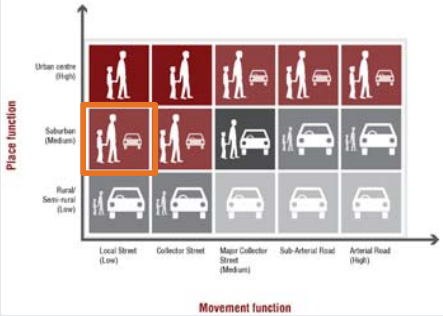
Fletcher Street features perpendicular parking in vicinity of the intersection with Canning Highway. This parking configuration comes at the expense of pedestrian amenity.

North from the intersection with Canning Highway, Fletcher Street is configured as a typical residential street. Mature vegetation and wide verges create pleasant and safe environment for pedestrians, however the lack of street furniture suggests that Fletcher Street is rather a passing route than dwelling place for pedestrians.

Place function of Fletcher Street needs to be maintained with increased density.

PROPOSED MODIFICATION

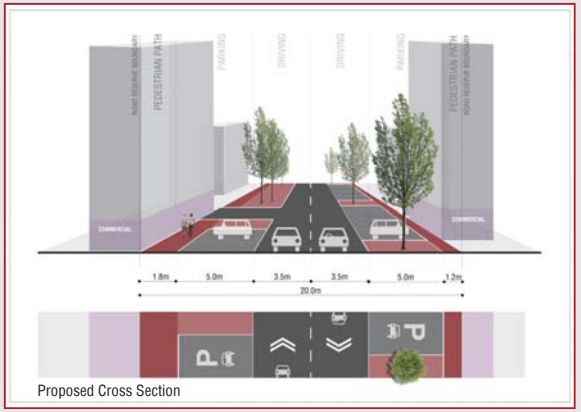
Fletcher Street



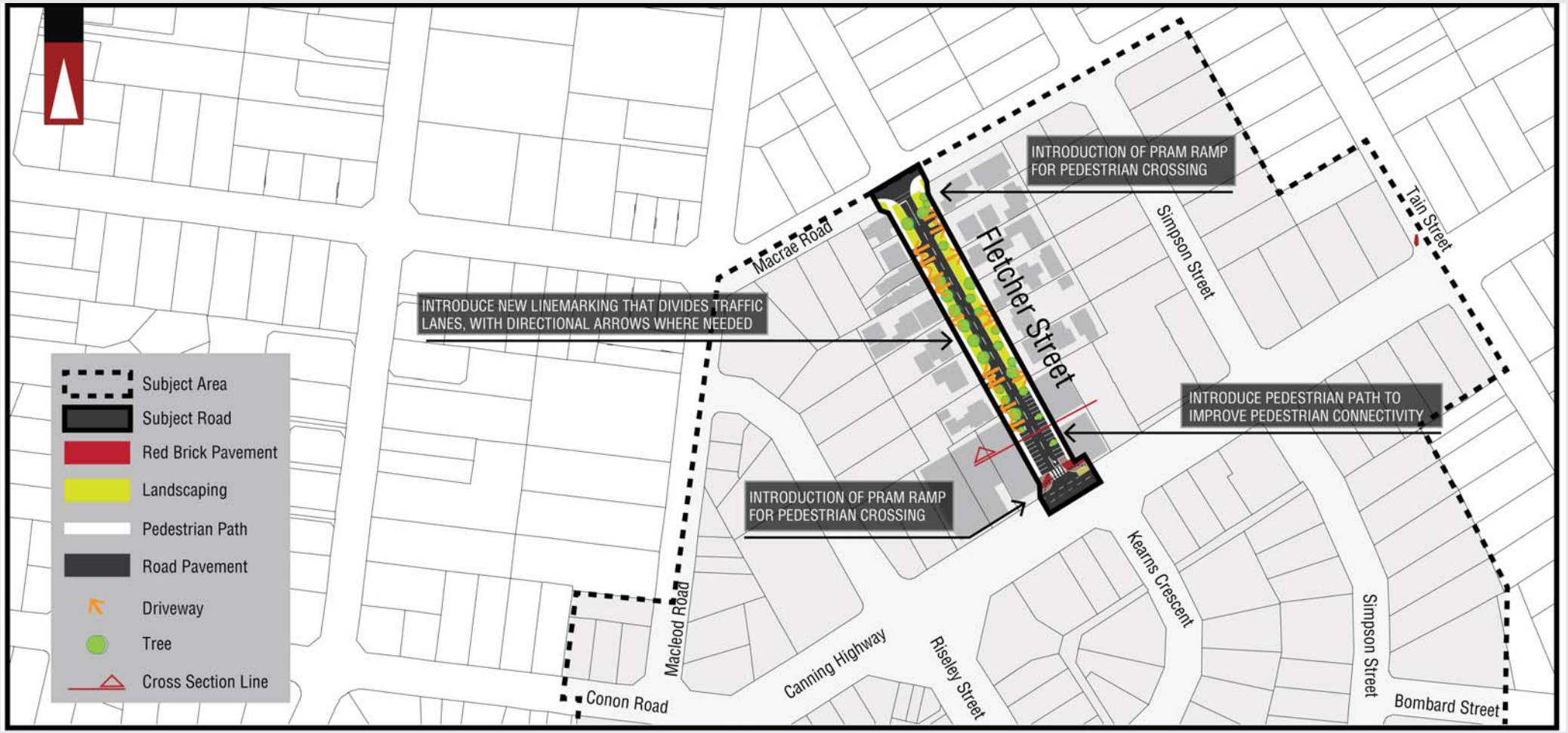
Place / Movement function

Increased activity requiring high place function is expected in particular in vicinity of the intersection with Canning Highway.

Appropriate paving, urban furniture and potentially public art will help facilitate this. Landscaping elements can be used to gently delineate pedestrian zone from vehicular zone.



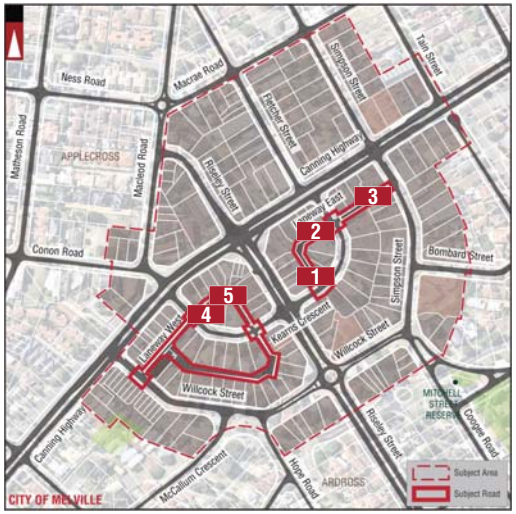
Proposed Cross Section

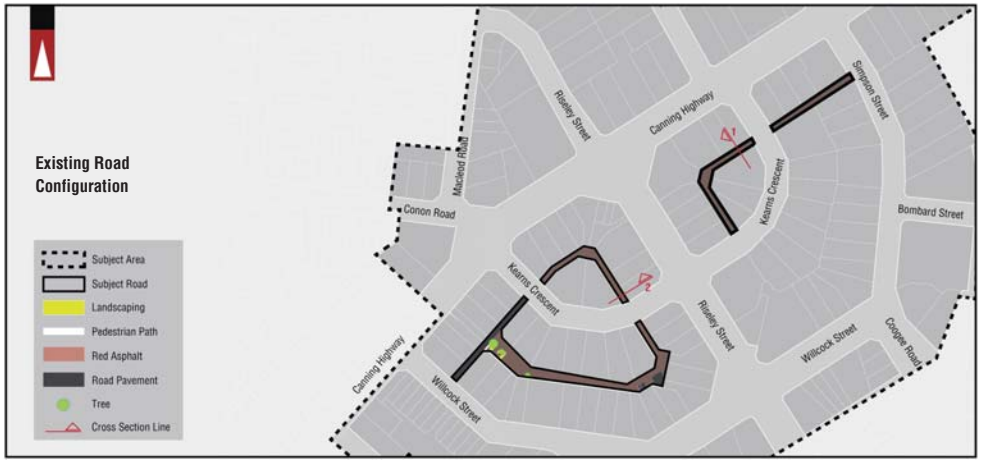


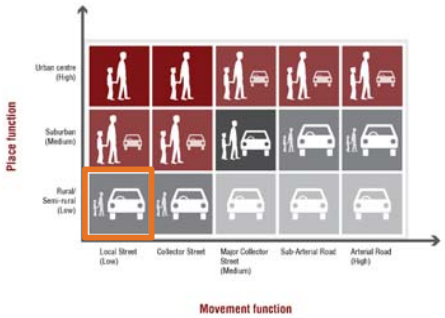
Laneways

Current Configuration

Number of Lanes	2 (two) way 1(one) lane
Central median	NO
Road Reservation Width	5m
Road Pavement Width	5m
Classification	Laneway
Speed Limit	20kph
Bus Route	NO
On-street parking	YES
Current traffic count	~ 500 VPD







Place / Movement function

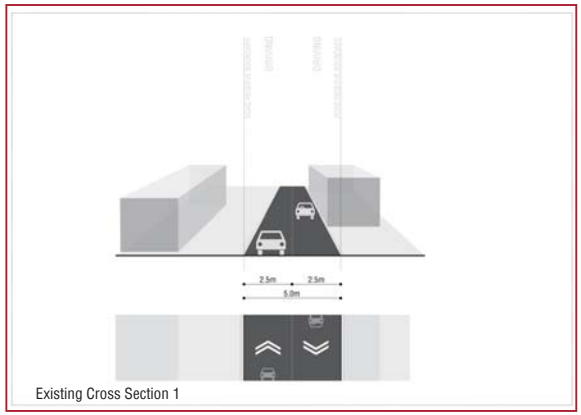
At present lanways have predominantly movement function.

The landscape is dominated by vehicles (stationary and moving) more than at any other part of the centre.

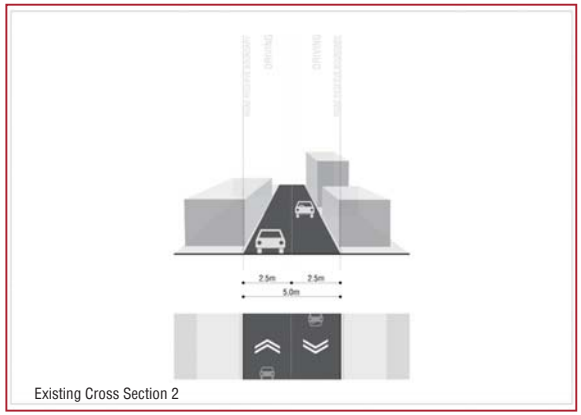
Pedestrians do not have dedicated paths or shared zones.

Water Sensitive Urban Design Opportunities

Nodal or planar (pervious pavement options) WUSD can be considered.



Existing Cross Section 1



Existing Cross Section 2

Laneway East of Riseley

While some of the shop fronts are orientated towards laneways, the laneways are not designed as pedestrian friendly areas. They are dominated by stationary vehicles and circulating isles.

Existing mature vegetation should be incorporated in any future development of this area.

Laneways should allow for spontaneous development of commercial activities that will be present on Kearns Crescent.

Community events, pop up festivals and similar community building activities can safely be held in laneways wihtout major disruption to the traffic flow.

In redevelopment plans, laneways are to be kept narrow to ensure that the operating vehicular speed is low.

Laneway West of Riseley

As per laneway east, laneway west is also dominated by vehicles, given its predominant function is vehicular access and parking.

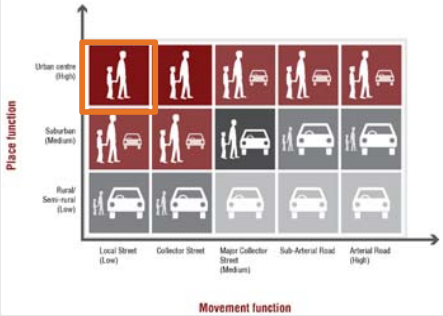
Laneway west features less mature trees than laneway east, however it also features some dedicated pedestrian walkways along the shop fronts.

Similarly ot the Laneway East, Laneway West opens oportunities for creation of internal network predominantly aimed for pedestrian traffic.

The network of laneways is more extensive on the western side of the Riseley Activity Centre. Reduction of Kearns Crescent to one-way carriageway will allow for forming stronger connections between laneways on southern and northern side of Kearns Crescent.

PROPOSED MODIFICATION

Laneways

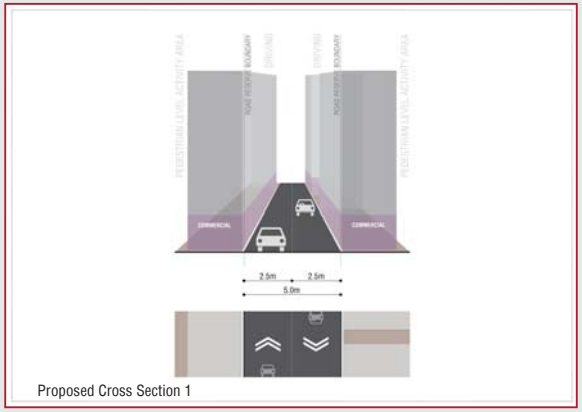


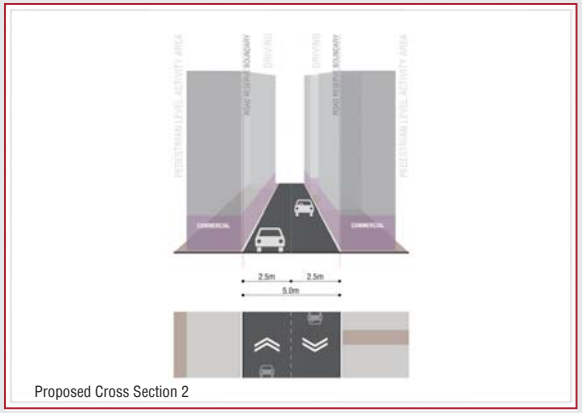
Laneways are envisaged as pedestrian orientated areas.

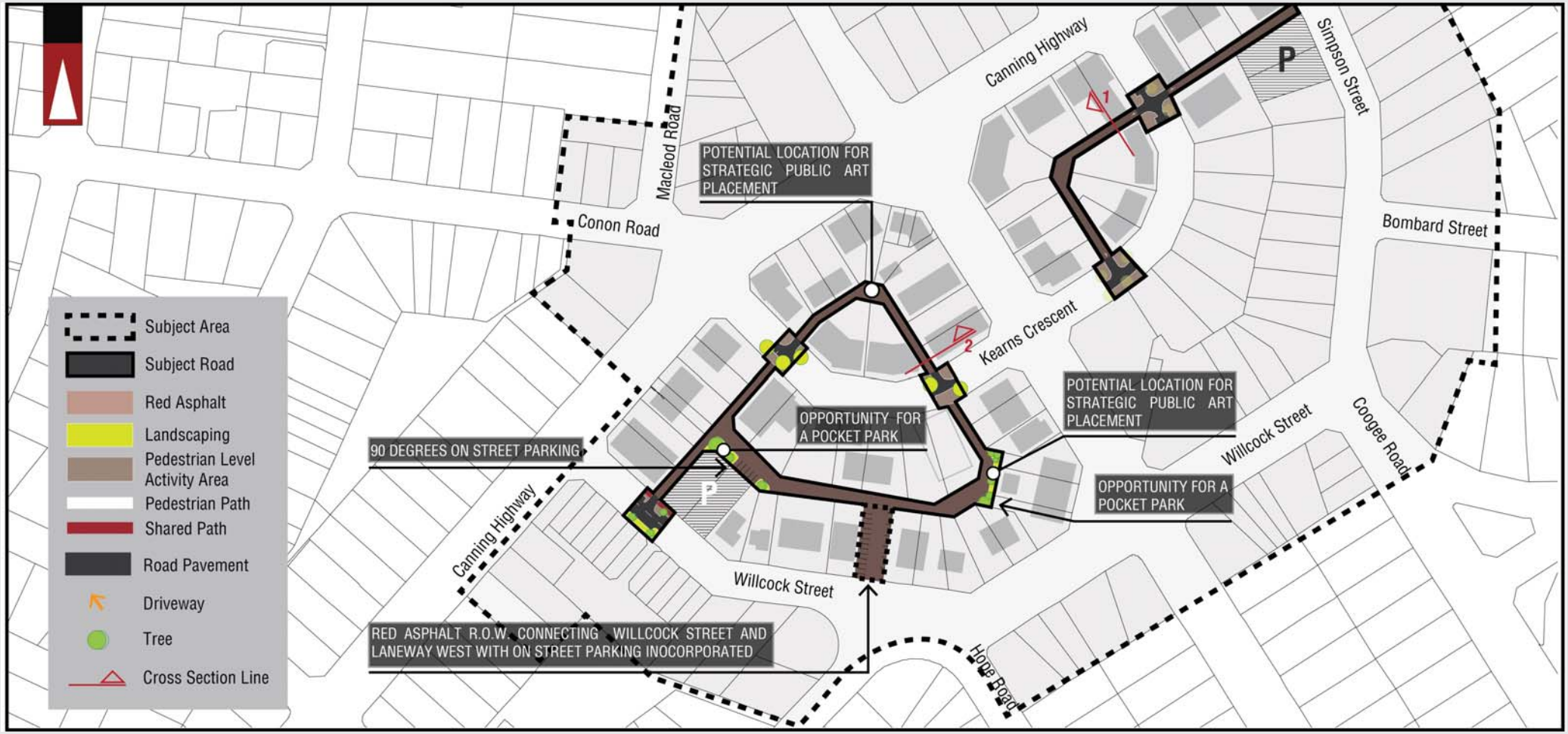
While this does not preclude vehicular traffic, it is expected that majority of stationary vehicles will be stored within the newly developed buildings and that laneways will be opened for activation and creation of pubic spaces.

Activation of the laneways in this western section becomes even more important given the laneways network is more extensive.

Although pedestrian traffic is expected to dominate laneways, this does not preclude vehicular access.


Proposed Cross Section 1


Proposed Cross Section 2



APPENDIX

Design Suplement

Introduction

This Appendix provides guidance on design details for the future redevelopment of Riseley Street Activity Centre pertaining to vegetation, street furniture and paving. While space should be allowed for urban designers and future developers to express their creativity, this appendix should be used as a guide for choosing appropriate vegetation species and following particular color schemes in order to deliver coherent precinct.

Trees in urban design are very important elements of a City's infrastructure. From a health and social perspective, trees improve human health, provide shades, create visual and sound buffers, improve neighborhoods, create walkable streets etc. From economic aspect trees reduce stormwater runoff, enhance sense of place, increase property values, reduce cooling costs etc. Given that trees are living organism they need to be considered at every stage of planning, design and development.

Riseley Street Activity Centre Master plan identifies potential pocket park location as shown on Figure A (right).

Following pages contain examples of elements to be used in building public realm within the urban structure.

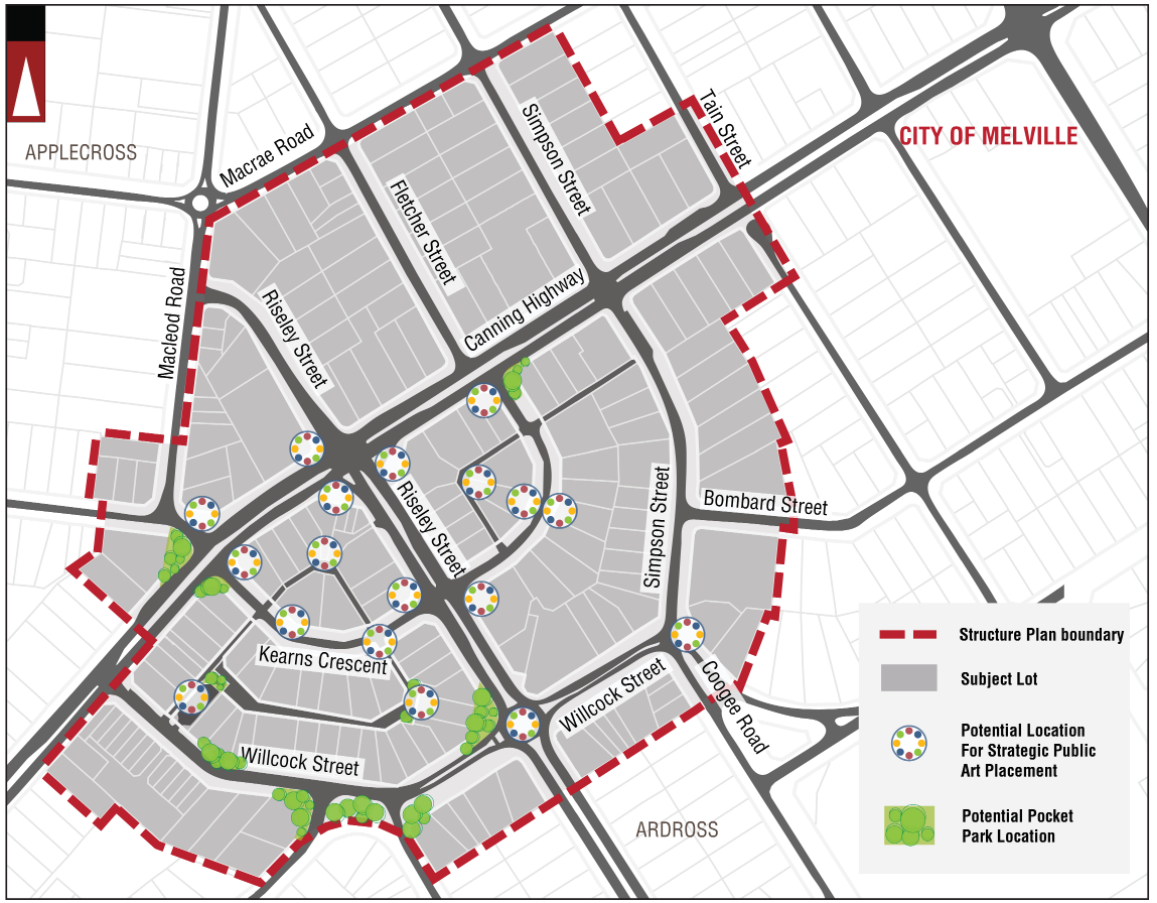


Figure A - Map showing location of the proposed Potential Pocket Park Location

London plane

Common name: London plane
Scientific name: Platanus x occidentalis
Family: Platanaceae

Figure 01- London Plane Trees

Chinese Tallow

Common name: Chinese Tallow Tree, Popcorn Tree
Scientific name: Triadica sebifera
Family: n.a.

Figure 02a - Chinese Tallow Tree

Figure 02b - Chinese Tallow Tree in Spring

Flowering Almond

Common name: Dwarf Flowering Almond
Scientific name: Prunus glandulosa
Family: n.a.

Figure 03 - Flowering Almond Tree

Coral Gum

Common name: Coral Gum
Scientific name: Eucalyptus torquata
Family: Myrtaceae

Figure 04 - Coral Gum Tree

Lemon-Scented Gum

Common name: Blue Spotted Gum, Lemon Eucalyptus
Scientific name: Eucalyptus citriodora , Corymbia citriodora
Family: Myrtaceae

Figure 05 - Lemon-scented Gums in Riseley Street south of Canning Highway

Royal Poinciana

Common name: Peacock Flower, Royal Flame Tree
Scientific name: Delonix regia
Family: Fabaceae

Figure 06 - Royal Poinciana in the built environment

Geranium

Common name: Cranesbill
Family: Geraniaceae

Figure 07: Perennial Geranium

Arcotis Daisy

Common name: African Daisy, Silver Arctotis
Family: Asteraceae

Figure 08 - Arctotis Silver Pink Flower

Convolvulus white

Common name: 'Silvery Moon'
Family: Convolvulaceae

Figure 09 - Convolvulus White

Trailing Lantana

Common name: Lantana montevidensis
Family: Verbenaceae

Figure 10 - Purple Trailing Lantana cascade over walls

Juniperus Conferta

Common name: Shore Juniper, 'Blue Pacific'
Family: Cupressaceae

Figure 11 - Juniperus c. cascade over walls.

Rosmarinus Offcinalis

Common name: Rosemary
Family: Lamiaceae

Figure 12 - Rosemary

Alternanthera

Common name: Joy Weeds, Little Ruby
Family: Amaranthaceae

Figure 13 - Purple Alternanthera

Dwarf Lilly Pilly

Common name: Dwarf Lilly Pilly
Family: Myrtaceae

Figure 14 - Dwarf Lilly Pilly Hedging

Murraya Paniculata

Common name: Orange Jessamine
Family: Rutaceae

Figure 15b - Orange Jessamine Flowers

Liriope

Common name: Lily Turf, Silver Dragon
Family: Asparagaceae

Figure 16 - Lily turf Ground cover with Purple Flowers

Rhaphiolepis

Common name: Indian Hawthorn
Family: Rosaceae

Figure 17- Indian Hawthorn

Dianella Revoluta

Common name: Black-anther Flax Lily
Family: Hemerocallidaceae

Figure 18 - Dianella Revoluta

Street Lights

Street lights are a significant aspect of the built environment and promote safety, comfort and amenity. Western Power controls public lighting throughout the majority of Western Australia and local governments are legally responsible to provide street lighting. The Street lighing design requirements for Riseley Street are in accordance with Western Powers Distribution Design Catalogue. Street lighting throughout the developement site will be cohesive with surrounding land uses and their lighting while enhancing a unique vibrant space. This will be acheived through implementation of the following street light poles and luminaire's.

LED lights will be implemented throughout the site as the preferred light source due to its environmental and economic benefits in comparison to other light sources. This will achieve reduction in electricity consumption and therefore greenhouse gas consumption and savings in the City's electricity costs.

Luminaire

Luminaires for street lighting throughout the precinct are required to be in line with Western Powers Distribution Design Catalogue. The specified design requirements are luminaires Metal Halide Parkville or Bourkehill. These Luminaires are presented in the below figures and will complement either Rocky or ETSA outreach pole. Having a variety of Luminaire's throughout the development will further enhance the character of the site.

Figure 19 - Bourkehill Luminaire

ETSA Outreach

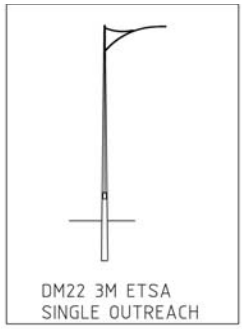


Figure 20 - LED Luminaire

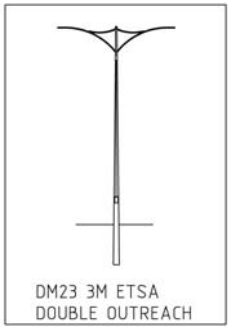


Figure 21 - LED Luminaire

Bollard Lighting

Figure 22 - Pillar Bollard Light

Figure 23 - Solar Bollard Lights

Pedestrian Lighting

Figure 24 - a) existing on site; b) Melbourne trials female figures on pedestrian crossings to 'reduce unconscious bias'

Festoon Lighting

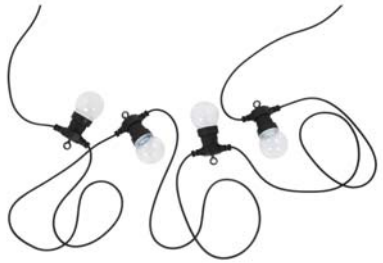


Figure 25 - Festoon 10 Light 10m black light kit in warm white

Colour Scheme

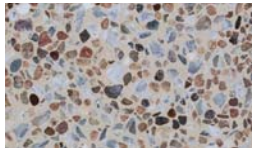
Colours listed are Dulux Powdercoat. Coloures are from the Duratec Intensity Powdercoat range which are designed specifically for architectural applications. This range is specifically for applications where quality of paint for colour and gloss is vital. Quality of the Duratec range is substantial and applicable for outside applications.

Evergreen **Reef** **Red** **Summer** **Sunshine** **Base colour** (Charcoal Essence)

Pavers

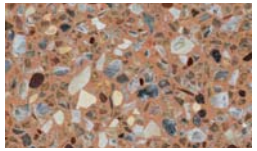
River Topaz and New Amber are provided by Urban Stone. Urban Stone are an Australian concrete paving manufacturer providing floor types to residential and commercial developments. River Topaz and New Amber are both from the Commercial Engineered Product range. Alternatively, the Australian Series Natural Stone in coloures Desert Brown and Desert Rose will compliment the proposed development.All paver pavers shall be trafficable, min of 60mm thick. They will be square 400x400 and finished in a manner to reduce slip risk. No polished pavers should be considered within the streetscape.

Pavers will be incorperated throughout the development site to compliment various surroundings and further enhance the space.



River Topaz

Desert Brown



New Amber

Desert Rose

Figure 26 - Paving provided by Urban Stone in Adelaide Zoo

Furniture/ Bins Style

Figure 27 - Bench

Figure 28 - Picnic bench

Figure 29 - Cyclist bench

Figure 30 - Internal Recycling Bin

Figure 31 - Bin

Reference List - Streetscape Design Guidelines

- **Figure 01** Prepared by KCTT

- **Figure 02** Prepared by TPG and Place Match

- **Figure 03** Prepared by KCTT

- **Figure 04** Prepared by KCTT

- **Figure 05** Prepared by KCTT

- **Figure 06** Prepared by KCTT

- **Figure 07** Prepared by KCTT

- **Figure 08** Prepared by KCTT

- **Figure 09** Prepared by KCTT

- **Figure 10** sourced by http://greenworkspc.com/wp-content/uploads/2010/07/denver_pole__212_modified.jpg

- **Figure 11** Prepared by KCTT

- **Figure 12** https://bonnieplants.com/growing/growing-rosemary/

- **Figure 13** Prepared by KCTT

- **Figure 14** sourced from http://www.streetscape.co.nz/PicsHotel/streetscape08/GeneralPresentation/ID-3862Pic1.jpg

- **Figure 15** souredcd from http://worldlandscapearchitect.com/wp-content/uploads/2012/11/03_ASPECT-Studios_Chinatown.jpg

- **Figure 16** sourced from https://i.pinimg.com/736x/93/bc/16/93bc169ab-88403c9a64a05ed8d0dae84--urban-furniture-street-furniture.jpg

- **Figure 17** sourced from http://www.abud.com.au/images/portfolio/Q0020_0.jpg

- **Figure 18** sourced from the City of Melville

- **Figure 19** sourced from http://i.dailymail.co.uk/i/pix/2017/06/28/17/41D780CD00000578-4647750-Mr_Gray_said_there_was_potentially_another_cover_coming_in_the_f-a-2_1498666373579.jpg

- **Figure 20** Prepared by KCTT

- **Figure 21** sourced from https://i.pinimg.com/originals/bf/30/8f/bf308f5e7015c548091601db2a530793.jpg

- **Figure 22** sourced from https://i.pinimg.com/736x/f2/13/8d/f2138d53d0b98407639165a42adba2d4--urban-furniture-street-furniture.jpg

- **Figure 23** sourced from https://i.pinimg.com/736x/8b/ba/9d/8bba9d77ef2aff0a0ddc666ec5340a66--pedestrian-outdoor-lighting.jpg

- **Figure 24a** sourced from http://www.cocolabor.org/upload/2017/08/12/lighting-design-post-a-great-canopy-lighting-from-unitedvisualartists-canopy-lighting-l-cb-c1bf9f0e52317a.jpg

- **Figure 24b** sourced from https://outdoorlightingss.com/wp-content/uploads/2015/10/outdoor-hanging-string-lights-ideas-2015.jpg

- **Figure 24c** sourced from https://42mzqz26jebq-f6rd034t5pef-wpengine.netdna-ssl.com/wp-content/uploads/2014/02/13-Giant-Pixel-San-Francisco-CFM-Studio-O-A-archpaper.jpg

- **Figure 25** sourced from http://www.innovativerigging.com.au/wp-content/uploads/2014/12/3JWP-0637_cropped.jpg

- **Figure 26** sourced from https://www.sine-ugraff.com/sites/default/files/home_banner/banni%C3%A8re%20Templeuve.jpg

- **Figure 27** sourced from https://i.pinimg.com/236x/19/52/f6/1952f6adbdb724fa40e9e-4c2706307a7--fancy-dresses-for-girls-children-costumes.jpg

Reference List - Appendix

- **Figure 01** sourced from http://www.thetutuguru.com.au/shop/london-plane-tree/

- **Figure 02a** sourced from https://selectree.calpoly.edu/tree-detail/triadica-sebifera

- **Figure 02b** sourced from https://selectree.calpoly.edu/tree-detail/triadica-sebifera

- **Figure 03** sourced from https://www.gardeningknowhow.com/ornamental/trees/flowering-almond/growing-flowering-almonds.htm

- **Figure 04** sourced from http://davesgarden.com/guides/pf/showimage/263353/

- **Figure 05** photo taken on site, dated 03.04.2017.

- **Figure 06** sourced from http://treesplanet.blogspot.rs/2013/06/delonix-regia-royal-poinciana-gulmohar.html?m=1

- **Figure 07** sourced from https://au.pinterest.com/pin/6192518214193621

- **Figure 08** sourced from https://maryflower.co.nz/shop/arctotis-silver-pink/

- **Figure 09** sourced from https://www.springspreserve.org/apps/plant/detail.cfml?type=82&id=14796

- **Figure 10** http://www.plantmaster.com/PlantMaster/FullSize/1168a.jpg

- **Figure 11** https://www.pinterest.com/pin/112730796902658967/

- **Figure 12** https://bonnieplants.com/growing/growing-rosemary/

- **Figure 13** sourced from https://www.gardensonline.com.au/GardenShed/PlantFinder/Default.aspx?FormAction=Show&ItemId=1164

- **Figure 14** sourced from http://www.gardeningwithangus.com.au/product/lilly-pilly-allyn-magic/

- **Figure 15** sourced from http://diacos.com.au/product/murraya-paniculata-orange-jasmine/

- **Figure 16** sourced from https://www.amazon.com/dp/B01MSDCL9N

- **Figure 17** sourced from https://www.evergreengrowers.com.au/wp-content/uploads/images/plants/IndHaw75_thumbnail.jpg

- **Figure 18** sourced from http://www.ilandscape.com.au/products/Plants/Native-Grasses/LITTLE-JESS-Dianella-caerulea

- **Figure 19** sourced from Western Power Design Catalogue

- **Figure 20** sourced from Western Power Design Catalogue

- **Figure 21** sourced from Western Power Design Catalogue

- **Figure 22** sourced from http://www.davolucelighting.com.au/G2005-Pillar-Bollard-Garden-path-light-from-gentech-davoluce-lighting.html

- **Figure 23** sourced from https://www.indiamart.com/proddetail/solar-bollard-lights-4223689030.html

- **Figure 24a** Prepared by KCTT

- **Figure 24a** sourced from https://www.theguardian.com/australia-news/2017/mar/07/melbourne-trials-female-figures-on-pedestrian-crossings-to-reduce-unconscious-bias

- **Figure 25** https://www.beaconlighting.com.au/festoon-10-light-led-light-kit-in-black.html

- **Figure 26** sourced from http://www.urbanstone.com.au/Gallery.aspx

- **Figure 27** sourced from http://www.commercialsystems.com.au/product/portland-bench/

- **Figure 28** sourced from http://www.commercialsystems.com.au/product/odyssey-picnic-setting/

-**Figure 29** sourced from http://www.commercialsystems.com.au/product/cyclist-bench-2/

- **Figure 30** sourced from https://draffin.com.au/product/twin-tub-recycling-bin/

- **Figure 31** sourced from http://www.commercialsystems.com.au/product/blaze-litter-receptacle/