STREETS *for* PEOPLE

FEASIBILITY STUDY

Prepared by **Hansen Partnership** and **Martyn Group**
for **City of Darebin**

SEPTEMBER 2018



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EXECUTIVE SUMMARY

Streets are an integral part of the public realm and occupy a large proportion of the urban area. Aside from performing a critical functional role, streets equally perform an important contribution to the character of a place as well as foster business activity and community connectivity. Furthermore, the design of streets can influence the behaviour of road user's and their perception of which mode has the highest priority in any given streetscape.

This Study is aimed at **restoring a balance in the role of streets between their functional modal requirements and their role in defining places and spaces for people**. While population and economic growth demonstrates steady growth rate, public investment in a high-quality public realm must maintain pace with the emerging demand for better integrated sustainable transport options. This includes improved pedestrian/ cyclist connections to existing public transport nodes and neighbourhood level destinations (including but not limited to schools, employment districts and neighbourhood centres). This Study has sought to pursue an integrated approach in which improvements to the public realm have taken into consideration the broader land use, character and urban development potential.

Part A of this Study comprises the design response rationale underpinned by the **'Movement' and 'Place' approach**, along with a review of the strategic role of the 8 'Streets for People' corridors. This component provides the starting point for proposed recommendations. It ensures each corridor continues its role as a movement conduit without compromising its potential as a destination.

The key criteria for the management of the Movement and Place designation within the City of Darebin context are as follows:

- **Confirmation** that existing infrastructure and assets are consistent with the street type designation and an improved level of protection is provided for pedestrian/ cyclists along higher-order roads.
- **Management** of existing assets and facilitate the delivery of new infrastructure to better meet the street type designation, to ensure a more equitable access for all modes of travel.
- **Improvement** of the urban condition through new infrastructure and asset upgrades to increase pedestrian/ cyclist safety and amenity.

Key Recommendations:

- Adopt the 'Movement and Place' approach to determine appropriate street design response, consistent with international standard and VicRoads standard of road management.

The logic behind this is approach is that the provision of improved cycle infrastructure on its own does not achieve holistic people-oriented places. Instead, as described in **Part B** of this Study, future infrastructure should be integrated with complementary public realm improvements. This includes street greening, identification of new open space, safer pedestrian crossing, reducing the perception of dominant road way, wayfinding upgrade and opportunities to demarcate key entries to Darebin and its 'green corridors'.

Recommendations found in this Feasibility Study have been influenced by the following **Guiding Principles**:

- **Prioritise People** - Recognising people as the main users of streets and that future street design should maximise opportunities to improve pedestrian safety and amenity.
- **Minimising conflict** between the varying modes of transport, with higher priority given to pedestrian and cyclists without compromising the functional role of streets and requirements to support adjacent existing and future uses.
- **Increasing cycling confidence** along the corridors by providing high-quality cycling infrastructure that is well connected, easily navigated with varying degrees of separation and safety from moving traffic.

Key Recommendations:

- For future street design, or public realm upgrades within the study corridors, respond to the 3 guiding principles above to achieve integrated people- oriented places and spaces.
- **Three preferred design responses** were curated in response to the Guiding Principles as follows:
  - **'Protected' design response:** Along municipal level connections, where traffic volume is higher leading to key destinations (ie. Activity centre, employment node, school, etc.) and streets are generally wider with some provision of public transport, ensure pedestrian and cyclists are protected from high volume vehicle movement. A higher level of protection through physical barriers is likely to increase the safety of cyclists.
  - **'Dedicated' design response:** Along neighbourhood level connections, where traffic volumes are moderate (including a number of streets accommodating public transport), ensures pedestrian and cyclists are provided with clearly dedicated, continuous movement space that is not hampered by prevailing traffic condition.
  - **'Shared' design response:** Along lower order local streets, there is a higher level of expectation that all modes of travel can safely share the street. Often within a narrower street profile, the perception of a reduced carriage width and lower vehicle speeds will contribute to a more inviting people-oriented public realm.

Part C of this Study outlines the preferred Design Response including the designation of Typical Treatments for each of the 8 corridors, with a view to establish a holistic approach to people-oriented- streets. A demonstration project is also examined at selected key sites, where 'place- specific' public realm upgrades can be advanced to influence its context. Within the broader municipal context, each corridor is unique in their strategic role and character. Opportunities to demarcate and celebrate this point of difference can be pursued through material and planting palettes at detailed design level.

Key Recommendations:

- Future detailed design should utilise a suite of 'kit of parts' comprising 15 typical design treatments suitable for Darebin Context. These typical design treatments include recommendations for improved pedestrian environments, cycle infrastructure and traffic calming measures.
- A preferred design speed of 40km/hr (or less) is desirable for pedestrian and cycle safety.
- Future site specific investigations for reduced kerb radii where the study corridor intersects with perpendicular streets at detailed design stage.
- Avoid reconfiguration of existing kerbline for private vehicle benefit. Footpath widening and re-arrangement of on street car parking at and around key destinations should be considered to cater for greater pedestrian volume.
- Variation to the standard recommended cycle infrastructure (including lane and buffer widths) is possible depending on existing street profile, while ensuring maximum cyclist safety is achieved.

Part D of this Study outlines the **tangible benefits and overall improvements** to the public realm from the combined delivery of the Streets for People Study across the 8 corridors, supporting Council's overarching Strategic objectives for people- oriented streets and places. Importantly, the delivery of public realm improvements signifies Council's commitment to influencing travel behaviour and preference for sustainable transport in the short to medium term. Future implementation of 'Streets for People' should continue to consider immediate and forecast demand for infrastructure upgrades and a complete broader network.

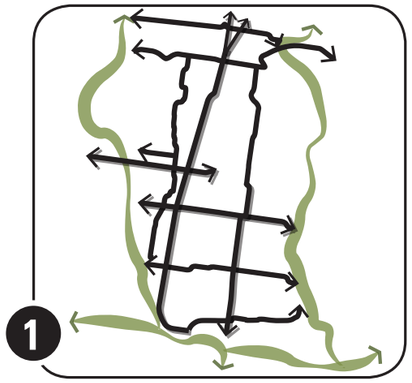
Key Recommendations:

- Prioritise implementation of east- west corridors (1, 5, 6, 7) to achieve cross connections to existing key cycle routes along Darebin Creek, Merri Creek, St Georges corridor and key destinations (school, employment cluster, community function).
- Interim measures can be implemented in the short term for traffic calming and cycle infrastructure to encourage people-oriented travel behaviour without diluting the long-term ambition for a more permanent solution.
- Implementation of design proposition at key sites can be pursued in the short to medium terms.

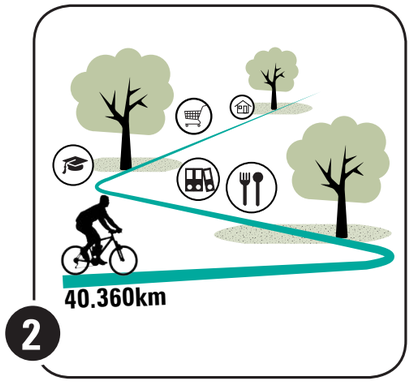
A summary outcomes of this Study is graphically represented in the **Project Fast Facts**.

PROJECT FAST FACTS

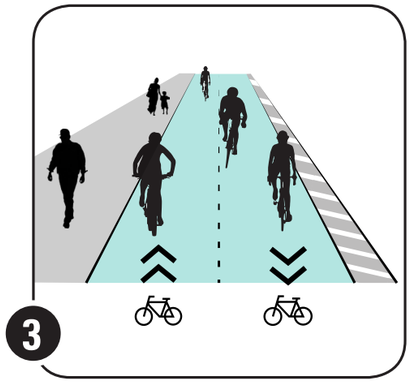
The Streets for People Feasibility Study explores opportunities to retrofit and designated movement hierarchy that form part of Darebin's street network. It focuses on creating high quality safe spaces for people to move through and stay. A holistic review of the corridors and an exploration of design concept within the public road reserve has the potential to forge a well connected, pedestrian orientated network, resulting in considerable community and environmental benefits. The following inventory of features is noted:



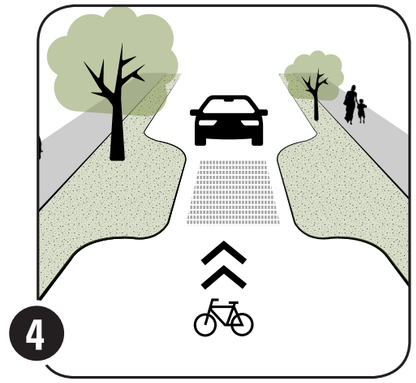
Well – connected cycling and walking infrastructure that plugs into the existing green corridors around the municipality.



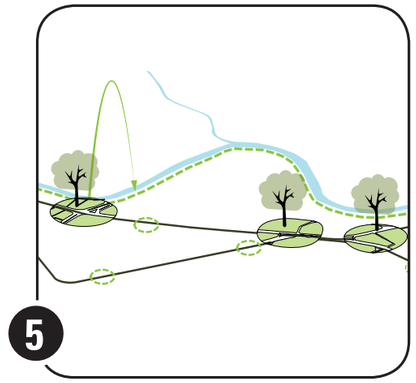
A total of 40.360km (50% increase) increase in length of cycle infrastructure connecting key destinations and activity nodes.



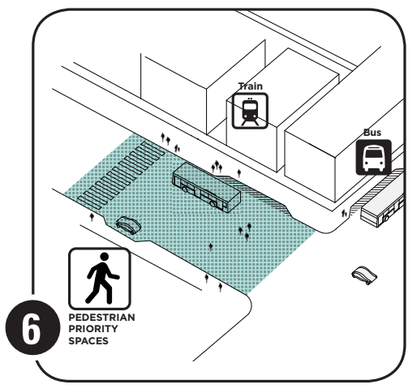
Capacity to support a **significant increase in volume of cyclist per hour** through additional and improved cycling infrastructure.



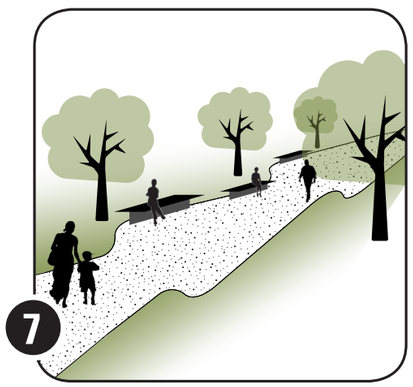
Traffic calming measures at 33 junctions to prioritise safe pedestrian and cyclists movement.



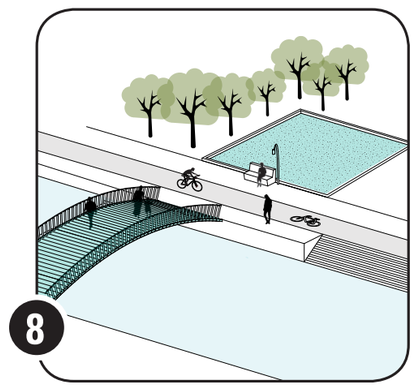
Strengthening of the City's green image through **additional street tree planting and Water Sensitive Urban Design** (WSUD) **opportunities**.



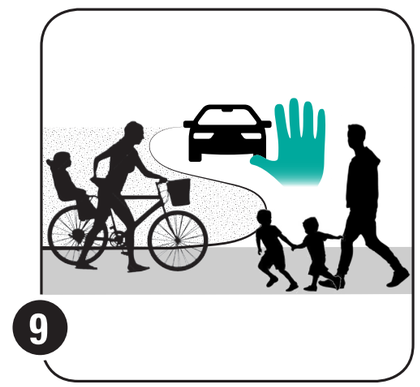
12 designated pedestrian priority spaces around train station and key activity nodes.



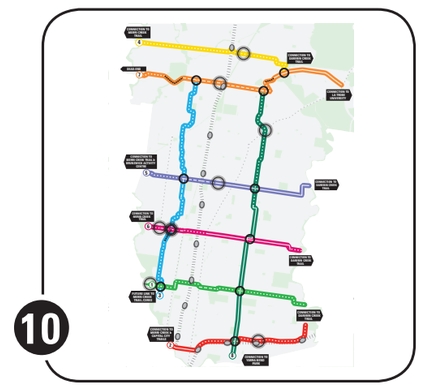
3 additional **new public open space** opportunities.



Creation of distinctive new **gateways** into the Municipality.



Management of vehicle rat- runs passing through residential neighbourhoods.



Unique branding and identity for each corridor to assist with wayfinding.



INTRODUCTION

Cities are always evolving. The many components that make up cities, including suburbs, neighbourhoods, streets and the buildings that line them are part of a dynamic urban ecosystem shaped by many difference social, economic and environmental forces.

In the City of Darebin, notable shifts in demographic and cultural profile over the decades has changed the public perception of urban living and convenience with widespread recognition of the role that urban planning and design can play in community health and well-being. One important part of this evolving system is transport, and Darebin (and metropolitan Melbourne more broadly) has seen transformative change in relation to transport services and user behavior – in particular with shifts away from private vehicle use towards public transport (rail, tram, bus, taxi), cycling and pedestrian focused activity (or a combination of some or all).

Darebin's streets (within the confines of the road reserve) are more than ever before under pressure to support private vehicle movements, alongside other more environmentally sustainable modes of movement, in particular for cyclists and pedestrians – where conflicts can be serious. Given the well acknowledged sustainability and health and well-being benefits of these 'people powered' modes of movement, we need to do more to accommodate them within the road reservation.

This Streets for People – Feasibility Study represents an important early step adjusting the profile and performance of designated streets in Darebin to support improved local pedestrian and cycle accessibility and better connectivity to and through Darebin to surrounding Municipalities. This Study explores alternative street configurations (and cross sections) that help to strikes an appropriate balance between the demand for local private vehicle movement and other more sustainable modes of movement in the context of Darebin's particularly diverse neighbourhood character and image.

This Study focuses on **8 designated sustainable transport corridors** previously identified by the City that traverse the municipality and its grid network (2 north-south aligned corridors and 6 aligned east-west corridors). The Study defines a 'Kit of Parts' applied variously to each corridor (in sections) grounded in the now Nationally recognized 'Movement and Place' ideology. This recognizes that there is a nexus between the 'Movement' function of a street and its 'Place' value, which can inform opportunities for bespoke corridor design treatments that (where appropriate) balance pedestrian and cycling functions in a street with those of private vehicle users. The Study identifies a suite of 15 different typical treatments that can be progressively applied to the corridors, underpinned by a strategic Corridor Framework Concept that looks at influences beyond the road reservation itself.

This project does not seek to disenfranchise conventional private car users, rather it seeks to adopt careful urban design and spatial demarcations within the road reserve to ensure that practical, safe, convenient and attractive options are available for all cyclists and pedestrians. This is pertinent in the sometimes challenging negotiation of local street spaces and with respect to connectivity beyond Darebin's designated network to surrounding municipalities. To this end, this Study represents a paradigm shift in thinking about streets (and road reservations) as spaces for all users.

The economic feasibility of the proposal treatments is not evaluated in detail in this Study, however it does indicate opportunities for important early infrastructure works (civil and urban design) which serve as a local and regional catalyst for behavior change. We all accept that significant shifts in road use and behavior does not occur overnight. As such, this project highlights critical priorities for implementation and management in support of progressive harmonization of Darebin's valued street assets.

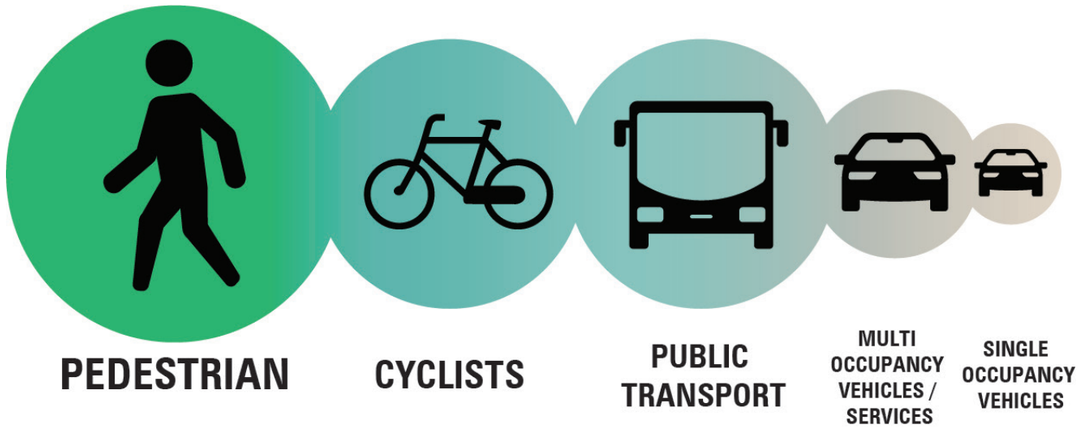


Diagram demonstrating 'Streets for People' modal hierarchy

HOW TO USE THIS DOCUMENT

This Feasibility Study is structured into 4 separate components as follows:

PART A

INTRODUCTION & CONTEXT

This section describes the **8 study corridors** and their attributes. It includes a snapshot of existing conditions and challenges associated with implementing 'Streets for People'. It describes the 'movement' and 'place' approach to determine appropriate design responses.

PART B

TYPICAL DESIGN TREATMENTS

This section describes **13 typical design treatments**, or 'kit of parts' that can be applied at specific locations to achieve safer, legible routes with improved amenity for people.

PART C

FRAMEWORK CONCEPT & RECOMMENDATION

This section describes the overarching **3 Guiding Principles** to achieve for each corridor and a summary of key outcomes.
A **'key site' concept plan** is included for each corridor to demonstrate how these principles can potentially be realised.

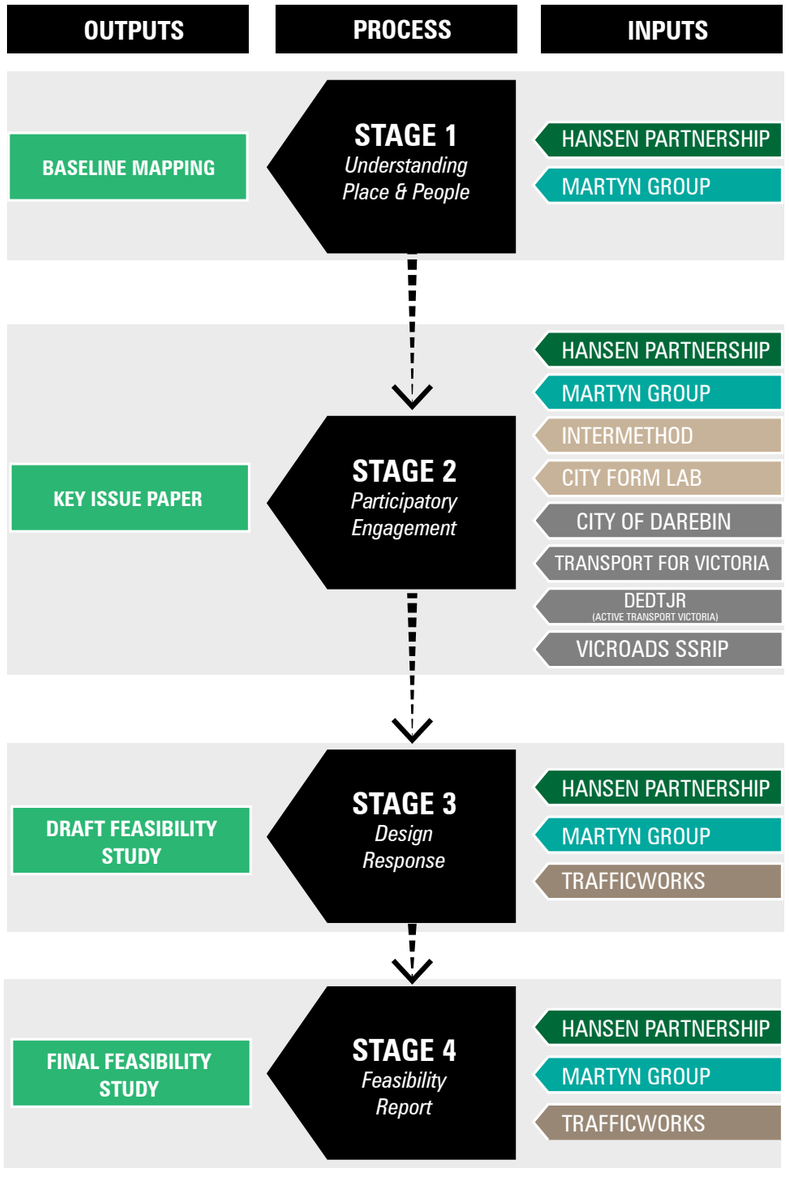
PART D

APPRAISAL & PRIORITISATION

This section summarises achievable **benefits and cost implication** of implementing 'Streets for People'. It describes how its implementation can be staged over time and possible **project prioritisation**.

PROJECT PROCESS

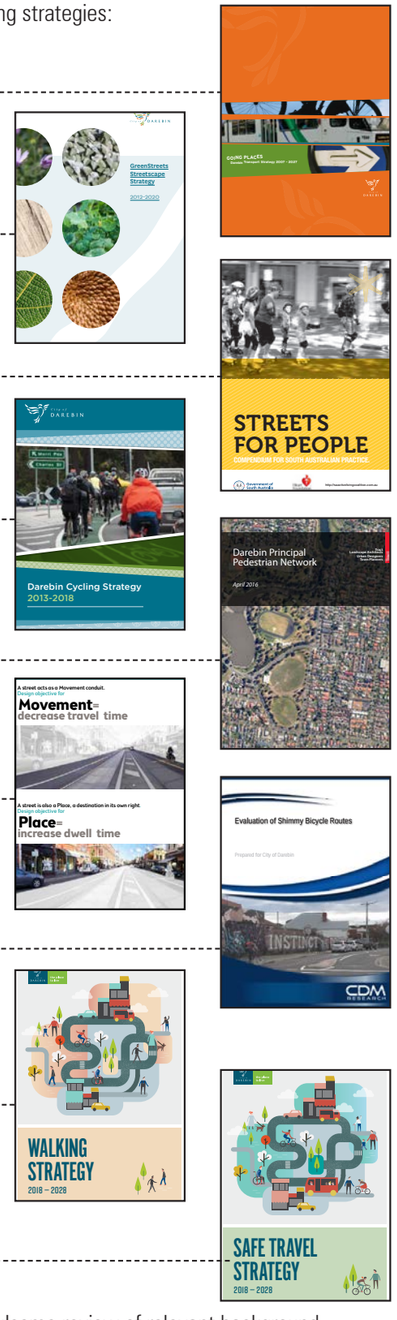
This Feasibility Study has been prepared based on the following process and inputs:



GUIDING STRATEGIES

This Feasibility Study is guided by the following strategies:

- Going Places: Darebin Transport Strategy 2007-2027 (2006)
- Green Streets Streetscape Strategy 2012-2020 (2011)
- Streets for People Compendium for South Australian Practice (2012)
- Darebin Cycling Strategy 2013-2018 (2013)
- Darebin Principle Pedestrian Network Report (Tract Consultants, 2016)
- Movement and Place Assessment for Perth (2017)
- Evaluation of Shimmy Bicycle Routes (CDM Research, June 2017)
- Darebin Walking Strategy 2018-2028 (2018)
- Darebin Safe Travel Strategy 2018-2028 (2018)



Refer to Appendix B- Key Issues Paper for a fulsome review of relevant background documents.

THE CORRIDORS IN CONTEXT

Council have identified a total of 8 corridors for this feasibility study. The corridors can be summarised as follows:

NO.	NAME	EXTENT	CORRIDOR LENGTH (KM)	EXISTING FOOTPATH (KM)	EXISTING CYCLING FACILITY (KM)
1	**NORTHCOTE GREEN LINK**	*Beavers Road, Dennis Street and Christmas Street*	5.54	North side: 4.35 South side: 4.23 **Total**: 8.58	Dedicated: 0.44 Shared: 2.45 **Total**: 2.89
2	**HURSTBRIDGE LINE SHIMMY**	*South Crescent and Westgarth Street*	5.16	North side: 3.96 South side: 2.47 **Total**: 6.43	Dedicated: 1.10 Shared: 1.98 **Total**: 3.08
3	**GREAT WESTERN SHIMMY**	*Woolhouse Street, Bracken Avenue, Jessie Street and various back streets*	7.24	East side: 4.97 West side: 5.63 **Total**: 10.6	Dedicated: 0.10 Shared: 6.08 **Total**: 6.18
4	**NORTHERN RESERVOIR CORRIDOR**	*Broadhurst Avenue and Crookston Road*	5.58	North side: 4.48 South side: 4.15 **Total**: 8.63	**Total**: 0
5	**PRESTON ACTIVITY LINK**	*Gower Street and Cramer Street*	5.88	North side: 3.79 South side: 4.10 **Total**: 7.89	Dedicated: 3.26 **Total**: 3.26
6	**THORNBURY NEIGHBOURHOOD LINK**	*Dundas Street and Miller Street*	5.27	North side: 4.59 South side: 3.54 **Total**: 8.13	Dedicated: 1.82 **Total**: 1.82
7	**RESERVOIR STATION TO UNI LINK**	*Broadway, Edwardes Street and Dunne Street*	7.43	North: 5.83 South: 5.71 **Total**: 11.54	Dedicated: 3.68 Shared: 0.57 **Total**: 4.25
8	**GREAT EASTERN CYCLEWAY**	*Victoria Road, Victoria Street and various back streets*	7.76	East: 7.13 West: 7.16 **Total**: 14.29	Dedicated: 4.04 Shared: 1.69 **Total**: 5.73

Figure 1 illustrates the location and extent of each corridor in the context of Darebin's Activity Centres, public transport network, open space and cycle facilities. Detailed existing analysis of each corridor can be found in Appendix B - Key Issues Paper.

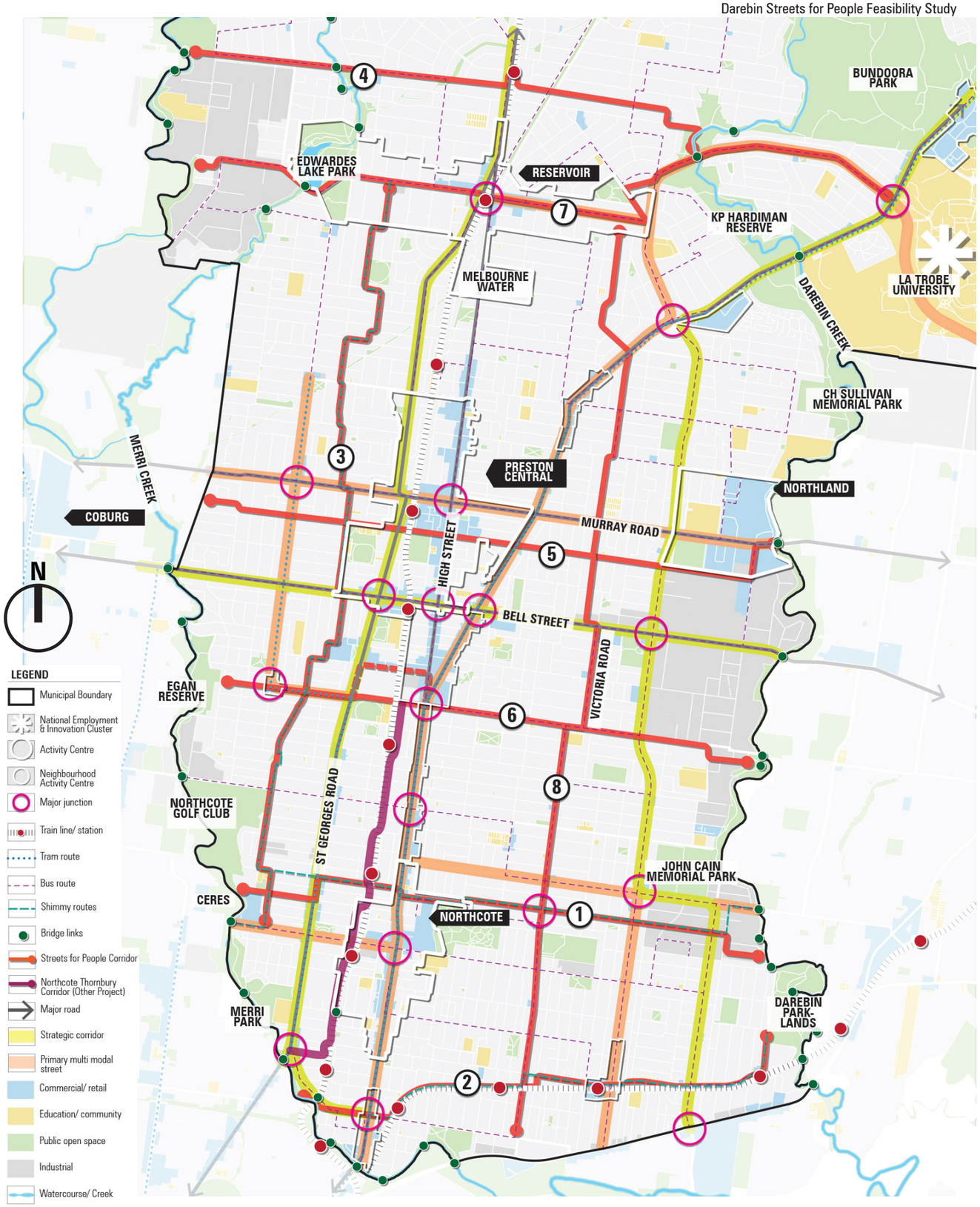
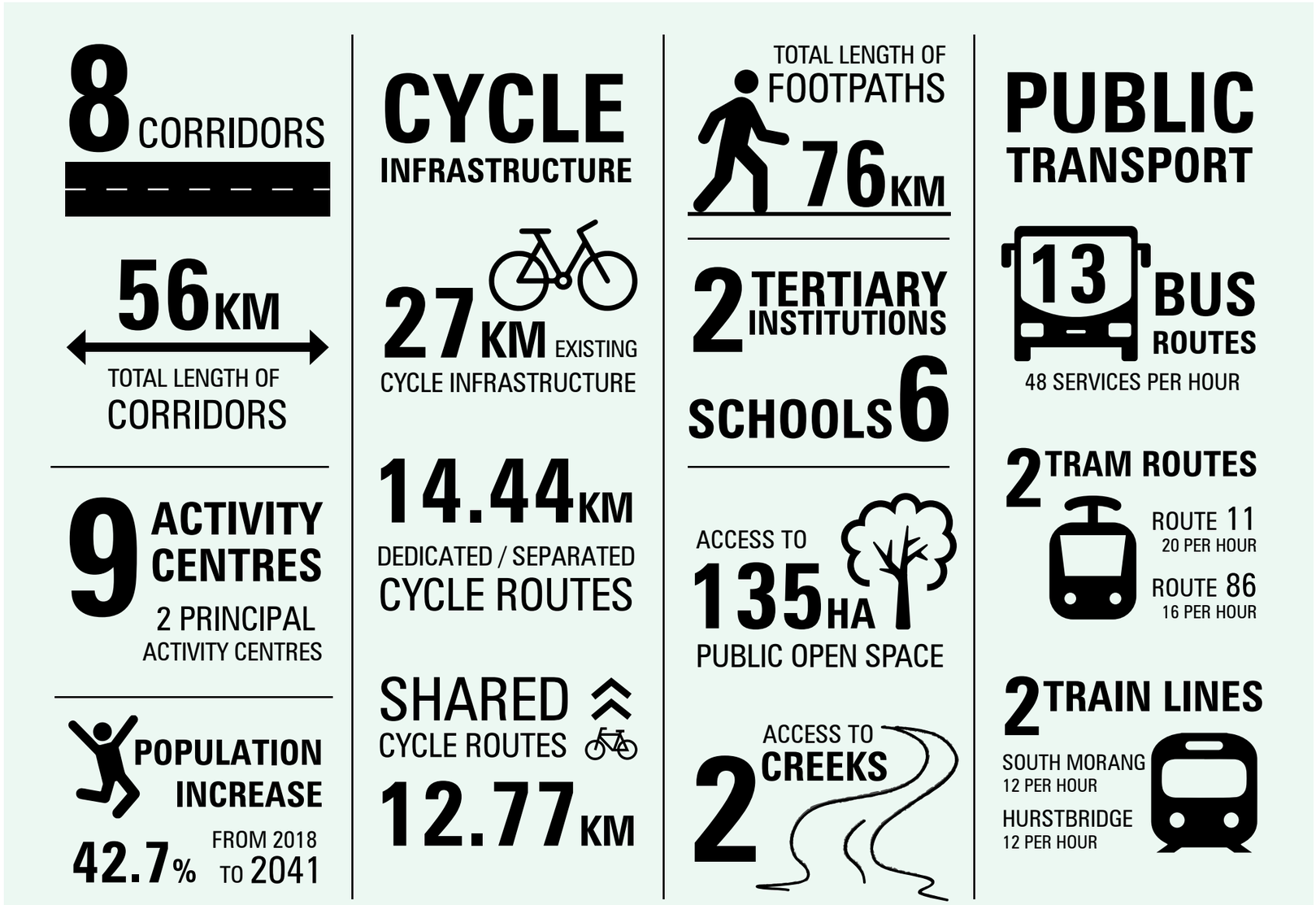


Figure 1. Strategic Context

A SNAPSHOT OF EXISTING CONDITIONS

The critical existing conditions of the 8 'Streets for People' corridors can be summarised as follows:



KEY CHALLENGES

The critical challenges that are considered consistent along the eight corridors can be summarised as follows:

1. Pedestrian and cycle safety and amenity particularly at major junctions and key destinations.
2. High frequency of intersecting side streets and property crossovers along corridor extents.
3. Lack of wayfinding to key destinations within and outside the municipality.
4. Inconsistent, disconnected, or complete absence of cycling infrastructure.
5. An overall perception of a car dominated street network.
6. Limited opportunities for new public open spaces.
7. A conflict in preferred and actual modal priority.
8. Varied road widths and carriageways make it financially challenging to implement preferred design treatment within limited space.
9. Within low and medium density residential context, frequency of private vehicle crossovers limit opportunities for continuous protected cycle lane.
10. Existing infrastructure above and under ground may limit opportunity for substantial canopy tree planting (i.e.. power poles, etc).

A comprehensive assessment of key challenges and summary of existing condition for each corridor is provided in Appendix B- Key Issue Paper.

'MOVEMENT & PLACE' APPROACH

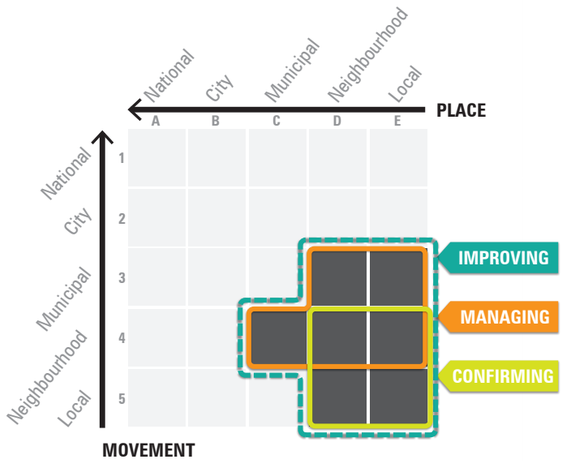
Street design often requires a rounded strategic approach to understand the role of streets for management of traffic ('Movement') in relation to its surrounding destinations ('Place').

A key component of this project was the assessment of the designated Streets for People Corridors against the international standard **Movement and Place Approach** to street planning and design (Refer to 'Streets for People Compendium for South Australian Practices'). This approach is well accepted globally and locally for streets design.

This analysis has identified a total of 7 Street Typologies, which have the potential to cater for improved pedestrian and cyclist infrastructure in varying configurations, depending on a streets objectives in the context of the municipality.

The following diagram illustrates the designation of 'Movement & Place' street types across the Streets for People corridors. The coloured line indicates the corridors

This approach can be applied to the Movement and Place Matrix as follows:



In order to address the project directions, three preferred design responses were curated which indicate the level of separation between movement modes. The application of the preferred design response relates to the Movement Category and Corridor Framework.



Figure 2. Designation of Movement & Place Street types

Applying the Movement & Place Approach in Darebin Context

The Movement and Place theory rationalises the design and delivery of appropriate pedestrian and cycling infrastructure in the context of the street type (Refer to Appendix B - Key Issue Paper for Movement and Place definition). Further, it is acknowledged that adequate cycling and pedestrian infrastructure exists in parts of the 'Streets for People' corridors, and street re-design may therefore not be required. Instead, this project has sought to identify locations for new infrastructure, or improvement to existing streets by adopting the following approach:

CONFIRMING

Where there is existing infrastructure, confirm that these assets are consistent with its street type designation.

MANAGING

Where new infrastructure is required, apply an appropriate treatment that meets the Streets for People design principles.

IMPROVING

Overall improvement to the public realm, sense of place wayfinding, pedestrian amenity.

LEGEND

'PLACE' HIERARCHY

- C — Municipal place
- D — Neighbourhood place
- E — Local place

'MOVEMENT' HIEARARCHY

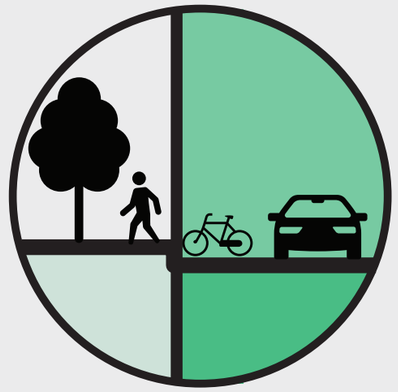
- 3 — Municipal movement
- 4 — Neighbourhood movement
- 5 — Local movement
- 1.1 — Route segment number

Place designation and the line weight indicates the Movement designation.

Appendix B - Key Issues Paper outlines a comprehensive

DESIGN RESPONSE

The following table outlines the preferred design response for pedestrian and cycle infrastructure along each corridor including the possible design options and a breakdown of benefits. The design response typically correlates with the designated road's movement category, acknowledging the need for higher order roads to accommodate high levels of separation due to traffic volumes and vehicle speed.

	PROTECTED	DEDICATED	SHARED
PREFERRED RESPONSE			
	High traffic volumes (Movement category 3): Typically recommended for municipal level connection	**Medium traffic volumes (Movement category 4) : Typically recommended for neighbourhood level connection**	**Low traffic volumes (Movement category 5): Typically recommended for local level connection**
CONDITIONS	▪ All transport modes (pedestrian, cyclists, vehicles) are separated through vertical elements, or shift in levels. ▪ 8,000 to 20,000 vehicles per day	▪ All transport modes (pedestrian, cyclists, vehicles) are clearly designated within the roadway. ▪ Spatial designation is often demarcated by line marking, or contrasting material. ▪ 3,000 to 8000 vehicles per day	▪ Vehicles and cyclists share carriageways (except where public transport is present). ▪ Road treatments seek to slow vehicle speeds in local streets. ▪ Below 3,000 vehicles per day
BENEFITS	▪ Seeks to improve cycle confidence of riders of all ages and abilities, providing one of the highest levels of safety for on-road cycle infrastructure. ▪ Ensures the continuity of protected facilities between destinations. ▪ Ensures moving vehicles cannot encroach into cycle lane without mounting kerb/barrier. ▪ Allows cyclists to ride outside of the 'door zone' where buffer is provided between parked cars and cycle lane.	▪ Facilitates the safer movement of cyclists and driver awareness through visually delineated cycling zones within the road reserve. ▪ Cycle lanes enable cyclists to ride safely at their preferred speed without interference from prevailing traffic conditions.	▪ Local streets are designed for slower vehicle speeds to increase the ease of movement between vehicles, cyclists and pedestrians. ▪ Design treatments reduce perception of vehicle dominance and improve driver awareness. ▪ Increased opportunities for additional public space and landscape which can be enhanced with street furniture and community gardens. ▪ Vertical speed control elements manage traffic speeds and reinforce pedestrian-friendly, safe speeds. These devices may be appropriate on a range of street types, but are most widely applied along neighbourhood, residential, or low-speed streets where freight traffic is discouraged.
POSSIBLE DESIGN TREATMENT	▪ Cycle lane to each side of road with kerb separator, or cycle lane separator (subject to frequency of crossover, available buffer width). ▪ 2-way cycle lane one side of the road with kerb separator, or cycle lane separator (subject to frequency of crossover, available buffer width). ▪ Off- road dedicated cycle lane (at footpath level). ▪ *NOTE: Traffic calming measures may be applied at mid-block location, or at intersecting side streets to reduce vehicle speeds and improve pedestrian safety.*	▪ On-road cycle lane (with buffer). ▪ On-road cycle lane (no buffer). ▪ *NOTE: Traffic calming measures may be applied at mid-block location, or at intersecting side streets to reduce vehicle speeds and improve pedestrian safety.*	▪ Kerb extension. ▪ Vertical (raised) speed control. ▪ Material/ line marking treatment (interim measure). ▪ Local Area Traffic Management (vehicle restriction).

BICYCLE INFRASTRUCTURE CONSIDERATIONS

There are a range of feasible design options to accommodate cyclists within the Streets for People Corridors. The following is a summary of preferred cycle lane and buffer requirements:

PROTECTED & DEDICATED CYCLE INFRASTRUCTURE

NACTO Standard*

While NACTO design guidelines specify a preferred minimum buffer width of 1m, engineering and planning advice has confirmed that a narrow buffer may be applied in most circumstances. Where space is not available for a protected cycle treatment, designs prioritised space for cycle movement through the retention of the 1.5m cycle lane.

Preferred Typical

Where possible, all **separated and dedicated designs have sought to accommodate a 1.5m cycle lane and a minimum 0.6m buffer** between cycle lane and any parked cars or moving traffic.

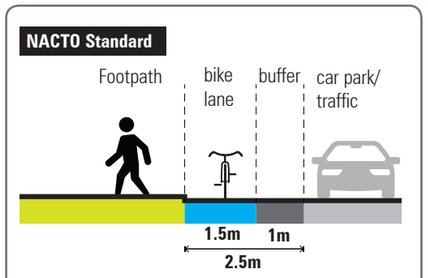
Where possible **all proposed cross sections have been accommodated within the existing kerb-to-kerb carriageway profile**.

Minimum

However, in locations where space is insufficient to accommodate NACTO Standard/ Preferred typical response, **a minimum 1.2m cycle lane and a minimum 0.6m buffer** (line marking) between cycle lane and any parked cars, or moving traffic must be maintained.

There may be locations where the retention of a wider buffer is preferred to instill an increased sense of protection for cyclists, where the preferred 1.5m cycle lane cannot be achieved.

*NACTO: National Association of City Transportation Officials



- **No realignment of carriageway.**
- **Lower cost implication.**

SCENARIOS

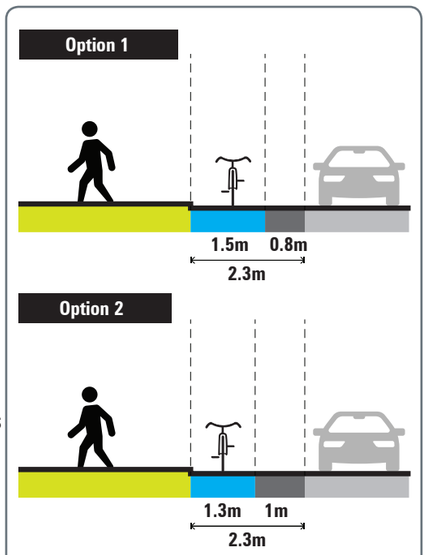
Options 1 & 2

For example, where **2.3m is available for cycle provision on each side of a corridor, Council may determine a 1m buffer and 1.3m cycle lane as the preferred treatment**, rather than the 0.8m buffer and 1.5m cycle lane as proposed.

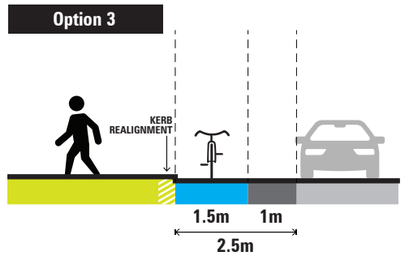
Option 3

Further, it is acknowledged that there are challenges for raising cycle paths to kerb level where there are frequent crossovers to properties (i.e. suburban residential areas), requiring paths to ramp up and down along a street. In these locations, it is preferable to **position the cycle path at road level and provide a minimum 0.6m line marked buffer**. This may require removal of on street parking.

This treatment will achieve safety benefits for cyclists but carries some **cost implications in the realignment of current kerb and channel** to accommodate additional width separate from the carriageway level.



- **No realignment of carriageway.**
- **Lower cost implication.**



- **Realignment of carriageway has a high cost implication.**
- **Removal of some on street car parking may be required**

BICYCLE LANE BUFFER TREATMENTS

PROTECTED CYCLE FACILITY

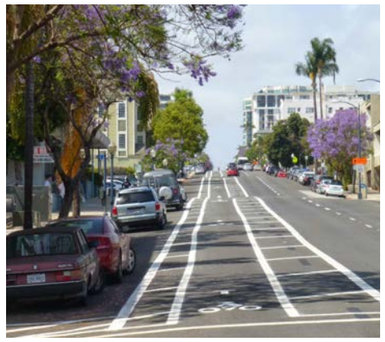


Kerb / footpath extension - Lyon, France (Gautier+Conquet Architectes)



Kerb Buffer - Lincoln & Chattanooga (Alta Planning & Design)

DEDICATED CYCLE FACILITY

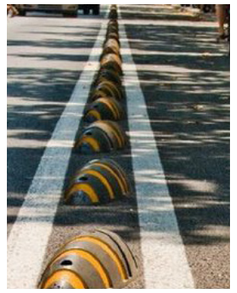


Striped Ground plane buffer (both sides) - San Francisco

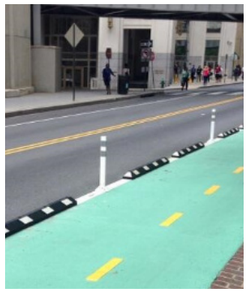


Striped Ground plane buffer (one side) - Melbourne

ALTERNATIVE MEASURES



Armadillo divider (Cyclehoop)



Wheel stops - Washington DC. (Photo: mattCamp)



No Buffer painted cycle lane- Gold Coast (Streetbond)



TYPICAL DESIGN TREATMENTS

The following table outlines **15 typical design treatments** that can be applied to specific locations along the Darebin Streets for People corridors. These typical treatments have been influenced by an appreciation of 'movement' and 'place' designation with input from Council's traffic engineering team.

These treatments include preferred pedestrian and cycle infrastructure (protected, dedicated and shared) as well as possible traffic calming measures, or junction improvement to prioritise pedestrian and cycle movement. A high level indicative costing for each typical design treatment is also provided to assist Council in determining future Capital Works budgets and prioritisation projects.

A preferred **design speed of 40km/hr (or less)** is desirable for cycle safety, particularly on streets where there is no buffer and car parking. It is also most appropriate on residential streets where there is less turnover and a lower chance of conflict between cyclists and parked cars. Streets with low traffic volume (<3000vpd) are more desirable for cycle 'sharrow', or mixing of cyclists and general traffic.

A catalogue of technical drawings (prepared by Trafficworks) is available in Appendix A.

TYPICAL TREATMENTS		
TYPES	PAGE REFERENCE	REFERENCE (APPENDIX A)
PROTECTED TREATMENTS		
2- Way Cycle lane	13	**Type A:** 2-way cycle land on one side of the road. **Type B:** T-intersection with kerb outstands, two-way cycle lane.
1- Way Cycle Lane	14-15	**Type C:** Separated Copenhagen Style Bicycle lanes. **Type D:** Cycle lane with buffer & vertical separator.
DEDICATED TREATMENTS		
Buffered Cycle Lane	17	**Type E:** Crossing-section with buffer between cycle lane and traffic lane.
Conventional Cycle Lane	18	**Type F:** Kerb Extension with Raised side street on-road cycle lane. **Type G:** Contraflow cycle lane for intersections with one-way exits
SHARED TREATMENTS		
Pinch Point	20	**Type H:** Pinch point with raised cushion
Chicane	21	**Type I:** SE Chicane 15m (7.2m Carriageway)
Pedestrian Refuge Crossing	22	**Type J:** Refuge Crossing
Gateway Table	23	**Type K:** Raised on Side Street Treatment
Raised T-Intersection	24	**Type L:** Raised T-intersection with connecting shared path
Raised Shared Path Crossing	24	**Type M:** Raised shared path crossing (non-priority path)
Raised Wombat Crossing	25	**Type N:** Raised wombat crossing
Pavement Marking	26	**Type O:** Kerb extension*

*Note *: Not included in Appendix A.*



PROTECTED TREATMENTS

TYPICAL TREATMENTS



Queens Plaza, New York, USA (Marpillero Pollak Architects)

TYPE A

2-Way Cycle Lane

2-way bicycle lanes are bicycle lanes designed to allow bicyclists to ride in the opposite direction of motor vehicle traffic.

They are achieved by using a continuous, or near – continuous physical barrier (i.e. secondary kerb or landscape).



Seattle, USA (Photo: Ilya Varlamov)

TYPE C

1- Way Cycle Lane

Copenhagen-style cycle lanes position cycle lanes adjacent to the kerb paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/ or parking lane.

They are also achieved by using a continuous, or near – continuous physical barrier (i.e. secondary kerb, cycle lane separator, or landscaping).

OVERALL DESIGN PARAMETERS

- Suitable in locations where there are limited vehicle crossovers.
- A minimum 1.5m pedestrian footpath (on both sides of the street).
- Sight lines are maintained to oncoming traffic and pedestrian crossings.
- Adequate public realm lighting.
- Streets are legible for pedestrian and cyclists (signage, landscape, wayfinding).
- Public transport functionality and efficiency is maintained.
- Cycle maintenance facilities are provided (i.e. Parking, cycle pump).
- Public transport facilities (i.e. Bus/ tram stops) are provided with high quality amenity, including shelter, or cycle parking.
- Design palettes should contribute to visual narrowing of the carriageway.
- Street greening initiatives including water sensitive urban design treatments are integrated.
- Vehicle crossings between private properties and carriageways are demarcated and managed.
- Openings for vehicle access, drainage, pedestrian crossings and desire lines are co-ordinated with the roadway.
- Street furnishing (furniture, lighting, landscaping) are arranged to ensure clear pedestrian footpath and provide a degree of separation between pedestrian and cyclists.
- Road management signage should be kept at a minimal to reduce visual clutter.



Figure 3. Proposed designation of Protected Cycle Facilities



PROTECTED TREATMENTS

TYPE A/ B 2-WAY CYCLE LANE

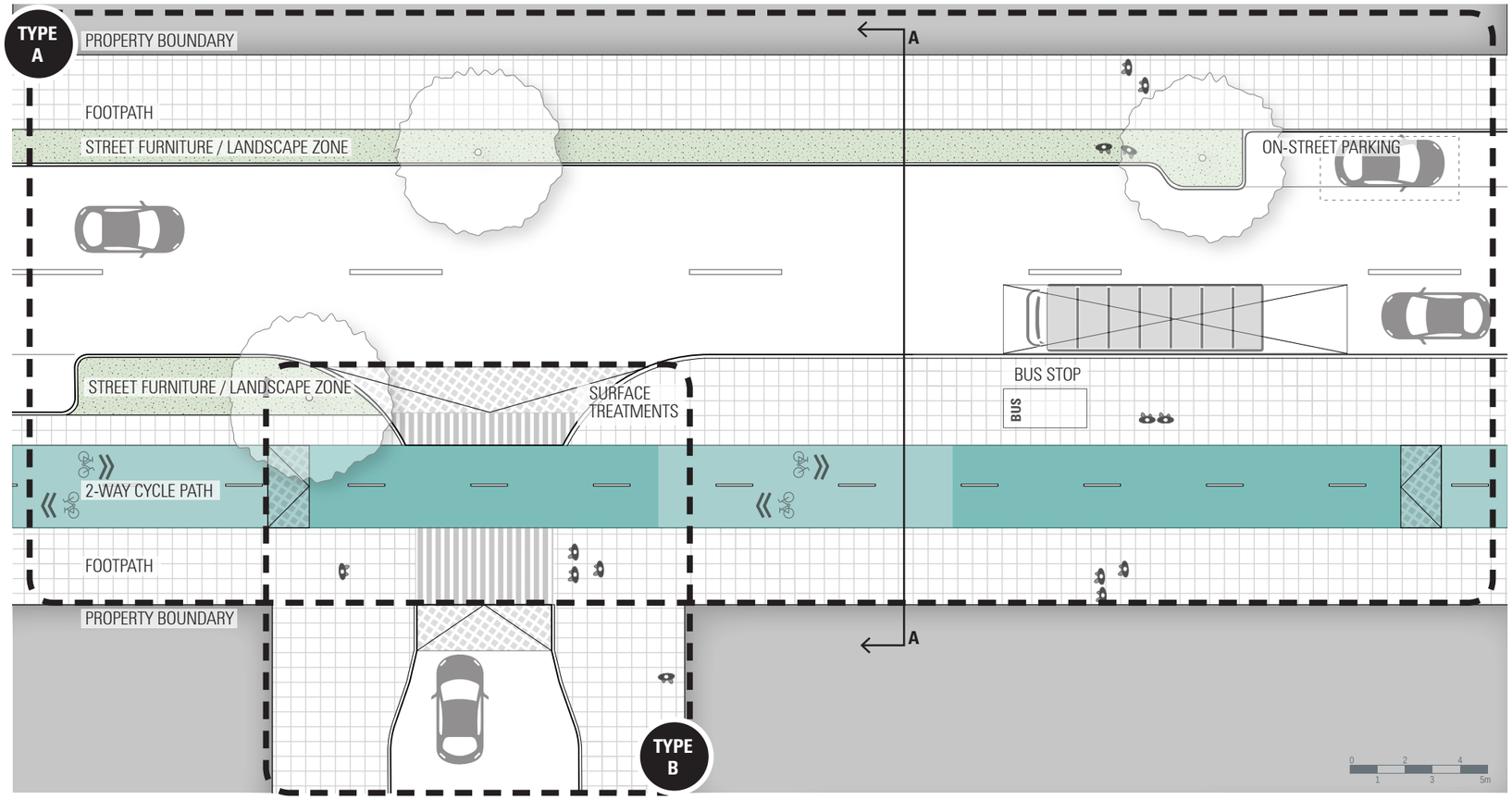
DESIGN PARAMETERS:

2-way bicycle lanes are bicycle lanes designed to allow bicyclists to ride in the opposite direction of motor vehicle traffic. They are achieved by using a continuous, or near – continuous physical barrier (i.e. secondary kerb or landscape).

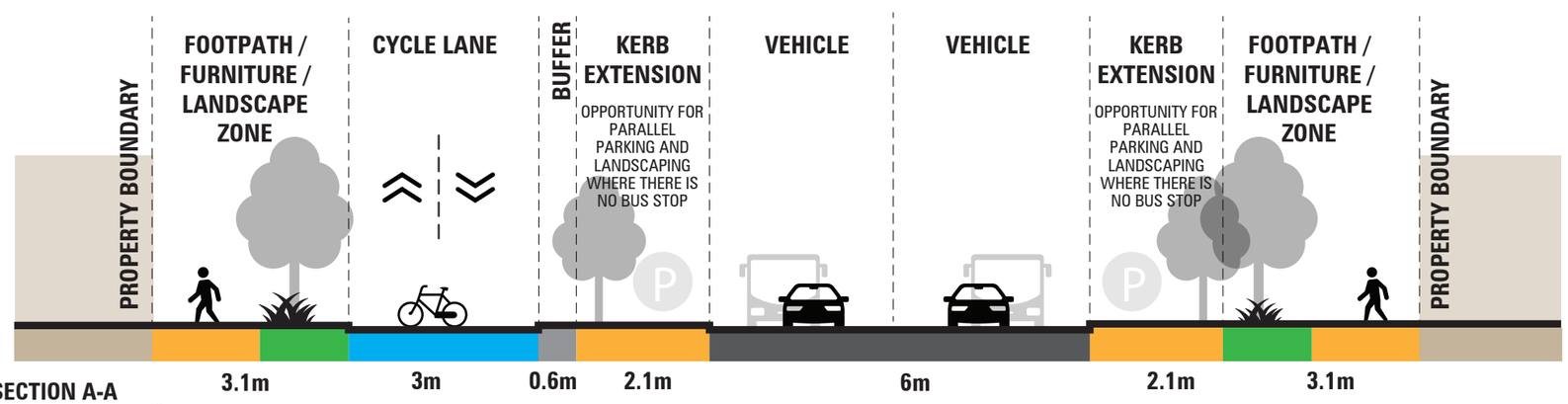
- Suitable in locations where there are limited vehicle crossovers.
- A minimum 1.5m cycle lane in each direction (combined 3m).
- Cycle lanes are positioned to 1 side of the street between pedestrian footpath and kerbside car parking.
- Consider kerb extensions into on-street car parking at regular intervals to provide for landscaping and/or street furniture.
- Barrier elements such as median island separator are built to lower the risk of cycle riders catching pedals on kerb with maximum 100mm kerb height.
- Bicycle lane word, symbol, and arrow markings shall be used to define the cycle lane direction and designate that portion of the street for preferential use by cyclists.
- Intersection traffic controls along the street (e.g., stop signs and traffic signals) shall also be installed and oriented toward cyclists in cycle lanes.
- 2-way cycle lane markings should be extended across the intersection as a way of alerting cross street traffic to look for cyclists.
- Coloured pavement may be used to draw attention to the function of the lane, or in areas with cross traffic, for increased visibility of cyclists.
- Consider a 'No Turn' restrictions on cross streets to minimize potential conflicts with turning vehicles.
- Refer to **Typical Treatment Type A** of the Traffic Works Standard Drawing Package.

Local 2-way cycle lane example includes:

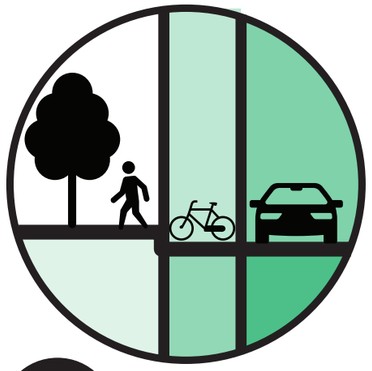
- Fitzroy Street, St Kilda.



Typical treatment for 2-Way cycle path



SECTION A-A
Typical cross-section of 2-Way cycle path



PROTECTED TREATMENTS

TYPE C 1-WAY CYCLE LANE

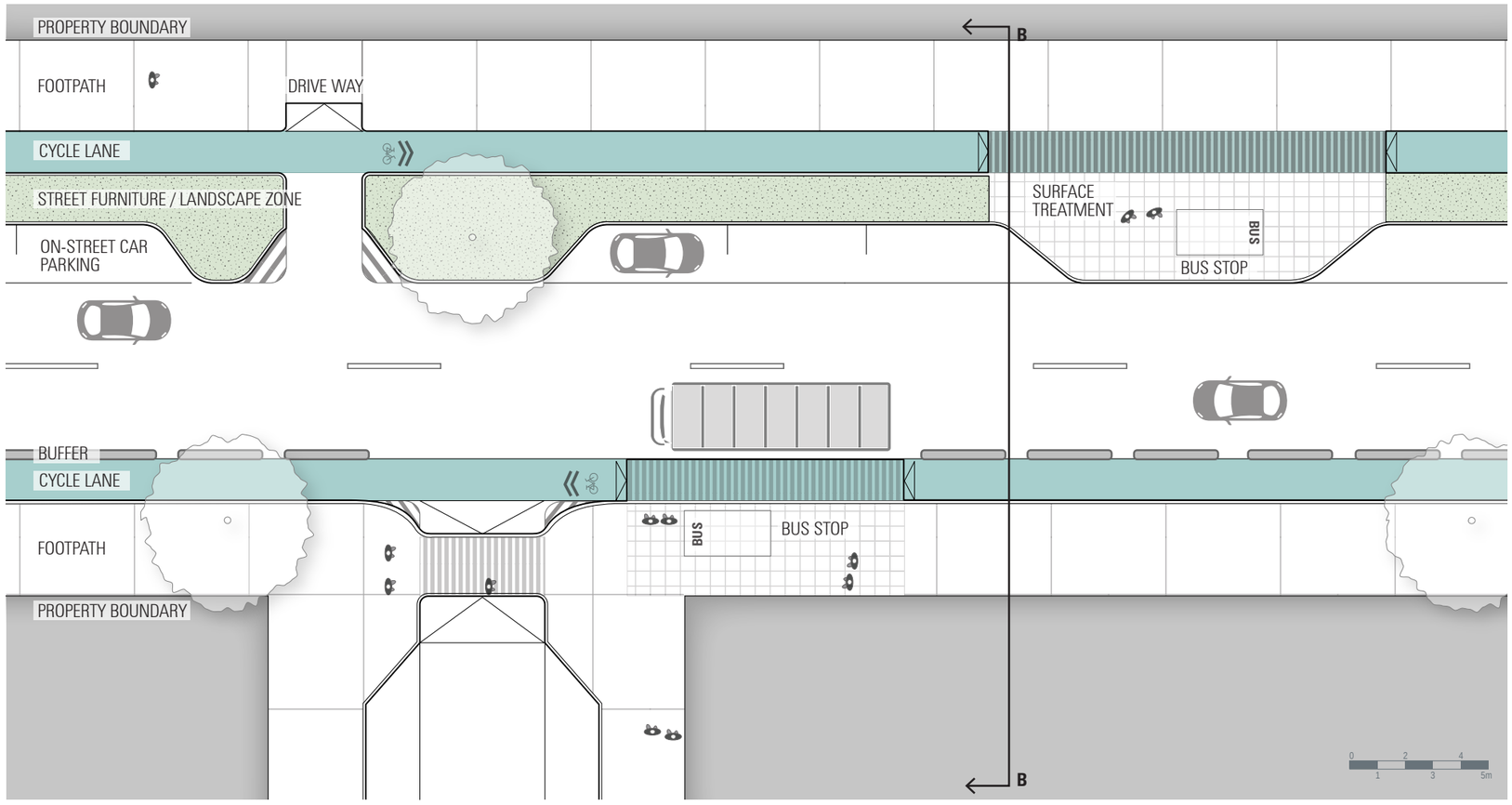
DESIGN PARAMETERS:

1-way bicycle lanes are protected bicycle lanes to both sides of the street either raised to kerb level or at road-level comprising a secondary kerb adjacent to parallel car parking or moving traffic. Kerb treatments may vary to each side depending on carriageway width and can comprise landscape and/or paving.

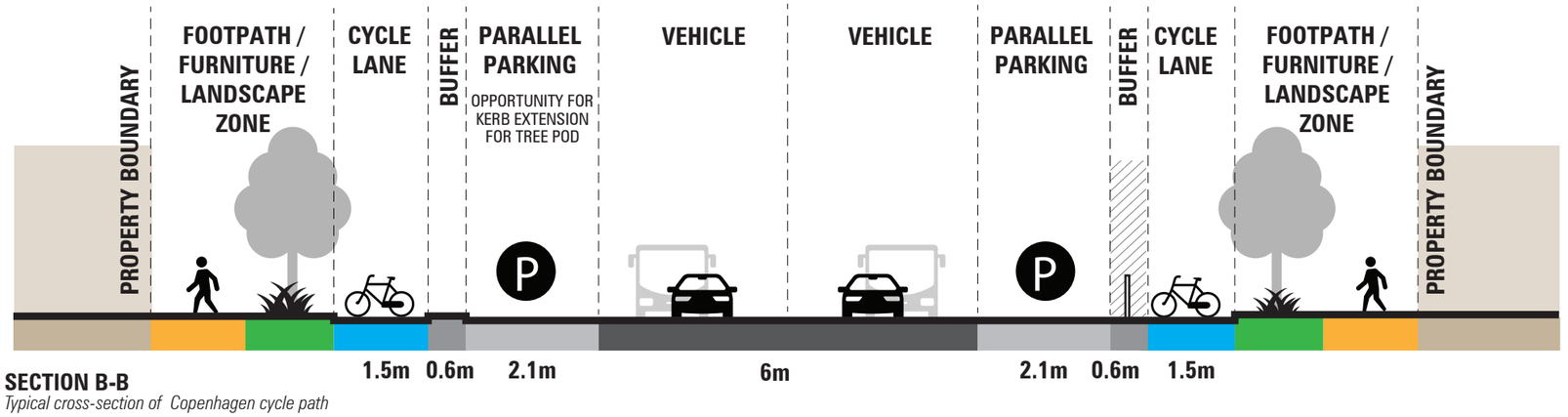
- Suitable for areas where street greening is encouraged with opportunity to rationalise on street car parking for improved pedestrian amenity.
- A 1.5m, or preferred 1.8m (where possible) cycle lane is positioned to either side of the street between pedestrian footpath and kerbside car parking. Car parking may be removed on 1 side of the road to accommodate treatment.
- Cycle lane size may vary depending on carriageway width, with a minimum 1.2m width.
- A minimum 1m buffer between cycle lane and traffic lane with opportunity to vary buffer width to 2.1m for street greening opportunity. On street parking could potentially be installed in between landscape strip.
- A minimum 3.0m, or preferred 3.5m traffic lane where possible, depending on carriageway width.
- Word, symbol, and arrow markings shall be used to define the cycle lane direction and designate that portion of the street for preferential use by cyclists.
- Intersection traffic controls along the street (e.g., stop signs and traffic signals) shall also be installed and oriented toward cyclists.
- Cycle lane markings should be extended across the intersection to alert cross street traffic to look for cyclists. This can also be integrated with Gateway Table elements.
- Coloured pavement may be used to draw attention to the function of the lane, or in areas with cross traffic, for increased visibility of cyclists.
- Refer to **Typical Treatment Type C** of the Traffic Works Standard Drawing Package.

Local 1-way protected cycle lane examples include:

- Cecil Street, South Melbourne (South Melbourne Market).
- Swanston Street, Melbourne.
- Wellington Street, Collingwood.
- La Trobe Street, Melbourne.



Typical treatment for 1 - way cycle lane.



SECTION B-B
Typical cross-section of Copenhagen cycle path



PROTECTED TREATMENTS

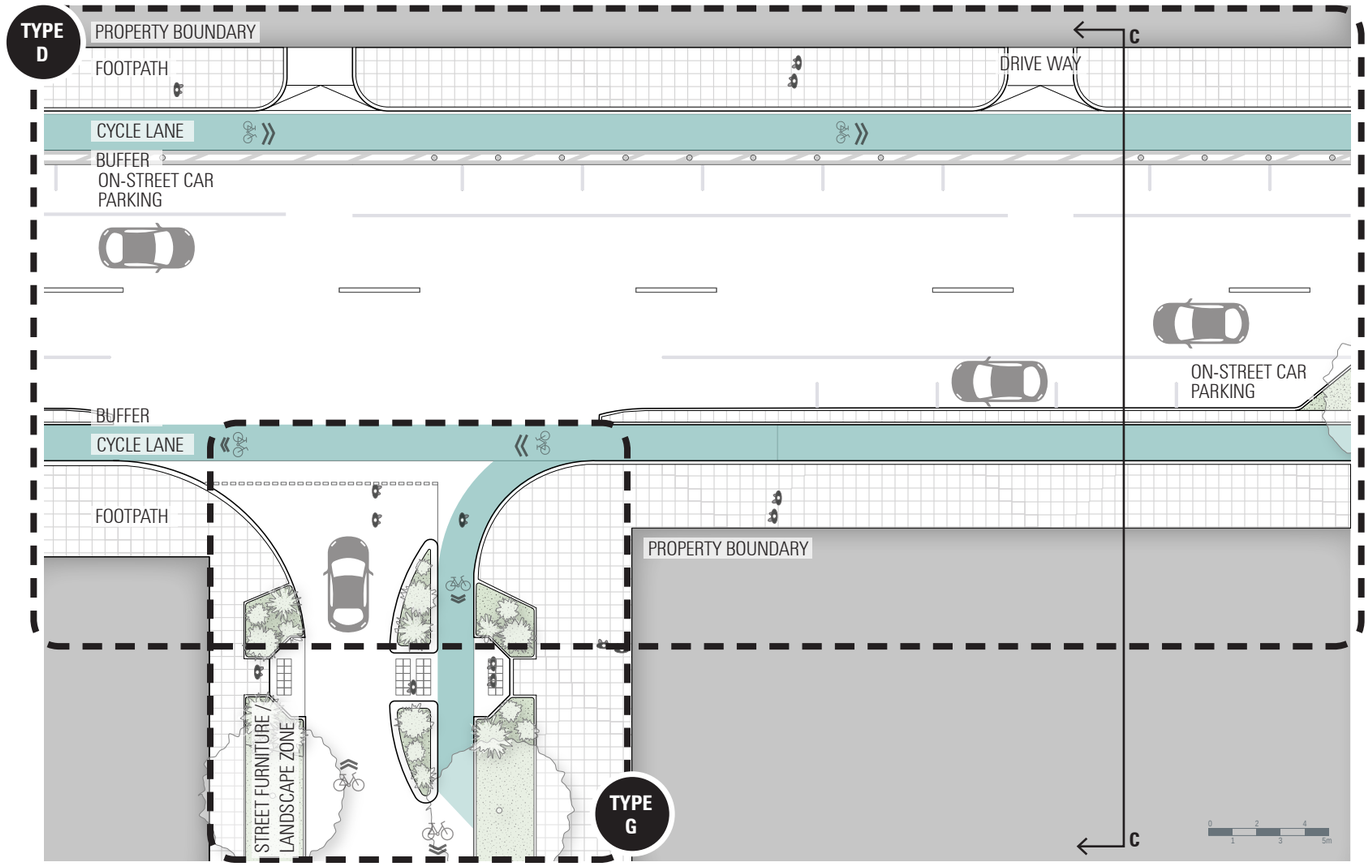
TYPE D/ G

1-WAY CYCLE LANE WITH SEPARATOR

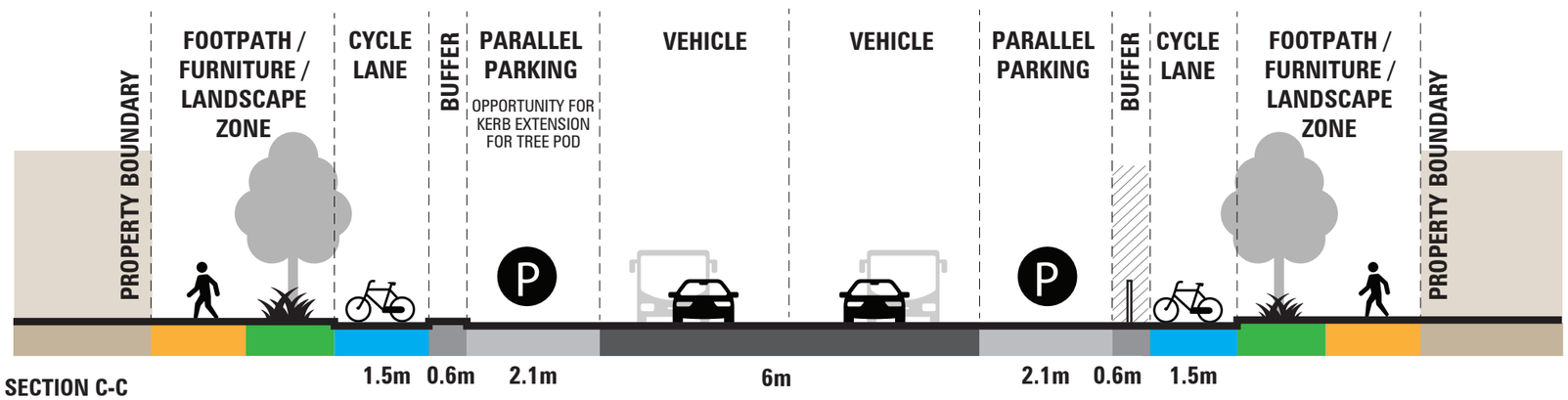
DESIGN PARAMETERS:

1-way bicycle lanes (with separator) comprise a protected bicycle lane to one side of the street, adjacent to moving traffic, and a buffered bike lane to the other, adjacent to car parking.

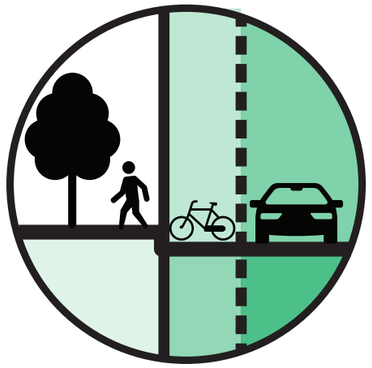
- A minimum 1.5m cycle lane is positioned to either side of the street between pedestrian footpath and kerbside car parking. Car parking may be removed on 1 side of the road to accommodate treatment.
- Consider kerb extensions into on-street car parking at regular intervals to provide for landscaping and/or street furniture.
- Where there are limited crossovers, barrier elements such as raised median separators are implemented to lower the risk of cycle riders catching pedals on kerb with maximum 100mm kerb height.
- Where crossovers are frequent, line marked buffers are used to protect cyclists from moving or parked vehicles.
- Bicycle lane word, symbol, and arrow markings shall be used to define the cycle lane direction and designate that portion of the street for preferential use by cyclists.
- Intersection traffic controls along the street (e.g., stop signs and traffic signals) shall also be installed and oriented toward cyclists.
- Cycle lane markings should be extended across the intersection to alert cross street traffic to look for cyclists. This can also be integrated with Gateway Table elements.
- Coloured pavement may be used to draw attention to the function of the lane, or in areas with cross traffic, for increased visibility of cyclists.
- Refer to **Typical Treatment Type D** of the Traffic Works Standard Drawing Package.



Typical treatment for 1 - way cycle lane.



SECTION C-C
Typical cross-section of Copenhagen cycle path



DEDICATED TREATMENTS

TYPICAL TREATMENTS



TYPE E

Buffered Cycle Lane

Buffered cycle lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.

Melbourne, Australia



TYPE F

Conventional Cycle Lane

Conventional dedicated cycle lane (on-road): achieved by using line marking, or material treatment to demarcate exclusive use of cycle riders and to discourage vehicle access.

Melbourne, Australia

OVERALL DESIGN PARAMETERS

- A minimum 1.5m cycle lane to each side of the road.
- Consistent alignment along corridor extent is provided.
- Alternative surface treatment recommended to assist with identifying change in cycle conditions.
- Line marking and surface treatments help to visually narrow the width of street to assist with traffic calming.
- A continuous and legible path including at junctions.
- Minimise conflict between buses and cyclists on public transport routes.

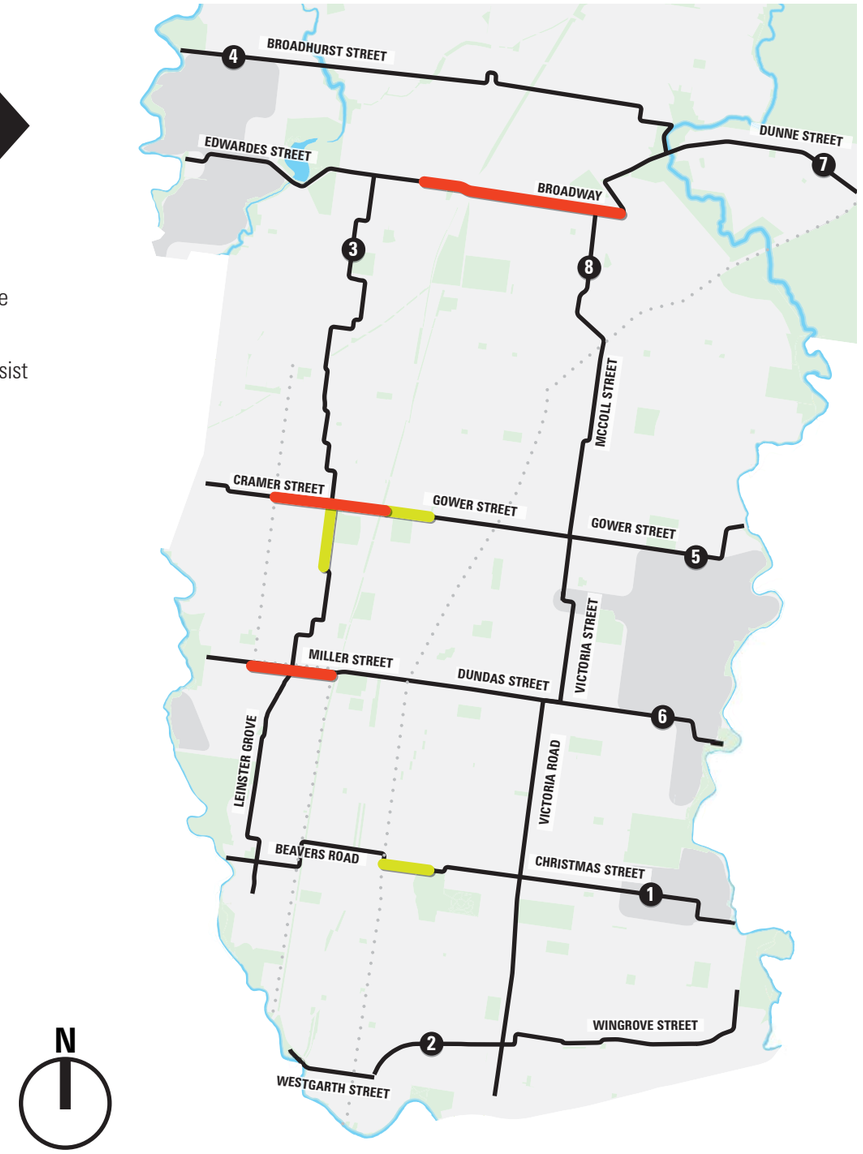
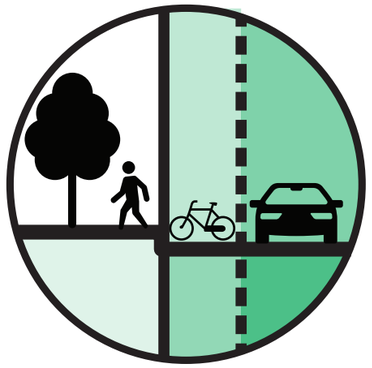


Figure 4. Proposed designation of Dedicated Cycle Facilities



DEDICATED TREATMENTS

TYPE E BUFFERED CYCLE LANE

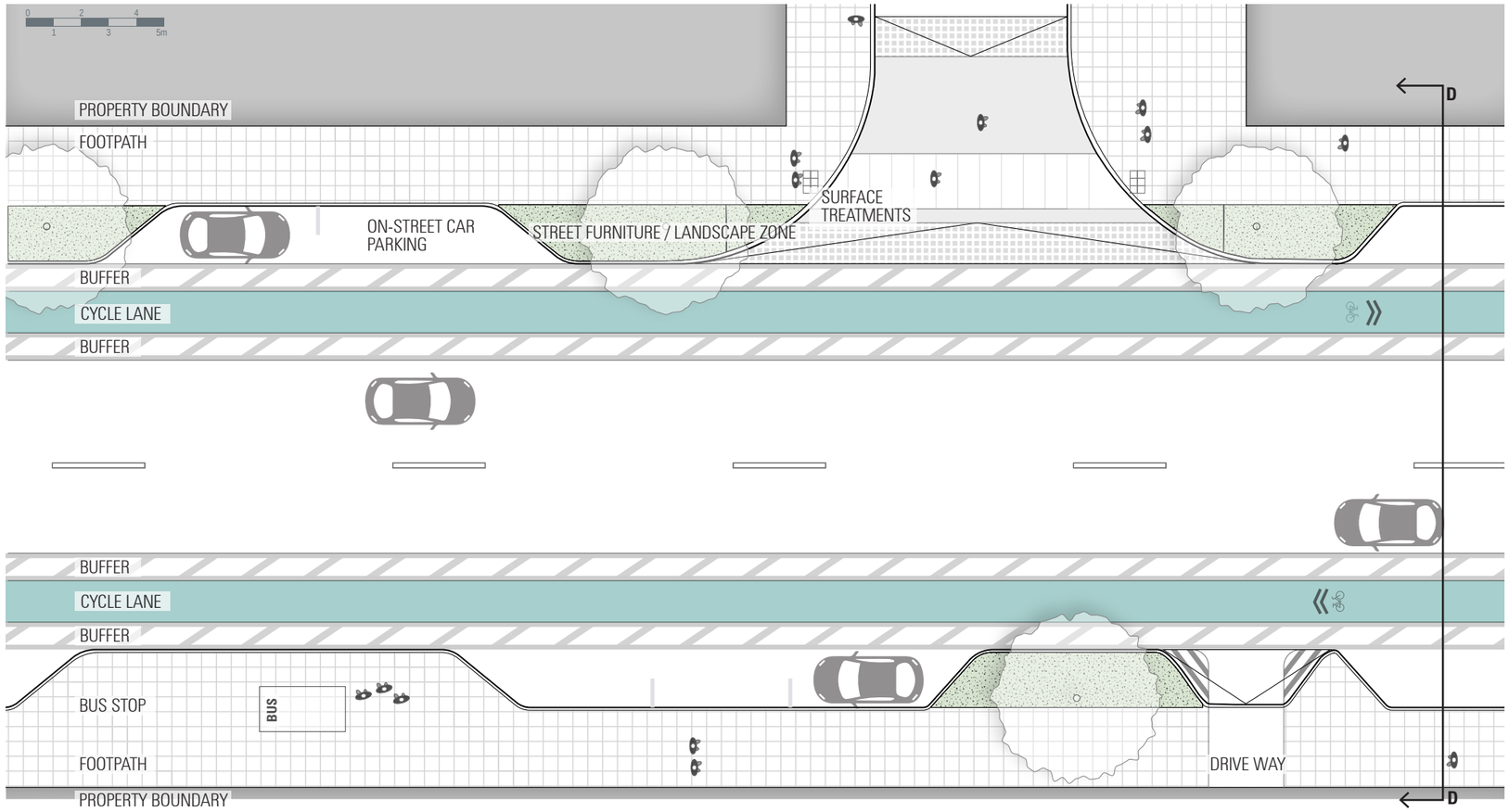
Buffered cycle lanes are conventional cycle lanes combined with a buffer space separating the lane from moving and parked traffic. This option can be used as an interim treatment to provide for physical separation whilst also working towards achieving the ultimate full separated outcome.

DESIGN PARAMETERS:

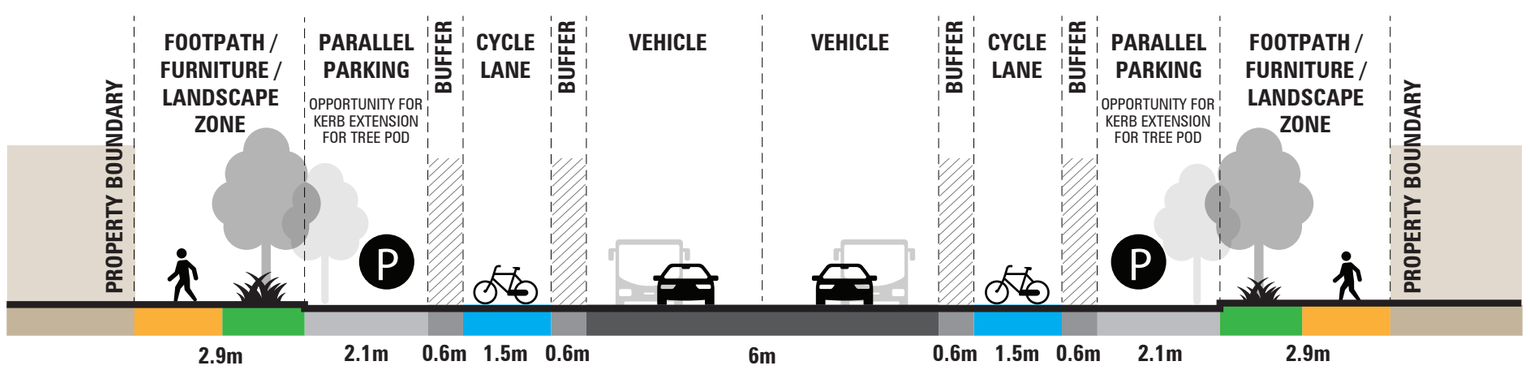
- A minimum 1.5m cycle lane and a buffer width of 0.6-1m to each side of the lane *(NOTE: Traffic advice has sought to vary NACTO minimum buffer requirements for bicycle lanes to a minimum of 0.6m*).
- The buffers provide protection from both parked vehicles along the kerb and moving traffic along carriageways, while also allowing room for cyclists to overtake without encroaching into adjacent motor vehicle traffic lane.
- Street furnishing (furniture, lighting, landscaping) are arranged to ensure clear pedestrian footpath and provide a degree of separation between pedestrian and cyclists.
- Line marking and surface treatments help to visually narrow the width of street to assist with traffic calming.
- Consider kerb extensions into on-street car parking at regular intervals to provide for landscaping and/or street furniture and narrow width of carriageway.
- Refer to **Typical Treatment Type E** of the Traffic Works Standard Drawing Package.

Local buffered cycle lane examples include:

- Pigdeon Street, Princess Hill.
- Rathdowne Street, Carlton North

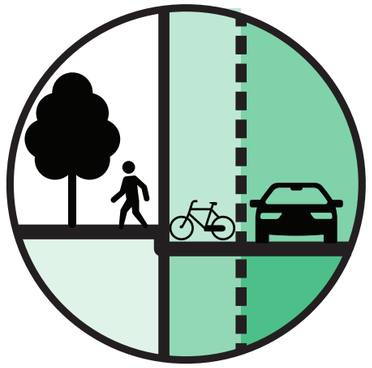


Typical Plan of buffered cycle path



SECTION D-D

Typical cross-section of buffered cycle path



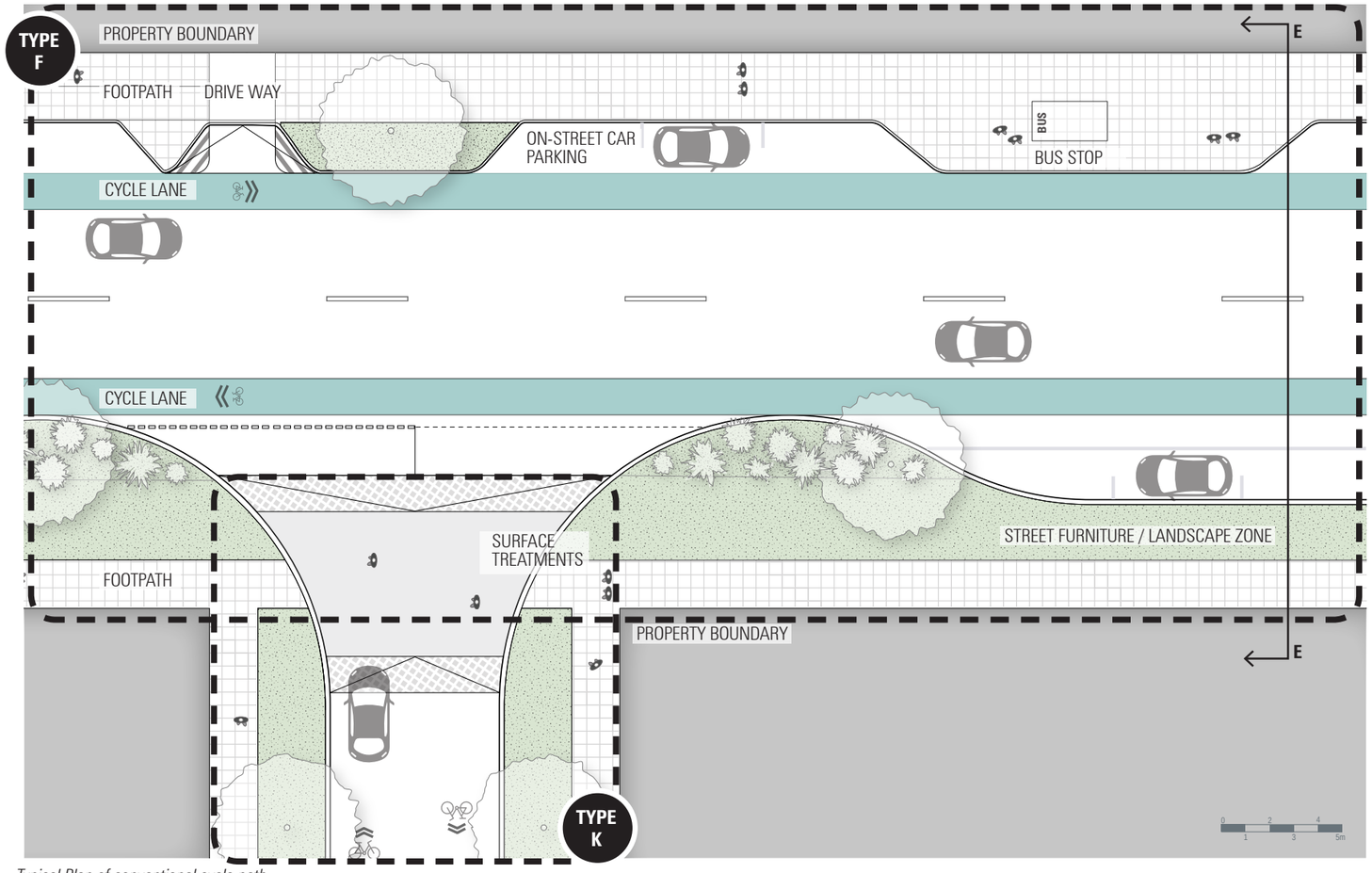
DEDICATED TREATMENTS

TYPE F/ K CONVENTIONAL CYCLE LANE

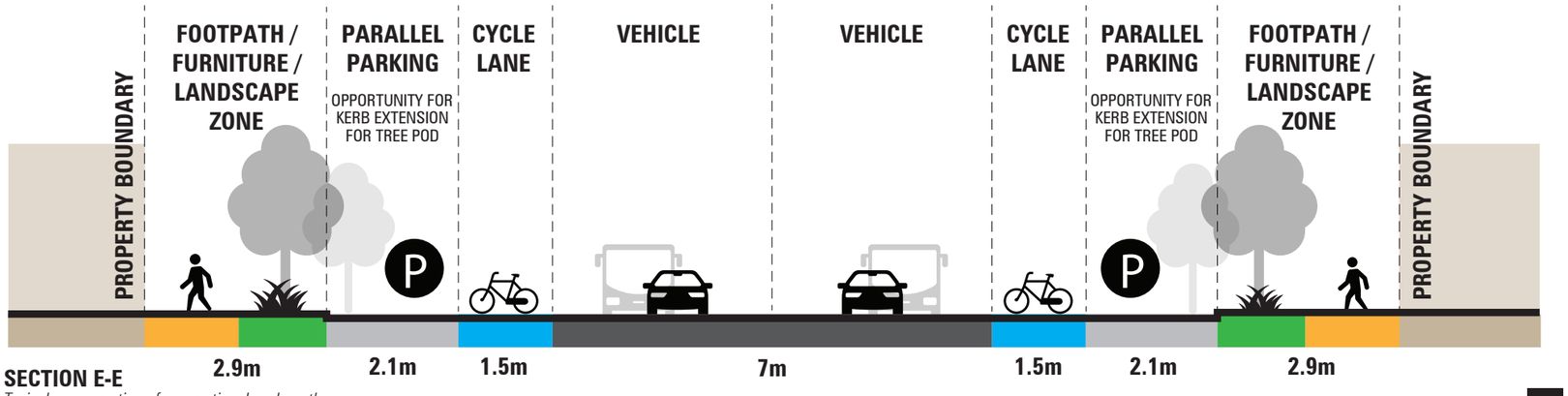
Conventional dedicated cycle lane (on- road): achieved by using line marking, or material treatment to demarcate exclusive use of cycle riders and to discourage vehicle access.

DESIGN PARAMETERS:

- A minimum 1.5m cycle lane to each side of the road.
- The cycle lane is located adjacent to vehicle lanes and flows in the same direction as vehicle traffic.
- Cyclists may leave the cycle lane to pass other bicyclists, make left turns, avoid obstacles or debris, and avoid other conflicts with other users of the street.
- Cycle lanes are most helpful on streets with ≥ 3,000 motor vehicle average daily traffic.
- Consider kerb extensions into on-street car parking at regular intervals to provide for landscaping and/or street furniture and narrow width of carriageway.
- Refer to **Typical Treatment Type D** of the Traffic Works Standard Drawing Package.



Typical Plan of conventional cycle path



SECTION E-E
Typical cross-section of conventional cycle path



SHARED TREATMENTS

TYPICAL TREATMENTS

For shared facility, all street users are expected to negotiate and travel at a lower speed. The following design options are ways to facilitate traffic calming without detrimental impact on pedestrian and cyclist movement:



Southeast False Creek Olympic Village, Canada (PWL Partnership)

Kerb Extension/ Median

Kerb extensions are achieved by extending existing kerb line, narrowing carriageway widths to demarcate minor junctions, create public open space and slow down traffic.

Types of kerb extensions can include pinchpoints and chicanes.



Northshore Hamilton, Brisbane (PDT Architects)

Vertical Speed Control

Vertical speed control is achieved by elevating part of the carriageway to be flush with the pedestrian footpath. Material treatment can be applied to distinguish this 'zone' from the carriageway.

Types of vertical speed control can include a raised table at intersections with perpendicular streets or mid-block at key pedestrian crossing points.



Ljubljana, Slovenia (Eduard Čehovin)

Ground Plane Variation

Ground Plane Variations are interim design measures that can be used to improve pedestrian safety, reduce vehicle speeds and provide additional public open space that can be delivered in the short-term at low cost. These treatments can be used to test the viability and appetite for more permanent public realm improvements. Ground Plane variations also invite public art initiatives to enhance place identity.

OVERALL DESIGN PARAMETERS

- Combine design interventions with local area traffic management and controls to improve cyclist and pedestrian safety.
- Public transport functionality and efficiency is maintained. A consistent material treatment to create a legible environment, identifying area for traffic calming.
- Innovative use of material and landscape treatments to provide cues for equitable access and wayfinding.
- Detail elements are incorporated in the design treatment to add local character and provide visual coherence to the corridor.
- Street landscaping and water sensitive urban design initiatives should be utilised to provide for pedestrian amenity and assist with reducing the perception of road width.

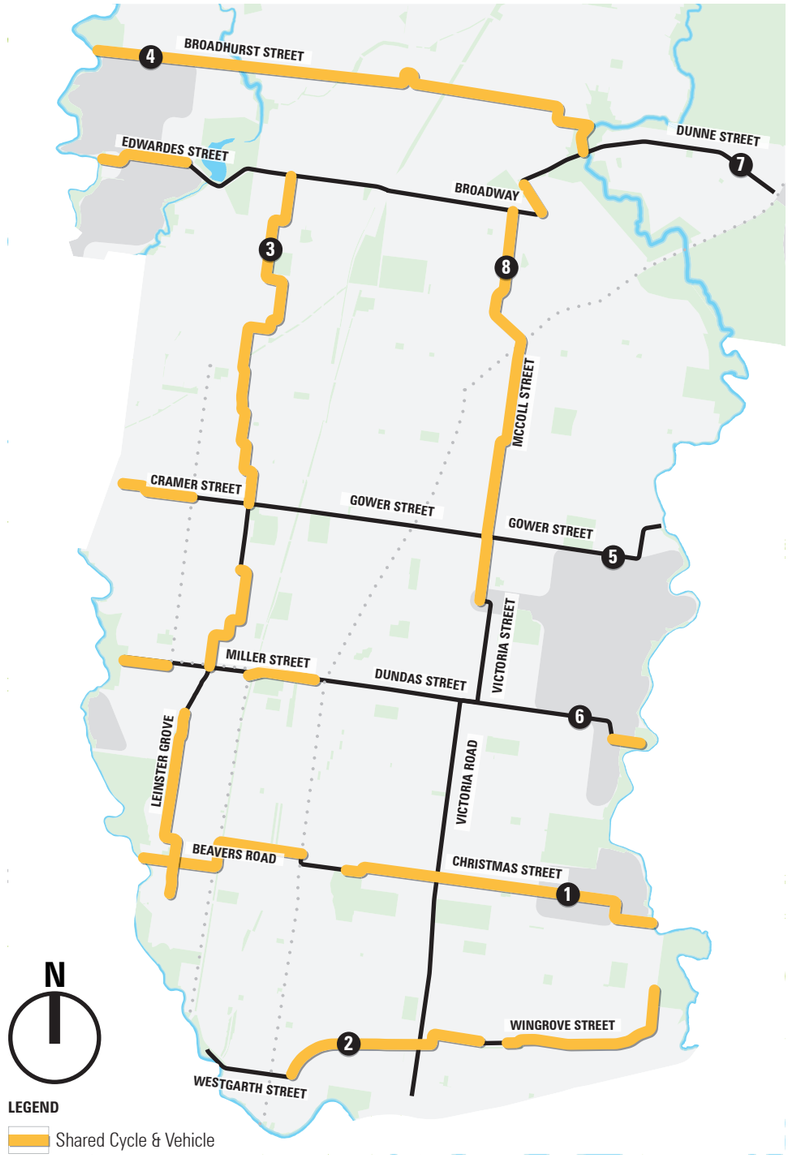


Figure 5. Proposed designation of Shared Cycle Infrastructure



SHARED TREATMENTS

TYPE H KERB EXTENSION: PINCHPOINT

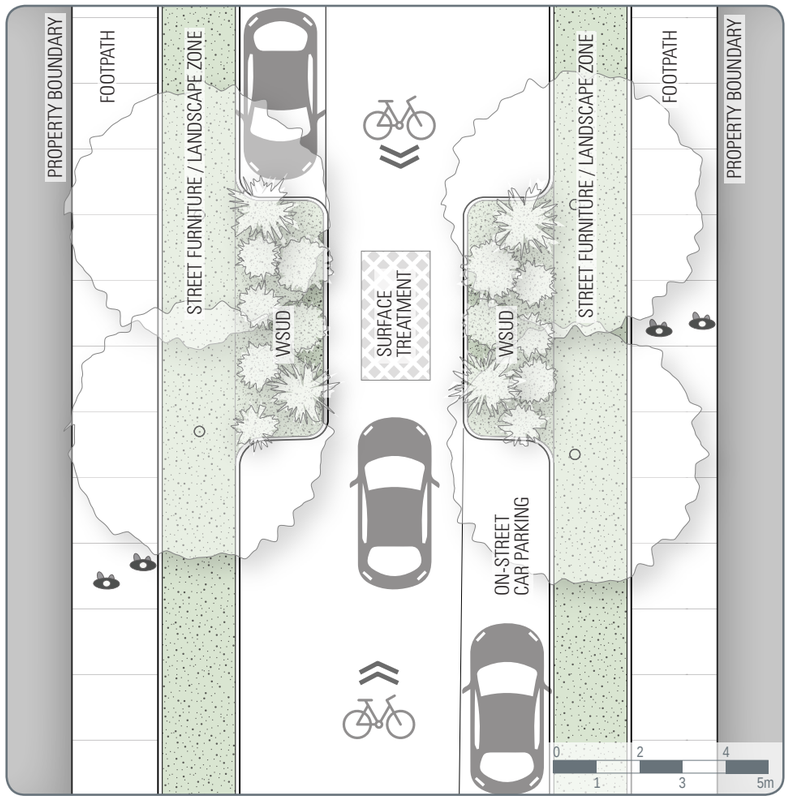
Pinchpoints are located midblock and are used to decrease the width of the carriageway to slow vehicle movement and provide enhanced landscape opportunities. Pinchpoints seek to extend the kerb line into car parking zones and can force vehicles to give way to one another or maintain 2-way movement.

DESIGN PARAMETERS:

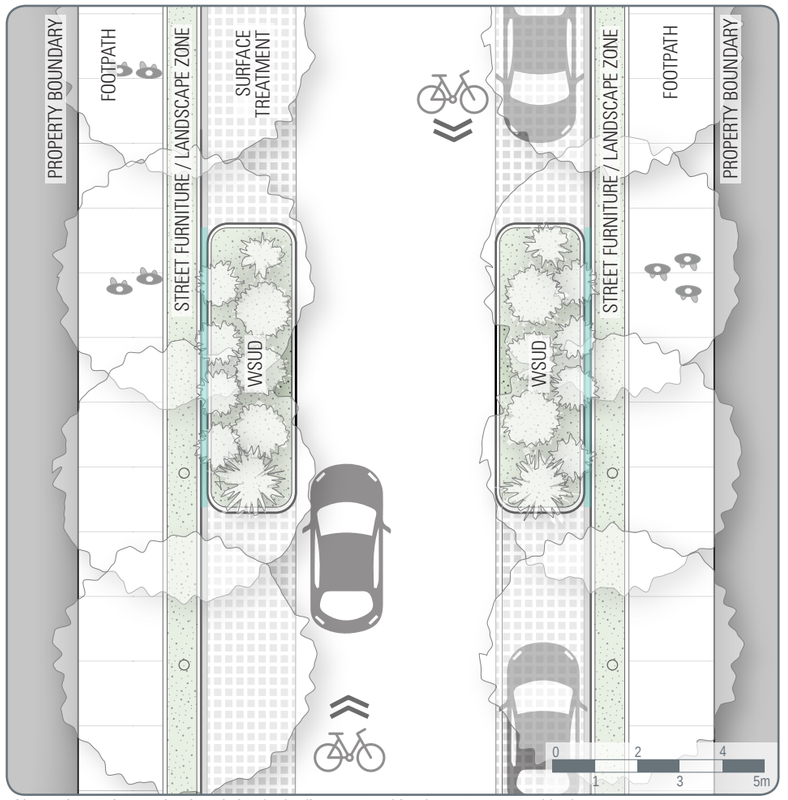
- Kerb extensions encroach into car parking spaces on both sides of the street providing a return angle of 45 degrees.
- Surface treatment of kerb extensions have regard to the preferred character of the area (i.e. landscape or hardstand).
- Seek to utilise WSUD initiatives where appropriate (permeable paving, rain gardens, swales).
- Street trees are planted in kerb extensions to narrow the perceived profile of the carriageway.
- New vegetation maintains clear viewlines toward oncoming traffic and pedestrians.
- Where adverse drainage impacts may occur, option to design extension as an edge island positioned approximately 300m from kerb.
- Pinch-points are designed to accommodate 1 or 2 vehicles depending on desired design speed and carriageway width.
- Pinch points may be designed as a separate kerb treatment adjacent to the kerb line to avoid conflict with existing drainage infrastructure (which may be of cost-benefit).
- Pedestrian priority should be given in higher traffic speed environment (above 40km/h), or streets with higher traffic volume.
- Refer to **Typical Treatment Type H** of the Traffic Works Standard Drawing Package.

Local examples include:

- Albion Street, Brunswick



Typical Plan of Pinchpoint



Alternative option: maintain existing kerb alignment and implement separated kerb extensions in place of parallel car parking



Larissa Avenue, Ringwood



Parklet, San Francisco



SHARED TREATMENTS

TYPE I KERB EXTENSION: CHICANE (OPTIONAL)

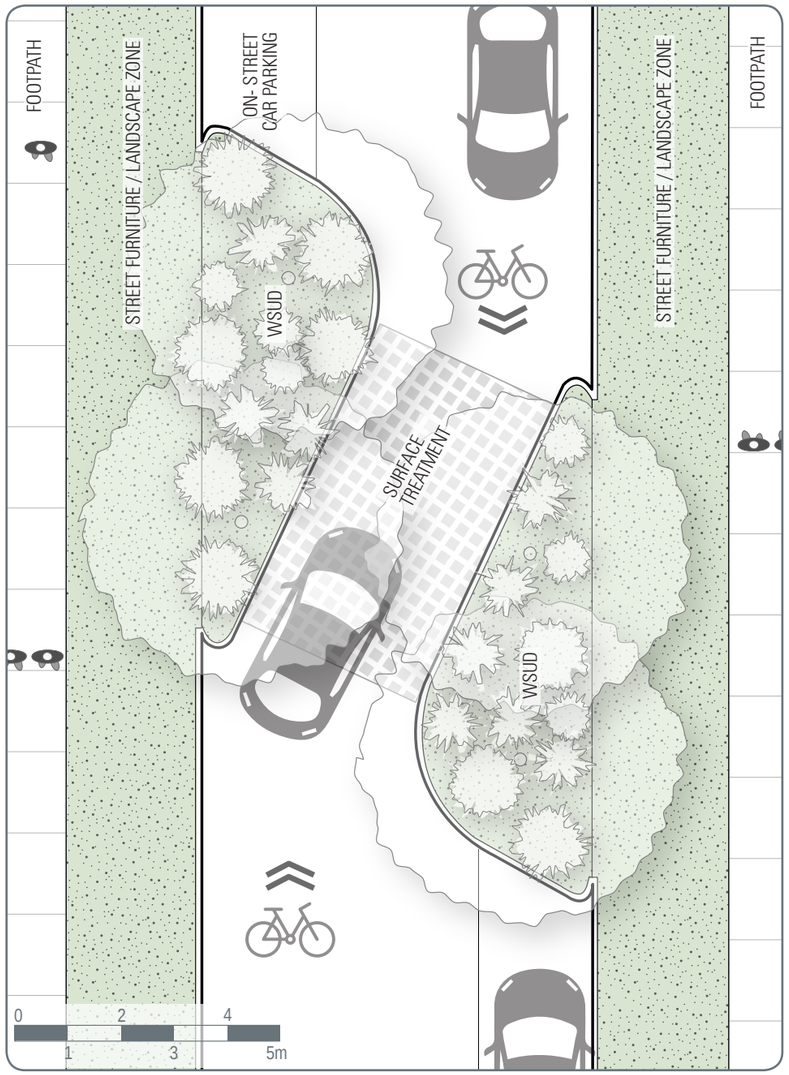
Chicanes are midblock traffic calming measures, providing additional landscape and public open space opportunities.

DESIGN PARAMETERS:

- Chicanes may be designed using a return angle of 45 degrees, or a more gradual taper and transition, resulting in an S-shaped roadway.
- Where a wide carriageway exists, parking may be maintained on both sides of the street and the roadway can jog from side to side using curb extensions.
- Chicanes may be designed as separate kerb elements adjacent to the kerb line to minimise impact with drainage infrastructure.
- Chicanes may incorporate a median island at deflection to prevent vehicles from continuing down the centre of the chicane, disregarding roadway markings.
- Alternative surface treatments are recommended between the chicane kerb extension to delineate a change in road condition.
- Surface treatment of kerb extensions have regard to the preferred character of the area (i.e. landscape or hardstand).
- Seek to utilise WSUD initiatives where appropriate (permeable paving, rain gardens, swales).
- Refer to **Typical Treatment Type I** of the Traffic Works Standard Drawing Package.

Local examples include:

- Miller Street, Fitzroy North
- Gatehouse Street, Parkville



Typical Plan of Chicane

EXAMPLES:



Larissa Avenue, Ringwood (Urban Initiatives)



Brighton, Michigan (Photo:Dan Burden)



Christchurch, New Zealand (Photo: Megan Fowler)



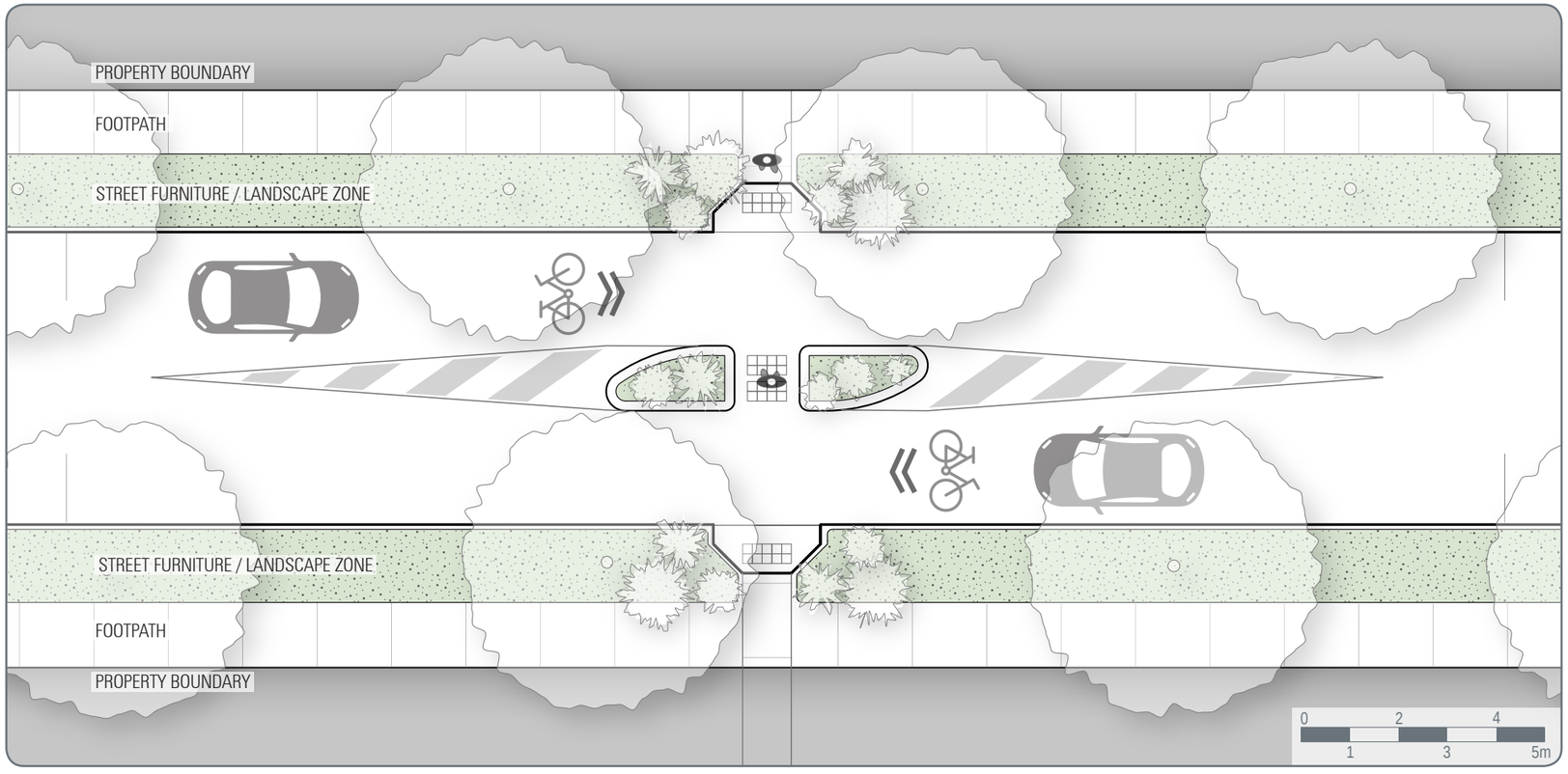
SHARED TREATMENTS

TYPE J — MEDIAN: PEDESTRIAN REFUGE CROSSING

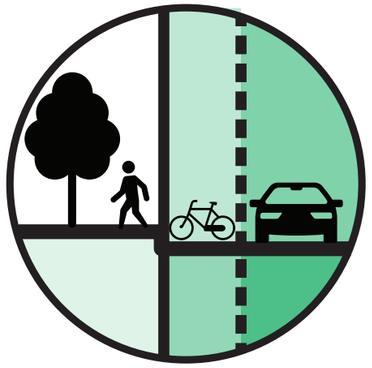
Refuge Crossings can be located both mid-block and at intersections to provide pedestrians with a protected barrier between moving traffic. The pedestrian crossing is at road level and comprises raised median elements to either side of the refuge, which can comprise landscape or paving.

DESIGN PARAMETERS:

- A protected pedestrian zone is provided between moving traffic.
- Two raised threshold elements separate the pedestrian zone, which can comprise landscape or paving.
- Painted line marking is provided to each side of the raised median to draw moving traffic away from the centreline.
- Surface treatment of raised median have regard to the preferred character of the area (i.e. landscape or hardstand).
- New vegetation maintains clear viewlines toward oncoming traffic and pedestrians.
- Refer to **Typical Treatment Type J** of the Traffic Works Standard Drawing Package.



Typical Plan of a Refuge Crossing



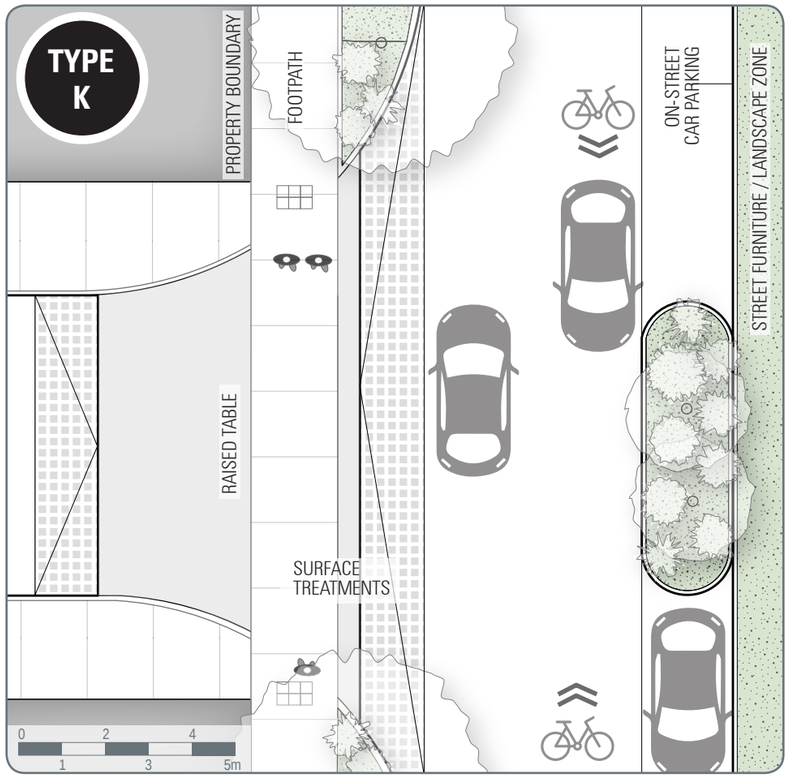
SHARED TREATMENTS

TYPE K/ L **VERTICAL SPEED CONTROL: GATEWAY TABLE**

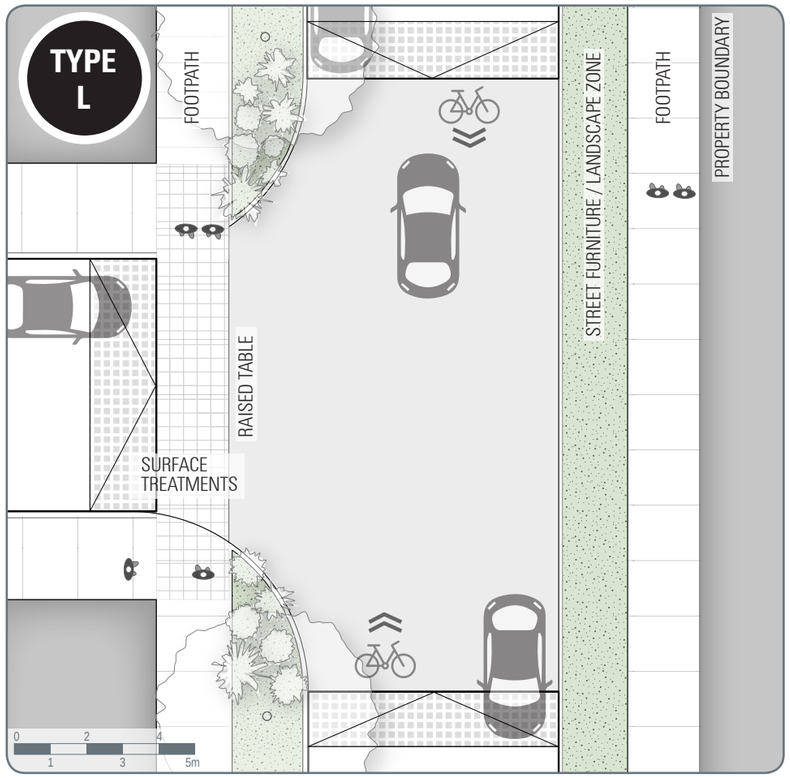
Gateway tables are raised thresholds located at intersections with cross streets to slow vehicle movement, reduce turning circles and improve pedestrian safety and visibility.

DESIGN PARAMETERS:

- The raised table is flush with kerb height to provide accessibility for all pedestrians. It may be used across the intersecting street or applied across the entire intersection to slow vehicles in all directions.
- Kerb extensions may be used in conjunction with raised tables to restrict turning circles and provide additional landscape opportunities.
- A raised table includes rumble strips or cobble approaches to warn drivers of pedestrian crossing.
- Pedestrian footpath is clearly defined across the carriageway through surface treatments.
- The raised table uses paving, brick or other surface treatments which are reflective of the local character and define pedestrian space.
- Landscape and signage is positioned within the kerb to improve legibility and wayfinding.
- Raised tables can be used in conjunction with kerb extensions on the opposite side of the road to provide both visual cues to oncoming drivers and slow vehicle speeds on perpendicular streets.
- Slopes should not exceed 1:10 or be less steep than 1:25.
- Side slopes on tapers should be no greater than 1:6.
- Refer to **Typical Treatment Type K & Type L** of the Traffic Works Standard Drawing Package.



Typical Plan of perpendicular intersection treatment



Typical Plan of alternative raised intersection treatment



Example of raised intersection and kerb outstand in Brunswick



Example of raised intersection treatment



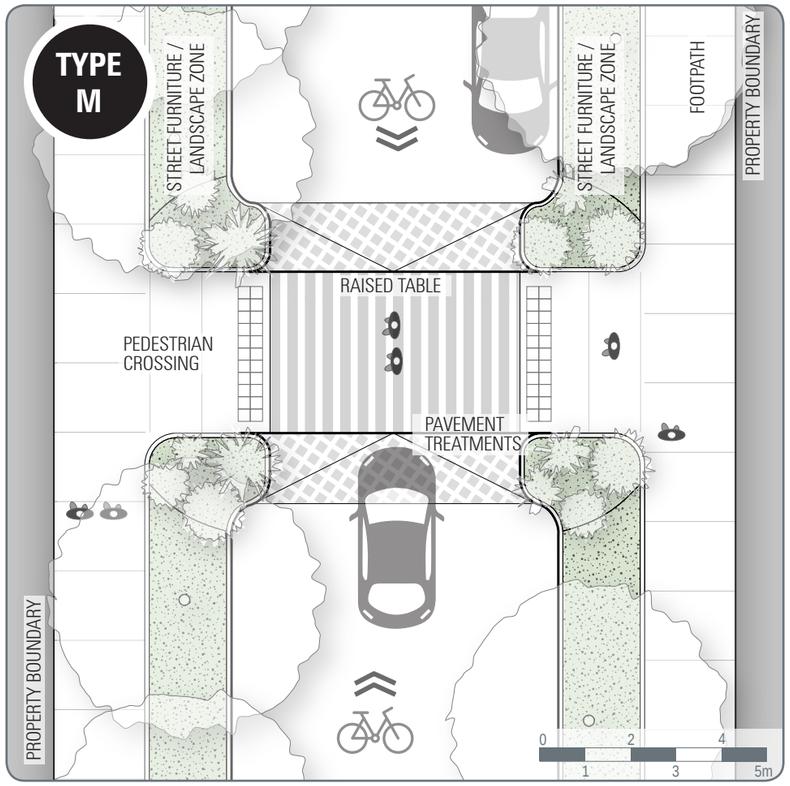
SHARED TREATMENTS

TYPE M/ N VERTICAL SPEED CONTROL: SPEED TABLE CROSSING

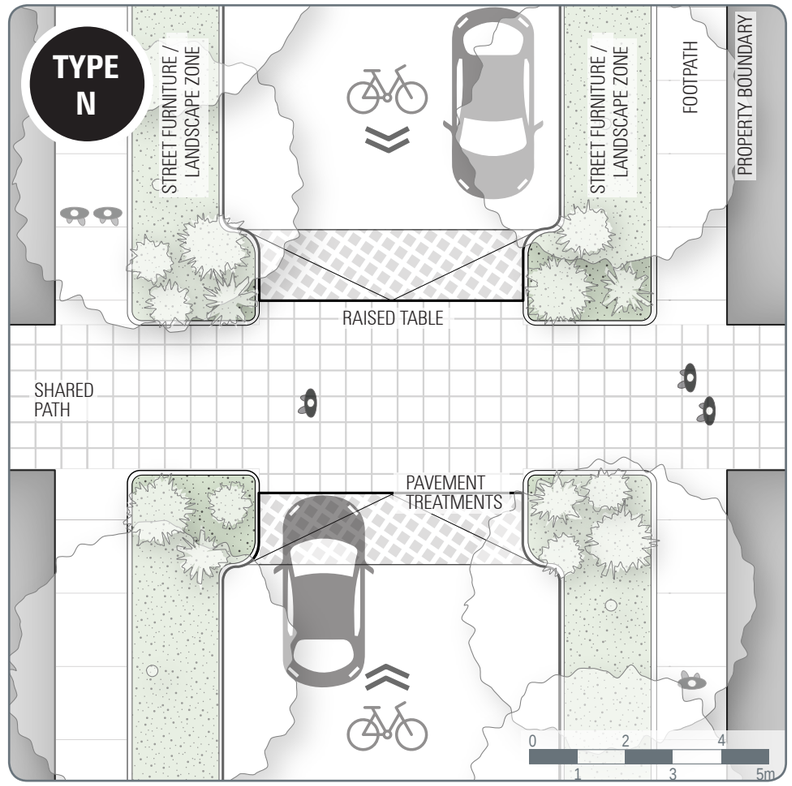
A speed table crossing (or a wombat crossing) is located mid-block to provide safe pedestrian movement, improved landscape opportunities and slow vehicle speeds. These treatments may be aligned with key destinations such as schools or public open spaces. Where a shared user path intersects with a local street, a similar configuration may apply to improve cycling efficiency and safety.

DESIGN PARAMETERS:

- Pedestrian footpath (or shared path) is clearly defined across the carriageway through line marking or pavement.
- Any raised table is flush with kerb height, or provided with ramps, to provide accessibility for all pedestrians.
- A raised table includes rumble strips or cobble approaches to warn drivers of crossing.
- The raised table uses paving, brick or other surface treatments which are reflective of the local character and define pedestrian space.
- Landscape and signage is positioned within the kerb to improve legibility and wayfinding.
- Slopes should not exceed 1:10 or be less steep than 1:25.
- Side slopes on tapers should be no greater than 1:6.
- Crossings are signed where traffic volumes exceed 2000 vehicles per day.
- Refer to **Typical Treatment Type M & Type N** of the Traffic Works Standard Drawing Package.



Typical Plan of Speed Table Pedestrian Crossing



Typical Plan of Speed Table Shared Path Crossing



Mount Barker Road, Hahndorf (SA Gov.)



(Source: NACTO)



SHARED TREATMENTS

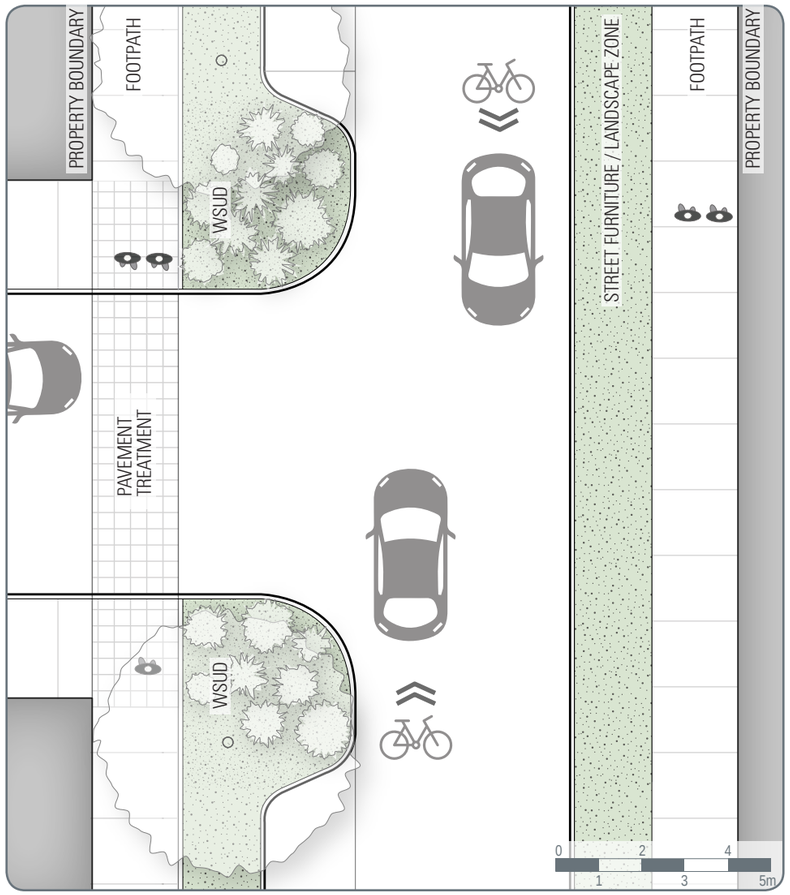
TYPE 0 PAVEMENT MARKING: PEDESTRIAN CROSSING

Gateway Kerb Extensions are positioned at an intersection to increase the visibility of pedestrians, slow vehicle speeds when turning and provide additional open space and landscape opportunities.

It includes reduction of turning circle radius and demarcation of pedestrian crossing through contrasting material treatment.

DESIGN PARAMETERS:

- The length of a curb extension should be greater than the width of any associated pedestrian crossing.
- Kerb extensions should encroach into car parking spaces to increase visibility and reduce the crossing distance.
- Kerb extensions should provide a return angle of 45 degrees.
- Line marking or alternative pavement treatments should be provided between kerb extensions where pedestrian crossings are located.
- Surface treatment of kerb extensions have regard to the preferred character of the area (i.e. landscape or hardstand).
- Seek to utilise WSUD initiatives where appropriate (permeable paving, rain gardens, swales).
- In advance of a full reconstruction, gateways can be designed using striping or signage that communicates the entrance into a slow zone.



Typical Plan of gateway intersection treatment

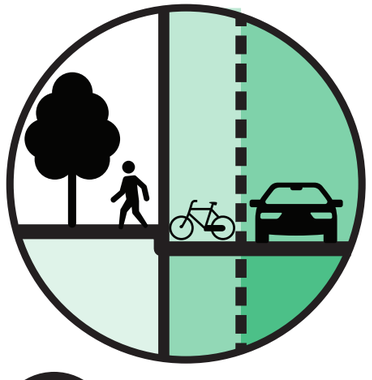
PROJECT EXAMPLES:



Richfield, Minnesota, USA



Portland, Washington, USA



SHARED TREATMENTS

TYPE 0 PAVEMENT MARKING: KERB EXTENSION/ PUBLIC ART

Ground plane variations are interim design strategies that can be used to improve pedestrian safety, reduce vehicle speeds and provide additional public open space that can be delivered in the short-term at low cost. These treatments can be used to test the viability and appetite for more permanent public realm improvements. Ground Plane variations also invite public art initiatives to enhance place identity.

USES:

- Kerb Extension;
- Gateway Treatment;
- Pedestrian Crossing;
- Shared Zone;
- Median or Pedestrian Refuge; and
- Temporary Street Closures.

DESIGN PARAMETERS:

- The design and siting of ground plane variations should have regard to technical requirements of permanent interventions.
- Verges can be expanded into parallel kerb side car parking using interim materials, such as paint, gravel, planter beds, and street furniture, easing pedestrian congestion in advance of a full reconstruction.
- Consider design treatments which are reflective of the landscape or built form character.
- Ensure interim design interventions use high quality materials (i.e. paint, vegetation, structural materials).
- The design of interim measures can be coordinated with local community groups or residents to encourage neighbourhood pride and sense of place.
- Implementation plan for this treatment should consider on- going maintenance budget and the provision for quality, permanent solution.

PROJECT EXAMPLES

GATEWAY TREATMENT

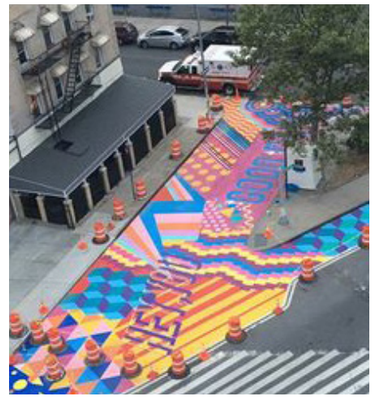


Northcote, Australia



Bogota, Colombia

SHARED ZONE



Place Olympe de Gouges, France

KERB EXTENSION



Austin, Texas, USA



Los Angeles, California, USA (RELM)

MEDIAN OR PEDESTRIAN REFUGE



Malgrat de Mar, Spain (Territori24)



New York City, NY, USA

PEDESTRIAN CROSSING



West Sacramento, California, USA (MIG Placemaking)

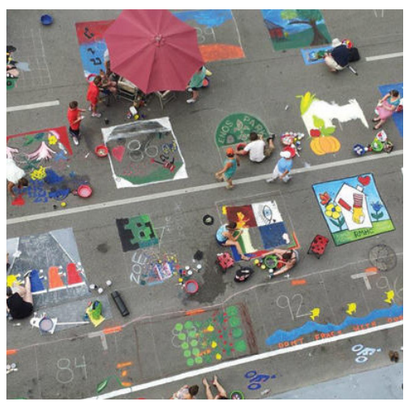


Moreira César, Brazil

TEMPORARY ROAD CLOSURE



Glasgow, Scotland



Illinois, USA

PART C



DESIGN RESPONSE

Overall Framework Concept

Analysis of the movement municipal network and the 8 study corridors in Darebin has identified a series of corridor specific opportunities and constraints that can improve their role as Streets for People. These opportunities have provided the impetus to advance an Overall Framework Plan for corridors and a basis for particular design responses along each streetscape. While the alignment of the 8 corridors has been pre-determined, **3 Guiding Principles (refer to page 30)** were generated as a basis for addressing movement and public realm improvements in ways that reiterate the overall **project ambition of "Confirming, Managing and Improving"**.

Corridor Framework Concept

The conditions of each corridor are somewhat varied. They run through established urban areas, have interfaces with major public open space, commercial, residential (high and low change), and industrial precincts - some have the potential for urban renewal. A Framework Plan has been prepared for each of the 8 corridors to articulate how key directions and design principles can be achieved in detail.

Demonstration Project of Key Sites

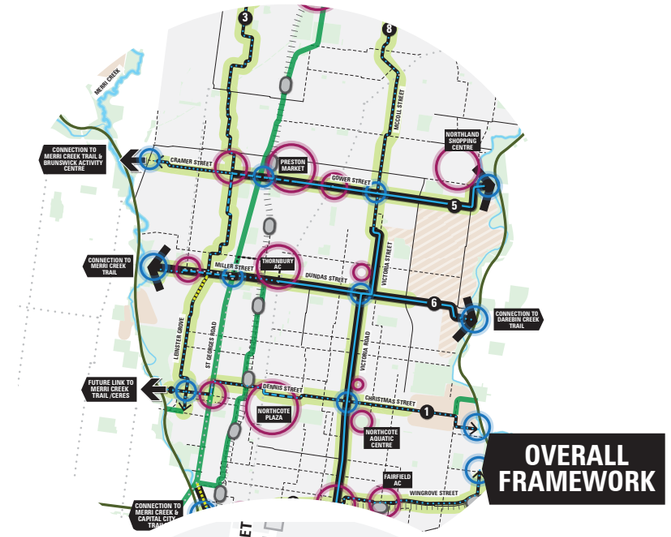
In addition to the Framework Plans, one key site from each corridor has been selected as a demonstration project to illustrate how the project directions and guiding principles may be implemented. The key sites address the spectrum of design challenges and character variations encountered along each corridor. The sites represent demonstration projects where alternative design recommendations and suggestions can be applied.They were chosen as a representation of different urban conditions. The sites were studied in detail to identify opportunities for streetscape management befitting the Streets for People ideology.

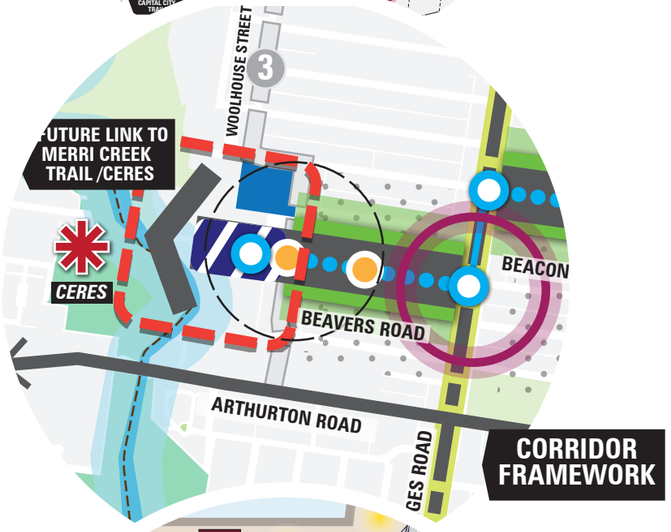
The 8 Key Sites selected for this analysis are:

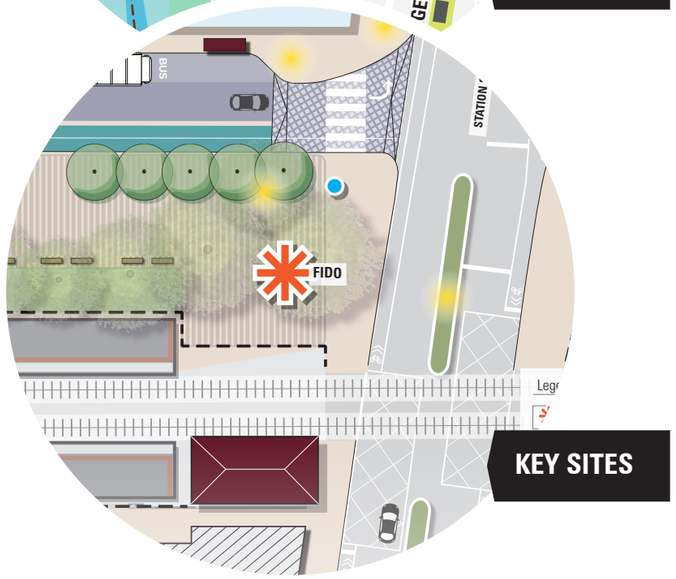
- Corridor 1: Western Gateway
- Corridor 2: Fairfield Station
- Corridor 3: Devon Street & Miller Street Intersection
- Corridor 4: Cheddar Road Intersection
- Corridor 5: Gower Street & Cooma Street Intersection
- Corridor 6: Miller & Gilbert Street Tram-about
- Corridor 7: Reservoir Activity Centre (West)
- Corridor 8: Plenty Road & McColl Street Intersection

Each Key Site includes the following themes:

- A documentation of key site features;
- Site objectives and actions;
- An illustrative concept plan; and
- A summary of Design Response.







Branding and Wayfinding

While each corridor proposes a mix of bicycle and pedestrian infrastructure along its extent, depending on its Movement & Place designation and existing road configuration, opportunities exist for exciting and creative wayfinding initiatives which clearly define each corridor as a critical pedestrian and cycle route.

As a way to interpret each corridor as part of a broader pedestrian and cycle network, it is possible to brand each route as a distinct colour, which can guide the design of any new or upgraded public realm infrastructure. The diagram opposite, illustrates a 'Cycleway Map' designating a unique identity to every corridor, this includes:

1. Northcote Green Link
2. Hurstbridge Line Shimmy
3. The Great Western Shimmy
4. Northern Reservoir Corridor
5. Preston Activity Link
6. Thornbury Neighbourhood Link
7. Reservoir Station To University Link
8. Great Eastern Cycleway

In tandem with a unique colour, there are many ways to integrate wayfinding and legibility initiatives along a corridor, this can include variation of the ground plane, middle plane and upper plane, to ensure users of all transport modes are able to identify their location and movement priority. As demonstrated in the examples, types of wayfinding techniques can include (but are not limited to):

- Kerb / intersection treatments.
- Paving and ground plane variation (paint, exposed aggregate, stencil concrete etc.)
- Landscape and canopy vegetation.
- Information and directional signage.
- Sculptures and public art.



Wayfinding Examples

GROUND PLANE



Kerb treatments - Glenroy, Melbourne (Enlocus)



Kerb treatments - Adelaide (Aspect Studios)

MIDDLE PLANE



Information sign - Chaya Shan, China (Shinya)

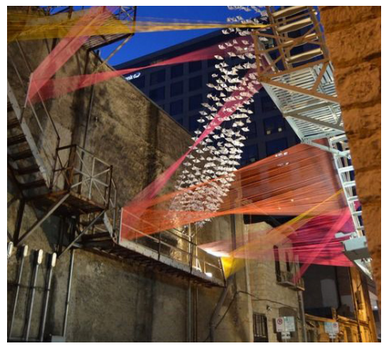


Landscape - False Creek, Canada (PWL Partnership)

UPPER PLANE



Directional Signage - Frankston, Victoria (Heine Jones)



Public Art- Austin, USA (Dan Cheetham & Michelle Tarnsey)

OVERALL FRAMEWORK CONCEPT*

PRIORITISE PEOPLE

PRINCIPLE 01: PRIORITISE PEOPLE

Corridor Legibility
To improve the connectivity and sense of place along each corridor

Activity Node
To create distinctive places with high quality pedestrian and cycle infrastructure

Green Network
To reinforce network of open spaces and environmental corridors as a distinctive characteristic of Darebin

MINIMISE CONFLICT

PRINCIPLE 02: DESIGN TO MINIMISE CONFLICT

Public Transport
To support efficient public transport operations while improving pedestrian amenity around public transport nodes.

Role of Streets
To ensure street design is consistent with the designated role or function.

Employment Nodes
To acknowledge existing industry and employment nodes while managing improved pedestrian and cycle connections

Future Mixed Use Precinct

CYCLING CONFIDENCE

PRINCIPLE 03: INCREASE CYCLING CONFIDENCE

Protected Cycle Facility
To provide a physically marked and seperated bike lane with a vertical barrier.

Dedicated Cycle Facility
To provide on-road lanes dedicated to cycling and excluding all motorised traffic with an appropriate painted buffer.

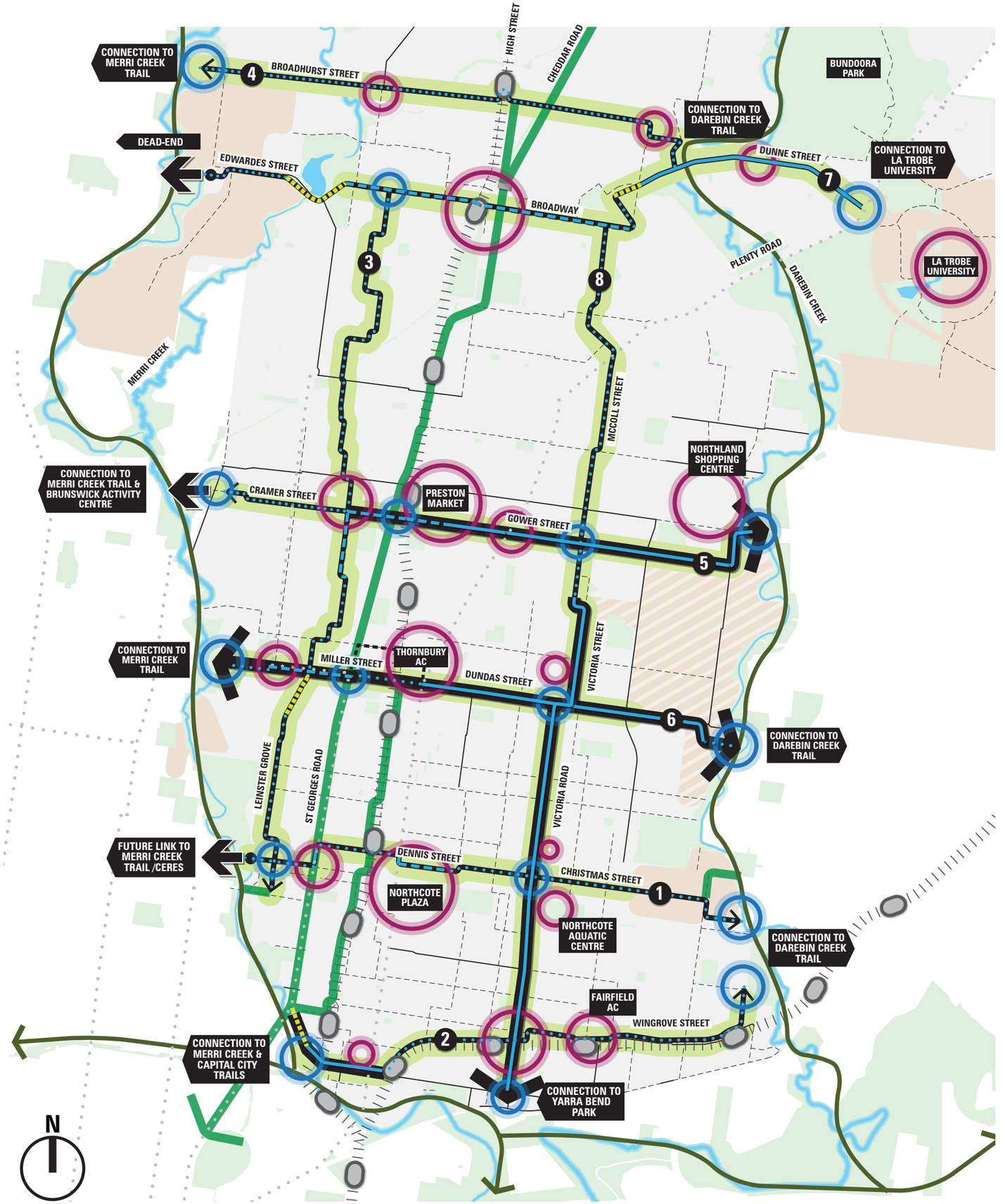
Shared Facility
To provide for continuous cycling facility along lower order local streets.

Off-Road Bike Path
To provide safe and convenient access between off-road bike paths and on-road facilities.

Environmental Links (Trails)
To provide safe and convenient connections to surrounding north-south trails

Designated shimmy route & bike corridors
To ensure new infrastructure connects with and complements Council's designated Shimmy Routes.

*Refer to Guiding Principles on page 30



GUIDING PRINCIPLES

PRIORITISE PEOPLE

PRIORITISE PEOPLE

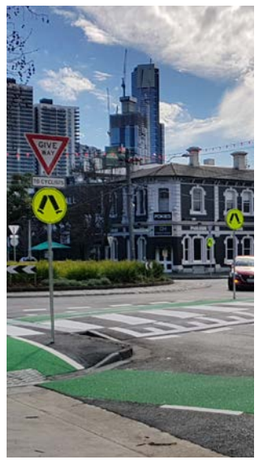
Activity node
Create opportunities for distinctive places by identifying an area along a corridor associated with activities and key destinations where people typically spend long periods of time, which warrant high amenity pedestrian and cycle infrastructure within and leading towards the node.

Corridor Legibility/ Wayfinding (Gateway)
Enhance the arrival experience at corridor entry nodes and key junctions through implementing pause points, signage, lighting and/ or landscape that reflects the local character of the area.

Street greening
Opportunities for new landscape within the public realm which reflects the local landscape character of the corridor, seeks to slow the movement of vehicles and represents best practice sustainability initiatives (canopy coverage, understorey planting, WSUD).

Shared zone/ Slow point
An area along a corridor, typically associated with an activity or major public transport node which requires special road treatment (to varying degrees) that is designed to prioritises pedestrian and cycle movement and slow vehicle speeds. A shared zone may be raised to kerb level or treated with an alternative road pavement to distinguish the node from the rest of the corridor. These areas may also be integrated with street furniture and enhanced landscape treatments to encourage the gathering of people.







DESIGN TO MINIMISE CONFLICT

MINIMISE CONFLICT

Vehicle restriction
Located along a corridor at strategic intersections which would benefit from the removal or limitation of vehicle access to maximise pedestrian and cycle movement. Road closures may be associated with a proposed shared zone or removal of turning lanes at intersections.

Traffic calming measure
Located along corridors at intersections with local streets where the carriageway could be reduced, through kerb outstands and improved crossing points. These areas can also accommodate new landscape and paving treatments.

Junction Improvement
Critical intersections along corridors (typically with major roads) which require the reconfiguration of pedestrian and cycle infrastructure (in tandem with vehicle movement) to improve safety of access across the junction and enhance legibility.







INCREASE CYCLING CONFIDENCE

CYCLING CONFIDENCE

Protected Cycle Facility
Implemented in areas (i.e. Movement type 3) where road widths are wide and high quality cycle infrastructure is required to provide sufficient protection from vehicles (particularly in streets with high traffic volumes and/or a higher proportion of heavy vehicles) and clear cycle transit to destinations and areas of activity. This infrastructure provides vertical buffer elements (such as a kerb) to restrict the encroachment of vehicles into cycle lanes.

Dedicated Cycle Facility
Implemented in areas (i.e. Movement type 3 and 4) where there is space to accommodate cycle paths to either side of the carriageway with the opportunity to provide line marking buffers between vehicle movement and parallel car parking, where space is available.

Shared lane
Typically designated to areas along corridors that currently comprise narrow carriageways (less than 10m) within local residential streets (Movement type 5). Landscape within verges and clearly marked signage (pole and ground), will improve the legibility and safety of walking and cycling along these streets.









1 CORRIDOR 1: NORTHCOTE GREEN LINK

EXISTING CONDITIONS SUMMARY

Key Attributes

An east - west aligned corridor extending from Darebin Creek to Merri Creek, traversing through Northcote and Fairfield Activity Centres. The corridor also connects with the St Georges Road Shared User Path.

The planned delivery of a new bridge over Merri Creek at Beavers Road will connect this route to Ceres environmental park and the Merri Creek trail. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

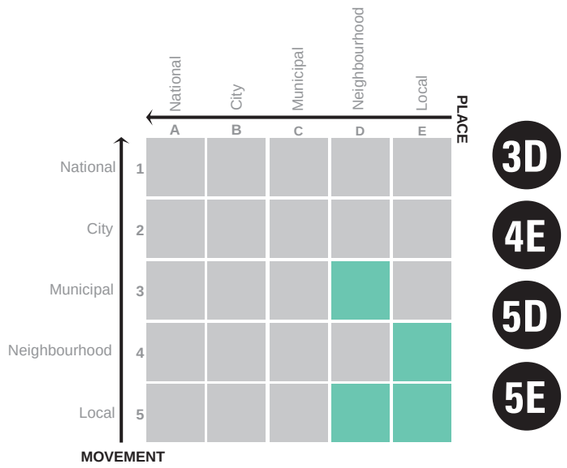
- High Street Activity Centre and Northcote Plaza;
- Croxton Station;
- All Nations Park;
- Northcote Aquatic Centre;
- Ceres & Merri Creek Trail; and
- Darebin Creek Trail.

Key Challenges

- Managing pedestrian and cycle movement over St Georges Road and High Street.
- Improving pedestrian and cycle amenity in the eastern industrial precinct, connecting to Darebin Creek Trail.
- Slowing vehicle movement along residential streets where designated as shared vehicle and cycle infrastructure.

Movement & Place Designation

Corridor 1 comprises a total of 4 street types including:





KEY OUTCOMES

Cycle Infrastructure



0.05km* SEPARATED **0.49km** DEDICATED **3.78km** SHARED

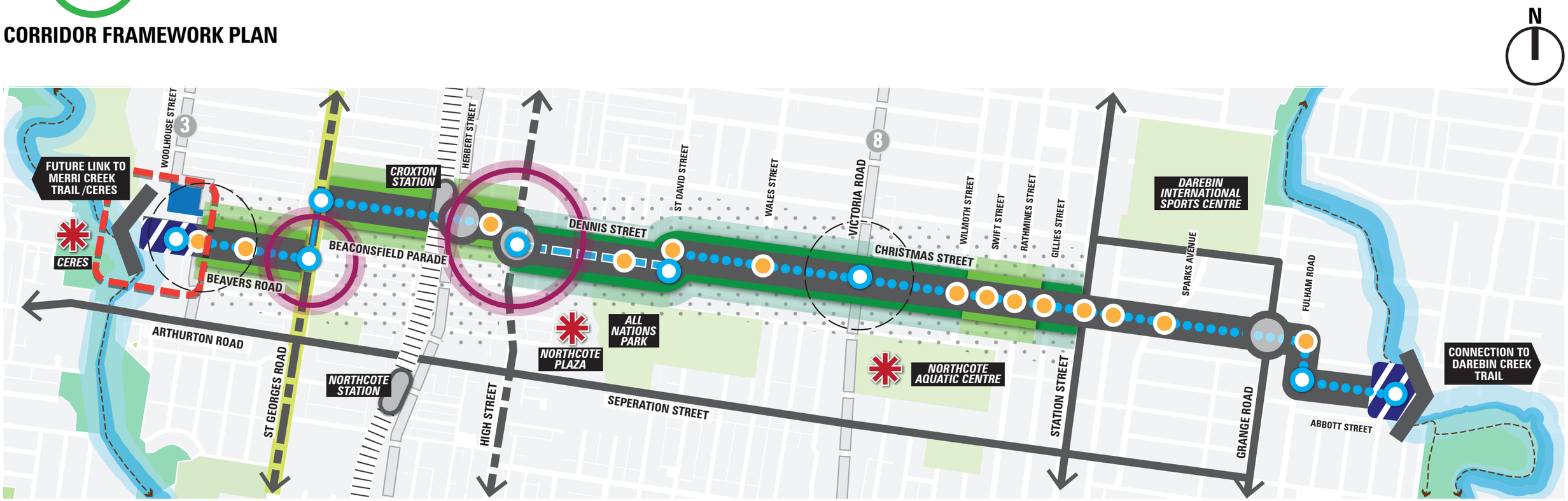
Shared/ Slow Zone	Wayfinding	Street Greening
2	8	1.3 KM

Junction Upgrades	Traffic Calming	Vehicle Restriction
3	16	-

* As part of separated project

1 CORRIDOR 1: NORTHCOTE GREEN LINK

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 1
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement shared zones at each end of the corridor to clearly define the entry points from Merri Creek and Darebin Creek Trails and improve ease of access at these gateway locations.
2. Investigate improvement to junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor.
3. Implement traffic calming measures at the intersection with local streets to support safe pedestrian and cyclists movement along the corridor.
4. Focus high quality pedestrian and cycle upgrades within and leading toward activity nodes at St Georges Road and High Street.
5. Build on the existing canopy coverage of Christmas Street and extend landscape improvements along residential streets.

1 CORRIDOR 1: NORTHCOTE GREEN LINK

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 32.

CYCLING CONFIDENCE

CORRIDOR 1: CYCLE INFRASTRUCTURE			
Streets	**Recommended Cycle Infrastructure**	**Existing Cycle Infrastructure**	**Comment**
Beavers Rd	Shared cycle and vehicle	N/A	
St Georges Rd	Off road protected cycle lane	Off road dedicated cycle lane	Retain existing.
Beaconsfield Pde	Shared cycle and vehicle	N/A	Entry treatment at intersection with St Georges Road.
High St		N/A	High Street improvement project by others. Some safe/protected cycle infrastructure required.
Dennis St	Dedicated cycle lane (line marking, no buffer)	Shared cycle and vehicle. Kerb build outs between parking.	Very narrow footpaths in high demand pedestrian area. Extend where possible.
St David St	Shared cycle and vehicle	Shared cycle and vehicle	
Christmas St	Shared cycle and vehicle	Shared cycle and vehicle	
Christmas St & Wales St Junction	Dedicated cycle lane (line marking, buffer)	N/A	Cycle marking through roundabout.
Fulham Rd	Shared cycle and vehicle	N/A	To fit cross section.
Abbott St	Shared cycle and vehicle	N/A	To fit cross section.

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 1: JUNCTION TREATMENTS		
Streets/ Junctions	**Recommended Junction / Intersection Treatment Type**	**Comment**
Beavers Rd & Woolhouse St Junction		Intersection with Corridor 3 - Closure/ restriction of Woolhouse at Arthurton (as part of Corridor 3) will reduce through/non-local traffic volume at this intersection.
Beavers Rd (Between Woolhouse St & St Georges Rd)	Type H	Mid-block pinch point.
Beaconsfield Pde	Type K	Entry treatment at intersection with St Georges Road.
Beaconsfield Pde/ Herbert St/Rail Crossing	Roundabout improvement	Improve roundabout treatment to provide more direct cycle link to crossing.
Dennis St	Type E Shared area	Very narrow footpaths in high demand pedestrian area. Extend where possible.
Dennis St (All Nations Park)	Type N and Type K at intersection	Raised table (extended to allow bus movement).
St David St	Type M	
Christmas St (Between St David St & Wilmouth St)	Type H (x3)	3 Midblock points between St David St / Wilmouth St. Pinch points to calm traffic.
Christmas St & Victoria Rd Junction	Type K Type N	Intersection with Corridor 8. Treatment to combine with Corridor 8 recommendations.
Christmas St & Wales St Junction	Roundabout improvement	Cycle marking through roundabout.
Christmas St & Wilmoth St Junction	Type K +route priority change	Reverse priority and raise side road approaches.
Christmas St & Swift St Junction	Type K	
Christmas St & Rathmines St Junction	Type K +route priority change	Reverse priority and raise side road approaches.
Christmas St & Gillies St Junction	Type K	

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 1: JUNCTION TREATMENTS (continued)		
Streets/ Junctions	**Recommended Junction / Intersection Treatment Type**	**Comment**
Christmas St & Station St Junction	Type K	Combined pedestrian and cycle signalised crossing point.
Christmas St & Sparks St Junction	Route priority change	Reverse priority at Sparkes Ave and adopt a staggered T-intersection.
Christmas St & Grange Rd Junction	Signalised intersection improvement	Grange Road intersection - signalised intersection with pedestrian and bicycle priority - example Johnston St / Napier Street, Fitzroy.
Christmas St & Fulham Rd Junction	Route priority change	Reverse priority at Christmas / Fulham.
Fulham Rd & Abbott St Junction	Route priority change	Reverse priority at Fulham / Abbott St.

Corridor intesections

1 CORRIDOR 1: NORTHCOTE GREEN LINK

KEY SITE: WESTERN GATEWAY

Site Features

- Narrow street condition with informal parallel parking along south side of the street.
- Existing large format commercial and light industrial buildings with emerging residential development occurring to the northwest.
- Wide crossovers to commercial sites.
- Footpath to both sides of the street.
- Limited street tree planting.
- Proposed bridge connection to be provided over Merri Creek to CERES and trail.

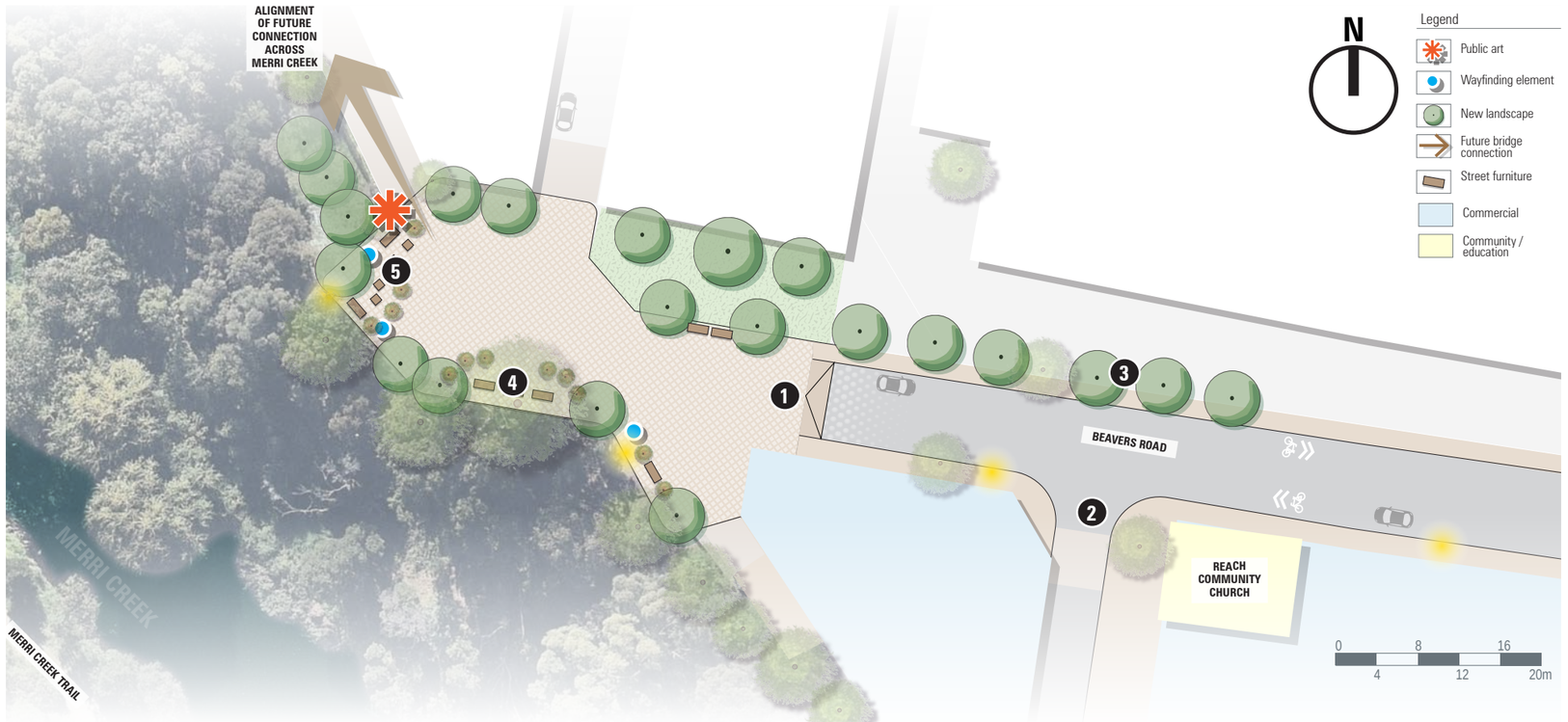
Site Objectives

- To create a high quality public realm that encapsulates the landscape characteristics of Merri Creek Corridor.
- To discourage vehicle movement at the gateway to Darebin and Merri Creek Corridor.
- To complement future mixed use development along Beavers Road, providing additional public open space.

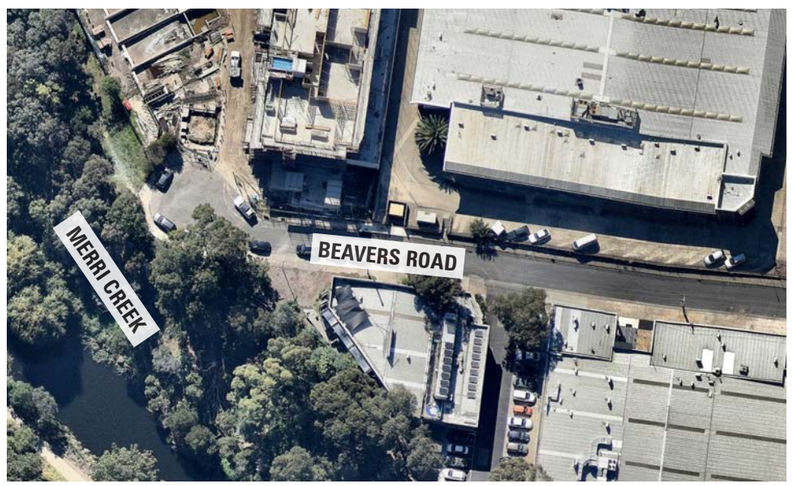
Key Actions (refer to indicative concept plan)

1. Implement a raised paved shared zone at the end of Beavers Road, aligned to the bridge access across Merri Creek.
2. Implement a traffic calming ground plane treatment, such as a patterned Omnigrip surface, to the east of the shared zone vehicle ramp.
3. Encourage additional native street tree planting along Beavers Road where possible.
4. New street furniture opportunities within the proposed paved area (positioned outside of emergency vehicle turning circle requirements).
5. New lighting and wayfinding treatments to define gateway to Darebin and Merri Creek.

Indicative Concept Plan



Existing Conditions



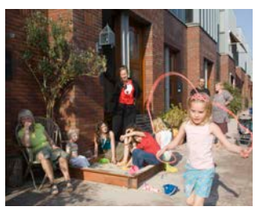
Indicative Precedents



Paved shared surface



Community gardens



Street play opportunities



Informal seating areas

2 CORRIDOR 2: HURSTBRIDGE LINE SHIMMY



EXISTING CONDITIONS SUMMARY

Site Features

An east-west aligned corridor at the southern reaches of the municipality, extending from Darebin Parklands to the Merri Creek Trail. This route is an existing high volume cycle route referred to as 'Hurstbridge Line Shimmy'. This corridor traverses through Northcote and Thornbury with key destinations including Northcote Activity Centre and Fairfield Activity Centre and Station. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

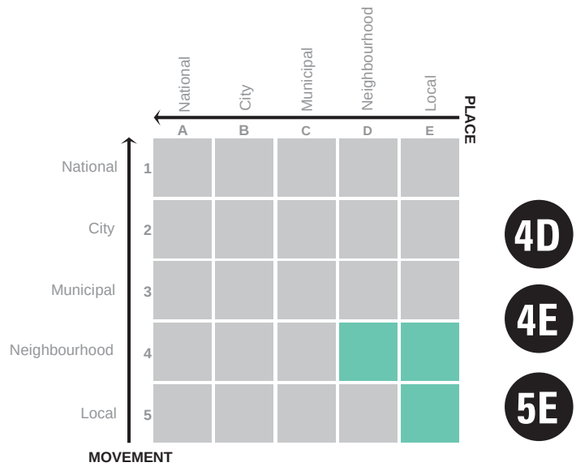
- High Street Activity Centre;
- Tram Route 86 (High Street);
- Westgarth, Dennis, Fairfield and Alphington Stations;
- Fairfield Activity Centre;
- Merri Creek Trail; and
- Darebin Creek Trail.

Key Challenges

- Managing cycle movement along Westgath Street given high traffic volumes and major junction with High Street.
- Slowing down and restricting vehicle movement along South Crescent and Wingrove Street.
- Improving pedestrian and cycle connections across major roads, including Station Street and High Street.

Movement & Place Designation

Corridor 2 comprises a total of 3 street types including:





KEY OUTCOMES

Cycle Infrastructure



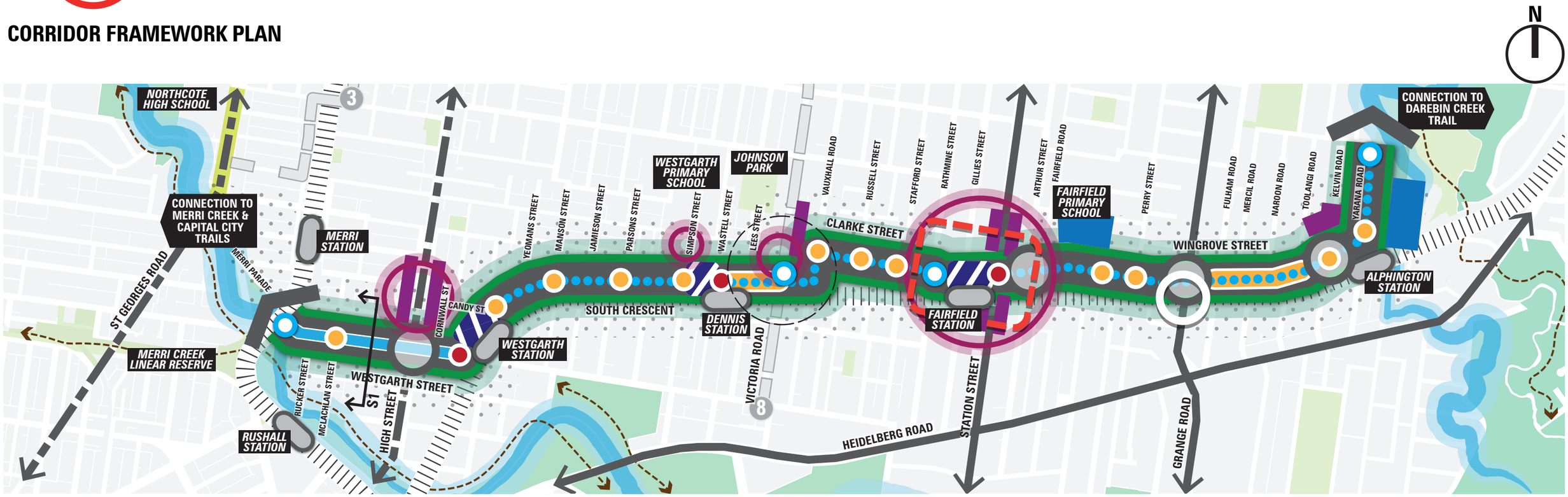
0.71km PROTECTED **0km** DEDICATED **3.77km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
3	4	-

Junction Upgrades	Traffic Calming	Vehicle Restriction
4	24	3

2 CORRIDOR 2: HURSTBRIDGE LINE SHIMMY

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Vehicle restriction
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 2
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Level Crossing Removal
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement protected cycle lanes along Westgarth Street, to better improve connections from Merri Creek Trail to Westgarth Station and Activity Centre.
2. Implement shared zones (or slow zones) at station entries along South Crescent, to improve pedestrian amenity and safety around important public transport nodes.
3. Upgrade junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor.
4. Implement traffic calming measures (and in some cases vehicle restrictions) at the intersection with local residential streets to support the shared cycle/ vehicle designation.
5. Focus high quality pedestrian and cycle upgrades within and leading toward activity nodes at St Georges Road and Station Street.

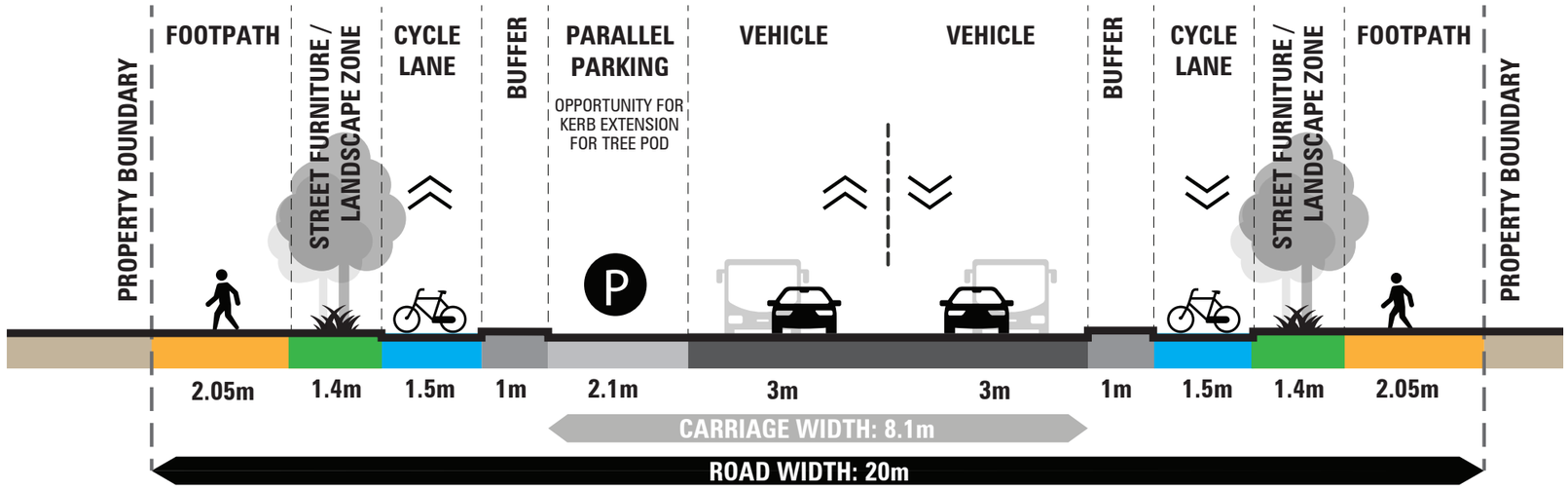
2 CORRIDOR 2: HURSTBRIDGE LINE SHIMMY

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 36.

CYCLING CONFIDENCE — CORRIDOR 2: CYCLE INFRASTRUCTURE			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Merri Parade & Rucker St Junction	Keep existing	Off-street path	Merri Creek Trail. Merri Pde State Route (VicRoads).
Westgarth St (Between Rucker St To High St)	Protected cycle lane	Dedicated cycle lane (line marking, no buffer)	Refer to indicative cross **section 1.** Remove car park from one side of street to achieve NACTO standard Copenhagen- style cycle infrastructure with 1m buffer.
South Crescent	Shared cycle and vehicle	Shared cycle and vehicle	Safety improvement outcome through traffic volume reduction.
Vauxhall Road	Shared cycle and vehicle		
Clarke Street	Shared cycle and vehicle		
Wingrove St (from Gillies to Station St)	Separated: two-way cycle lane on south side		Remove on street car park. Consolidate bus movement on the north side. Remove west bound traffic lane. Refer to Hot spot design response.

SECTION 1: WESTGARTH STREET (Rucker St to South Crescent)



2 CORRIDOR 2: HURSTBRIDGE LINE SHIMMY

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 2: JUNCTION TREATMENTS

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Westgarth St (Between Rucker St To High St)	Type D (modified)	Refer to indicative cross **section 1** on page 37. Remove car park from one side of street to achieve NACTO standard Copenhagen- style cycle infrastructure with 1m buffer.
Westgarth St & Mclachlan St Junction	Type J	Refuge crossing and splitter island on McLachlan Street south leg.
Westgarth St & High St Junction	Signalised intersection improvement	Clearly defined cycle crossings and improved pedestrian access and priority. As discussed with Tom – show potential alternative cycle access (dotted line) from Westgarth Rd/High Street via Walker St to Merri Creek reserve and bridge Copenhagen with 1.5m cycle lane & 650mm buffer/ separator.
Westgarth St & South Crescent	Type G	Remove north bound vehicle access into South Crescent.
South Crescent (Westgarth Station)	Type N	Flush kerb treatment, or wombat crossing treatment.
South Crescent & Yeomans St Junction	Type K	
South Crescent & Mason St Junction	Type K	Green pavement treatments at conflict points (through intersections).
South Crescent & Jamieson St Junction	Type K	
South Crescent & Parsons St Junction	Type K	
South Crescent & Simpson St Junction	Type K	
South Crescent (Dennis Station)	Type N Shared area	Flush kerb treatment, or wombat crossing treatment.
South Crescent & Wastell St Junction	Type M Vehicle restriction	Road closure to through traffic – allow cycle access.
South Crescent & Lees St Junction	Type K	

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 2: JUNCTION TREATMENTS

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
South Crescent & Victoria Rd Junction	Type K Type F	Intersection with Corridor 8.
South Crescent & Vauxhall Road Junction		Road closure not necessary – South Cres a dead end and not a high-volume traffic area.
Vauxhall Road & Clarke Street Junction	Type L	Modify to fit.
Clarke St & Rathmines St Junction	Type K	Raised entry – not whole intersection due to bus route.
Wingrove St (from Rathmine St to Gilles Street)	Type E	On-street lanes transition at crossing by Gilles St. Refer Key Site Indicative Concept design.
Wingrove St (from Gillies St to Station St)	Refer to key site indicative concept design/ Council project design	Remove on street car park. Consolidate bus movement on the north side. Remove west bound traffic lane. Refer to Hot spot design response.
Wingrove St & Station St Junction	Type G – refer to key site indicative concept design and Council design	Remove left turn into Wingrove Street. One way (east bound) access along Wingrove St.
Wingrove St & Arthur St And Fairfield Rd Junction	Roundabout removal	Existing Council project design.
Wingrove St (Fairfield Primary School)	Type N	
Wingrove St & Perry St Junction	Type K	
Wingrove St & Grange Rd Junction		Addressed as part of LXRA project.

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 2: JUNCTION TREATMENTS

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Wingrove St & Fullham Rd Junction	Type K	LXRA project has incorporated shared path in rail reserve.
Wingrove St & Mercil Rd Junction	Type K	
Wingrove St & Naroon Rd Junction	Type K	
Wingrove St & Toolangi Rd Junction	Type K	
Wingrove St & Kelvin Rd Junction	Roundabout improvement	Upgrade roundabout to improve cycle safety.
Wingrove St (Alphington Station)	Type N	
Wingrove St & Yarana Rd Junction	Type K	

Corridor intesection

2 CORRIDOR 2: HURSTBRIDGE LINE SHIMMY

KEY SITE: FAIRFIELD STATION

Key Site Features

- Fairfield Station and activity centre.
- Public open space at the station.
- Opportunities for increased development opportunity on commercial land.
- A 'leafy' village character.
- High pedestrian footfall.
- Challenging pedestrian and cyclist connection across Station Street.
- Dominating left hand turn into Wingrove Street from Station Street.

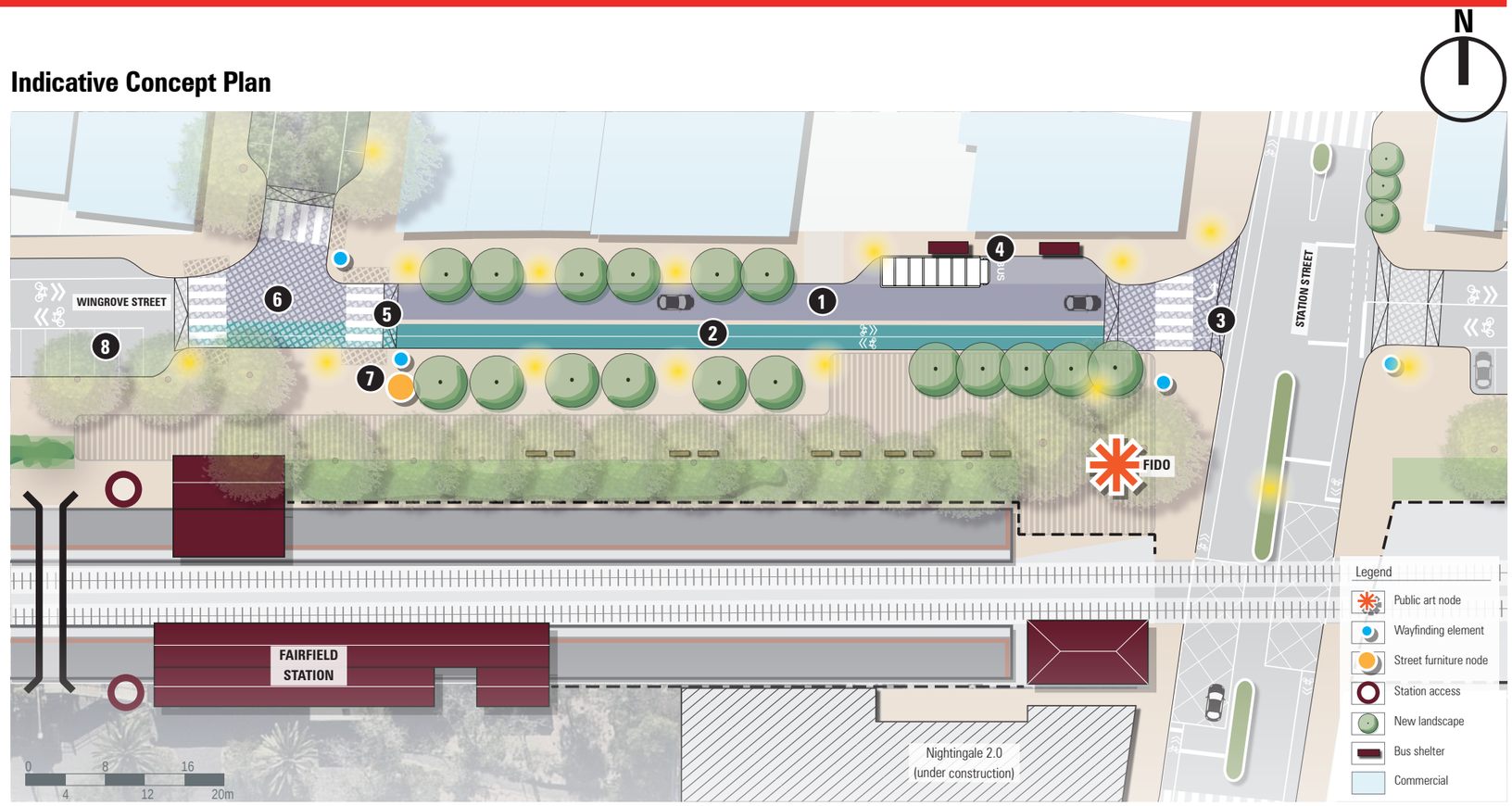
Site Objectives

- To establish a welcoming pedestrian environment at one of key entries into Fairfield Activity Centre.
- To improve pedestrian access to Fairfield Station and bus stops.
- To reduce the perception of dominant car environment.
- To maximise landscaping opportunity.
- To retain shared cycling and vehicle (east bound) movement along Wingrove Street (between Gilles and Station Streets).

Key Actions

1. Reduction of Wingrove Street carriageway to 1 traffic lane (east- bound) between Gilles and Station Streets.
2. Implement a 2-way cycle path to the south side of Wingrove Street between Gilles and Station Streets, transitioning into a shared arrangement to the west of Gilles Street.
3. Removal of left hand turn into Wingrove Street from Station Street and right-hand turning from Wingrove Street into Station Street.
4. Consolidate bus stops in one location, within easy access to Fairfield Station entries. Note: Bus Route No. 567 is to be modified accordingly.
5. Additional pedestrian crossings to be located along pedestrian desire lines to Station entry.
6. Apply textured surface treatment at Gilles and Wingrove Streets intersection.
7. Additional landscaping and lighting opportunity through kerbside extension along Wingrove Street
8. Retain drop off/ pick up location and taxi ranks along Wingrove Street, within proximity to Station entries.

Indicative Concept Plan



Existing Conditions



Indicative Precedents


Extended footpath with landscape


Feature paving along footpath


Custom seating at Station


Textured 2-way cycle path



3 CORRIDOR 3: THE GREAT WESTERN SHIMMY

EXISTING CONDITIONS SUMMARY

Key Attributes

A north-south aligned corridor, locally referred to as the 'Great Western Shimmy', extending from Edwardes Street in Reservoir to Arthurton Road in Northcote. This corridor winds through predominately residential streets, with key destinations including Crispe Park, H.P. Zwar Reserve, Melbourne Polytechnic, Bell Primary and Northcote Golf Club. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

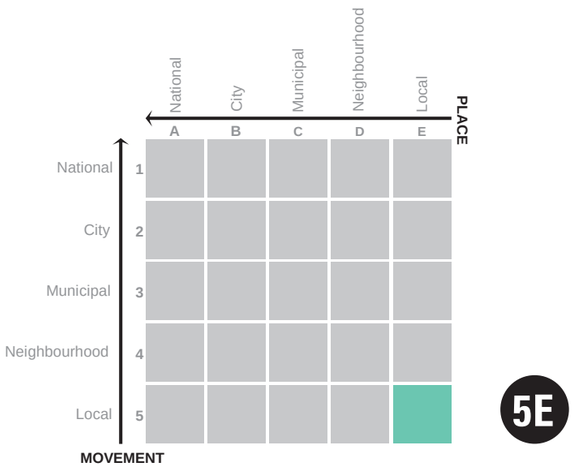
- Mayer Park;
- Melbourne Polytechnic;
- Preston West Primary School; and
- Reservoir Activity Centre.

Key Challenges

- Improve legibility and wayfinding for cyclists;
- Minimise opportunities for vehicle rat-running and slow vehicle speeds along corridor extent;
- Improve crossing at major intersections such as Miller Street and Murray Road.

Movement & Place Designation

Corridor 3 comprises 1 street type including:





KEY OUTCOMES

Cycle Infrastructure

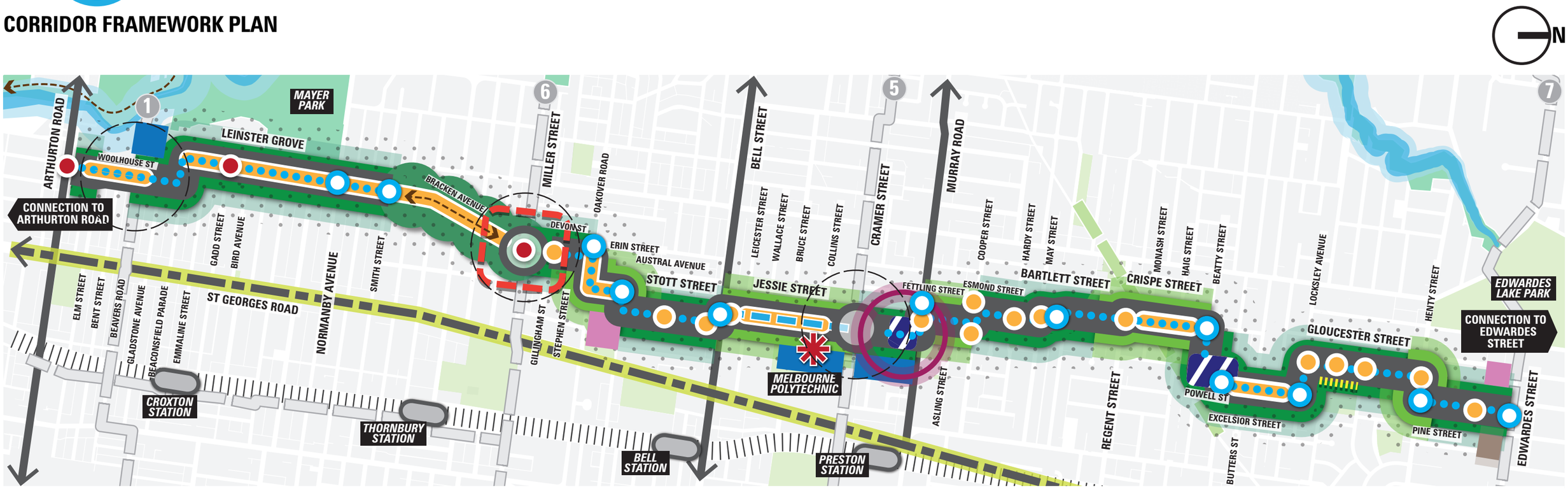


Shared/ Slow Point	Wayfinding	Street Greening
2	12	1.2 KM

Junction Upgrades	Traffic Calming	Vehicle Restriction
2	33	3

3 CORRIDOR 3: THE GREAT WESTERN SHIMMY

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting
- Footpath upgrade

MINIMISE CONFLICT

- Junction improvement
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops
- Vehicle restriction

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 3
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve
- Existing linear reserve

CORRIDOR AMBITIONS:

1. Acknowledge the significance of the Great Western Shimmy as a critical north-south cycle link in Darebin through improved signage and wayfinding opportunities along its extent.
2. Implement traffic calming measures (and in some cases vehicle restrictions) at the intersection with local residential streets to support the shared cycle designation along those streets.
3. Implement shared zones (or slow zones) at school frontages to improve safety and accessibility for students walking and cycling to school.
4. Upgrade junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor, particularly at Athurton Road, Bell Street and Edwardes Street.
5. Build on the existing canopy coverage and landscape of Leinster Grove and Stott Street and extend landscape improvements along the corridor.

3 CORRIDOR 3: THE GREAT WESTERN SHIMMY

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 41.

CORRIDOR 3: CYCLE INFRASTRUCTURE

Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Woolhouse St	Shared cycle and vehicle	Shared cycle and vehicle	Three pinch points along Woolhouse St.
Woolhouse St & Beaconsfield Pde		Route priority	Retain route priority.
Beaconsfield Pde	Shared cycle and vehicle	Shared cycle and vehicle	
Leinster Grove	Shared cycle and vehicle	Shared cycle and vehicle	Mark parking lanes on both sides of Leinster Grove north of Normanby Road, to visually reduce the width of the trafficable road.
Bracken Avenue	Off road cycle path	Off road cycle path	Council's existing project to upgrade crossings. Pinch point raised crossings at all intersections.
Devon St	Shared cycle and vehicle	Shared cycle and vehicle	
Oakover Rd	off-road cycle path on north side of street		Removal of kerbside parking and implement shared cycle path on north side of street between Devon St and Erin St.
Oakover Rd & Erin St Junction			
Stott St & Bell St Junction	Off-road cycle facility		Kerb extension to provide cyclist access at footpath level.
Jessie St & Bell St Junction	Off-road cycle facility		Kerb extension to provide cyclist access at footpath level.
Jessie St (between Bell St & Cramer St)	Dedicated cycle lane (no buffer)		Convert 90 degree parking adjacent to Melbourne Polytechnic to parallel parking, to allow a 2m wide median to be provided along Jessie Street between Bruce St and Cramer St. and space for dedicated cycle facility.
Jessie St (Between Cramer St & Murray Rd)	Shared cycle and vehicle		Mark parking on the western side of Jessie Street between Cramer St and Murray Road.

CORRIDOR 3: CYCLE INFRASTRUCTURE

Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Fettling St	Shared cycle and vehicle	Shared cycle and vehicle.	
Cooper St	Shared cycle and vehicle		
Esmond St	Shared cycle and vehicle		Raised pinch point along Esmond St and Bartlett St.
Bartlett St	Shared cycle and vehicle		Raised pinch point along Esmond St and Bartlett St.
Regent St	Dedicated cycle lane (line marking, no buffer)		Refuge crossing at Regent St.
Crispe St	Shared cycle and vehicle		
Beatty St	Shared cycle and vehicle		
Powell St	Shared cycle and vehicle		
Excelsior St	Shared cycle and vehicle		Raised pinch point or chicane.
Locksley Ave	Shared cycle and vehicle		
Gloucester St	Shared cycle and vehicle		Mid block raised pinch point Footpath upgrade (east side)
Henty St	Shared cycle and vehicle		
Pine St	Shared cycle and vehicle		Mid block raised pinch point.

3 CORRIDOR 3: THE GREAT WESTERN SHIMMY

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 3: THE GREAT WESTERN SHIMMY

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Arthurton Rd & Woolhouse St	Type M Vehicle restriction	Restrict traffic access to Woolhouse Street – allow cycle only.
Woolhouse St & Elm St	Kerb realignment and new open space	Opportunity for kerb realignment and additional open space.
Woolhouse St & Bent St	Type H – mid-block	Incorporate 3 x treatment type 1 pinch points along Woolhouse St at mid-block points.
Woolhouse St & Beavers Road	Type H – mid-block	
Woolhouse St & Gladstone Avenue	Type H – mid-block	
Leinster Grove	Line marking	Mark parking lanes on both sides of Leinster Grove north of Normanby Road, to visually reduce the width of the trafficable road.
Leinster Grove & Emmaline St	Type K	
Leinster Grove & Gadd St	Type G	Remove south bound vehicle access along Leinster Grove at Gadd St.
Leinster Grove (Between Bird Avenue To Smith Street)	Type H	Mid block pinch point.
	Type K (x3)	Raised intersections at Woolton/Shaftsbury/ Bradley.
Leinster Grove & Smith Street)	Type L	Raised intersection.
Bracken Avenue & Smith St	Type L	Raised intersection.
Miller St & Devon St Junction	Vehicle restriction Refer Key Site Indicative Concept Design design response	Intersection with Corridor 6 - Remove vehicle link between Miller Street and Devon Street, allow cycle access only. Opportunity for car park removal and a new open space. Opportunity to integrate with tram stop upgrade and signalised pedestrian / cyclist crossing at Miller Street.
Devon St (Between Miller & Gillingham St)	Off road cycle path	As per treatment above.
Devon St & Gillingham St Junction		As per treatment above.

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 3: THE GREAT WESTERN SHIMMY

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Devon St & Oakover Rd Junction	Type J Type N	Install a pinch point and raised pedestrian / cyclist crossing at Oakover Road. Bus route so no vertical deflection. Ped/cycle crossing point – modified treatment 3 and 5
Stott St & Austral Avenue Junction	Type H	Mid-block pinch point.
Jessie St (Between Bell St & Cramer St)	Type E (modified with median)	Convert 90 degree parking adjacent to Melbourne Polytechnic to parallel parking, to allow a 2 m wide median to be provided along Jessie Street between Bruce St and Cramer St. and space for dedicated cycle facility.
Jessie St & Leicester St Junction	Roundabout upgrade	Marked cycle lanes through roundabout to improve cycle safety.
Jessie St & Bruce St Junction	Roundabout upgrade	Either marked cycle lanes or potential removal to change to give way on Bruce St.
Jessie St & Collins St Junction	Type F	
Jessie St & Cramer St Junction	Roundabout removal Type K (x2)	Intersection with Corridor 5 - At Jessie St / Cramer St, consider removing roundabout and providing priority to Cramer St, and allow bicycle lanes to continue through the intersection (Corridor 5). Provide raised side street treatments on Jessie Street approaches.
Jessie St (Between Cramer St & Murray Rd)	Line marking	Mark parking on the western side of Jessie Street between Cramer St and Murray Road.
Jessie St (School Entry)	Shared zone	Reduced carriage width & potential removal of parallel parking south of Murray Road.
Jessie St & Murray Rd Junction	Type J (x2)	Provide refuge crossings across Murray Road, between Fettling St and Jessie St.
Fettling St & Cooper St Junction	Type L	Change priority to cycle route.
Cooper St & Esmond St Junction	Type L	Change priority to cycle route.
Esmond St & Hardy St Junction	Type L	Close proximity to school.

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 3: THE GREAT WESTERN SHIMMY

Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Bartlett St & Regent St Junction	Type F	Provide safe crossing point as below.
Regent St	Type J	Refuge crossing on Regent St.
Crispe St & Regent St Junction	Type F	Provide for Regent St cycle access.
Crispe St & Monash St Junction	Type H	Raised pinch point mid-block.
Beatty St & Powell St Junction	Shared zone	Surface treatment.
Excelsior St	Type H	Raised pinch point.
Excelsior St (Between Butters St & Locksley Avenue) Junctions	Type H	Raised pinch point.
Gloucester St	Type H	Mid block raised pinch point. Footpath upgrade (east side)
Henty St & Pine St Junction	Roundabout upgrade	Marked cycle lanes.
Pine St	Type H	Mid block raised pinch point.
Pine St & Edwardes St Junction	Type K	Intersection with Corridor 7. Entry treatment.

Note:

- Between Arthurton Rd to Smith St- Traffic Calming: Consider raised approach on side roads where there are perceived risks of vehicles potentially overshooting, or at streets where there are high approach speeds and traffic volumes

Corridor intesections

3 CORRIDOR 3: THE GREAT WESTERN SHIMMY

KEY SITE: DEVON & MILLER STREET INTERSECTION

Site Features

- Currently operates as a public car park with through traffic.
- Proximity to existing tram stop along Miller Street and Gilbert Road activity centre.
- Perceived as the continuation of Bracken Avenue off- road trail.
- Located within established residential neighbourhood.

Site Objectives

- To maximise landscaping opportunity and opportunities for additional new open space.
- To support the creation of new space that support community functions, such as community garden.
- To create a safer cycling environment north of Bracken Avenue.
- To improve pedestrian amenity around existing public transport node (i.e. tram stop).
- To reduce the perception of dominant car environment.
- To manage vehicular access to private properties.
- To discourage through traffic (rat run).

Key Actions (refer to indicative concept plan)

1. Closure of the Devon Street intersection to vehicles and reinstate kerb along north side of Miller Street.
2. Implement a new open space at the southern end of Devon Street, while retaining vehicle access to existing vehicle crossovers to private properties.
3. Reduction of carriageway width with opportunity for additional landscaping.
4. Reconfiguration of existing car parking.
5. A shared path along the eastern side of Devon Street (between Miller to Gillingham Streets).
6. Raised table at the southern portion, with hardscaping on areas accessible by vehicles.
7. Surface treatment at Gillingham and Devon Streets intersection.
8. A new shelter at the tram stop, located adjacent to future open space.
9. A new signalised crossing at Miller Street.
10. Separated cycle facility achieved through footpath extension to reduce carriageway width and gives more space for pedestrian and cyclists.

Indicative Concept Plan



Existing Conditions



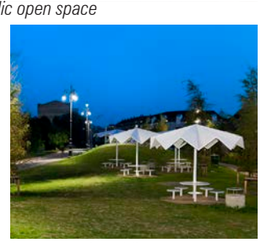
Indicative Precedents



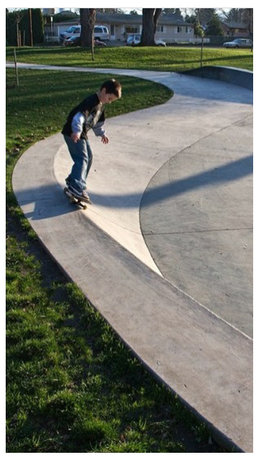
Shared zone to the north of new public open space



Cycle path through new open space



Lawn area in public open space



Play opportunities in road closure



4 CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR

EXISTING CONDITIONS SUMMARY

Key Attributes

An east-west aligned corridor at the northern reaches of the municipality in Reservoir, extending from Merri Creek to Darebin Creek Reserve. The corridor traverses through predominately low density residential streets and crosses major roads including High Street and Cheddar Road. Sections of this route are being considered for designation as a primary or secondary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

- BT Connor Reserve;
- Edgars Creek;
- Edwardes Lake Park;
- Darebin Creek Trail;
- Merri Creek Trail;
- Cheddar Road cycle path;
- Ruthven Station; and
- St Stephen's Catholic Primary School.

Key Challenges

- Slow vehicle speeds along corridor to increase cycle confidence in a shared infrastructure designation.
- Improve connections across major roads including High Street and Cheddar Road.
- Provide new opportunities for public open space and activity.

Movement & Place Designation

Corridor 4 comprises a total of 2 street types including:





KEY OUTCOMES

Cycle Infrastructure



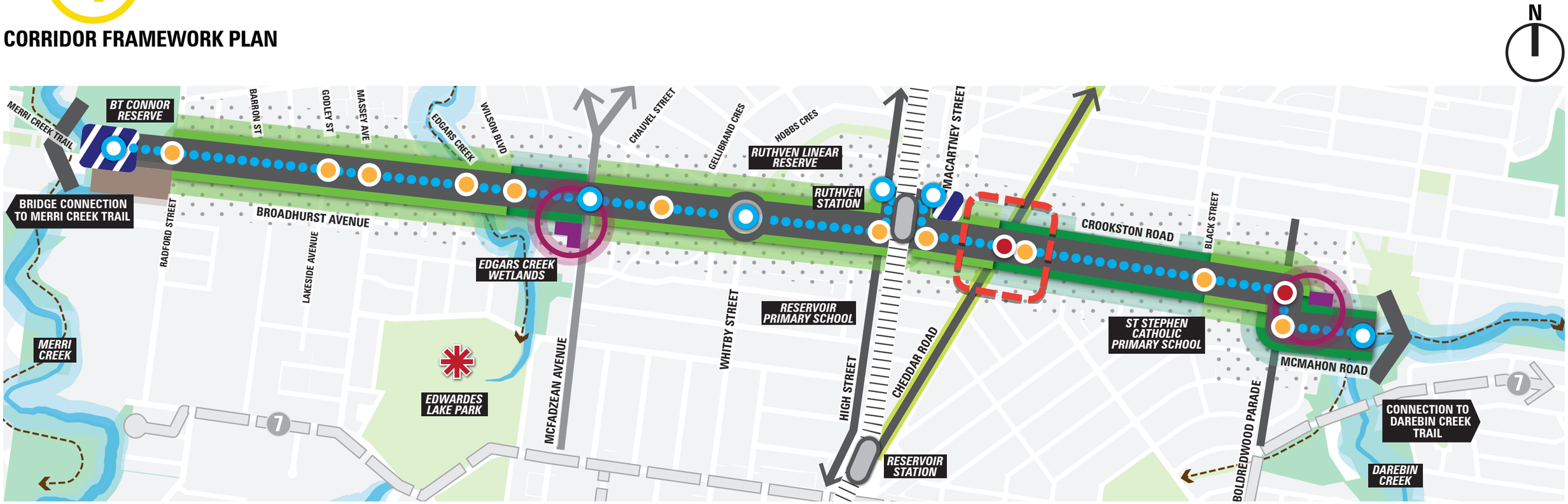
0km PROTECTED **0km** DEDICATED **4.41km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
2	6	2.6 KM

Junction Upgrades	Traffic Calming	Vehicle Restriction
1	8	2

4 CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops
- Vehicle restriction

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 4
- Other Streets for People Corridors
- Major roads
- Neighbourhood connector road
- Existing trail/ off road
- Median shared user path
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement traffic calming measures at the intersection with local residential streets to support the shared cycle designation along those streets.
2. Implement a shared zone (or slow zones) at the western gateway to the corridor, acknowledging the existing bridge connection and recreation reserve interface.
3. Upgrade the major junction at High Street and the rail reserve as well as Plenty Road to improve the safety and efficiency of pedestrian and cycle movement to the station.
4. Upgrade junctions with key open space and environmental links to enhance pedestrian and cycle connectivity to surrounding neighbourhoods.
5. Focus high quality pedestrian and cycle upgrades within and leading toward activity nodes at Mcfadzean Avenue Boldrewood Parade.

4 CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 46.

CYCLING CONFIDENCE

CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Broadhurst Avenue	Shared cycle and vehicle	N/A	
Macartney St	Shared cycle and vehicle	N/A	
Crookston Rd	Shared cycle and vehicle	N/A	
Bolderwood Pde	Shared cycle and vehicle	N/A	
McMahon Rd	Shared cycle and vehicle	N/A	

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Broadhurst Avenue & Merri Creek Trail	Shared zone	Convert Broadhurst Avenue to a shared zone between the Merri Creek Trail connection and the westernmost crossover (237A Broadhurst Ave). This may involve: ▪ raising the pavement up to footpath level and using - contrasting paving ▪ removing the parking on the northern side ▪ landscaping ▪ street furniture Consider retention of access to 239/241 Broadhurst which are currently vacant
Broadhurst Avenue & Radford St	Roundabout upgrade	Mark cycle lanes through roundabout to improve cycle safety.
Broadhurst Avenue & Barron St	Type K	Raised side street treatment on Barron Street.
Broadhurst Avenue & Godley St/ Lakeside Avenue	Type G	Raised side street treatment with kerb extension and exit only restriction on Godley Street. Raised side street treatment on Lakeside Ave.
Broadhurst & Massey	Roundabout upgrade	
Broadhurst Avenue & Edgars Creek	Type M	Install a raised shared path crossing with kerb extensions at Edgars Creek wetlands.
Broadhurst Avenue & Wilson Blvd	Type K	Raised side street treatment at Wilson Boulevard.
Broadhurst Avenue (Between Chauvel St & Gellibrand Crescent)	Type H	Pinch point with raised cushion treatment.
Broadhurst Avenue & Hobbs Crescent	Roundabout upgrade	Upgrade roundabout to improve cycle safety.
Broadhurst Avenue & High St	Off-road shared path	2.5 m wide shared path on the eastern side of High Street between Broadhurst Ave and rail underpass. Install green pavement across conflict points at entry/exit points to Ruthven commuter car park.

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Macartney St & Crookston Rd	Type K	2.5 m wide shared path on western side of Macartney Street between car park to Crookston Rd.
Crookston Rd & Cheddar Rd	Type K	Refer to Key Site Indicative Concept design. Vehicle restriction: At Cheddar Road, provide islands or bollards to physically restrict vehicle access across median. Re- alignment of central median shared user path. Landscaped median and street furniture through the shared path could be provided to enhance the pedestrianised zone.
Crookston Rd & Black St	Type H	Install a pinch point with a raised cushion between Cheddar Road and Black Street.
Crookston Rd & Bolderwood Pde	Route priority change	Vehicle restriction: reverse priority at Crookston Road / Bolderwood Parade, to give priority to west / south movements.
Bolderwood Pde & McMahon Rd	Roundabout upgrade	Upgrade roundabout to improve cycle safety.

4 CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR

KEY SITE: CHEDDAR ROAD/ CROOKSTON ROAD INTERSECTION

Site Features

- A traffic dominated environment along Cheddar Road.
- Perceived as a thoroughfare.
- Minimal pedestrian and cyclist infrastructure.
- Existing shared path meanders to suit traffic stop lines and gives priority to traffic at crossing points.

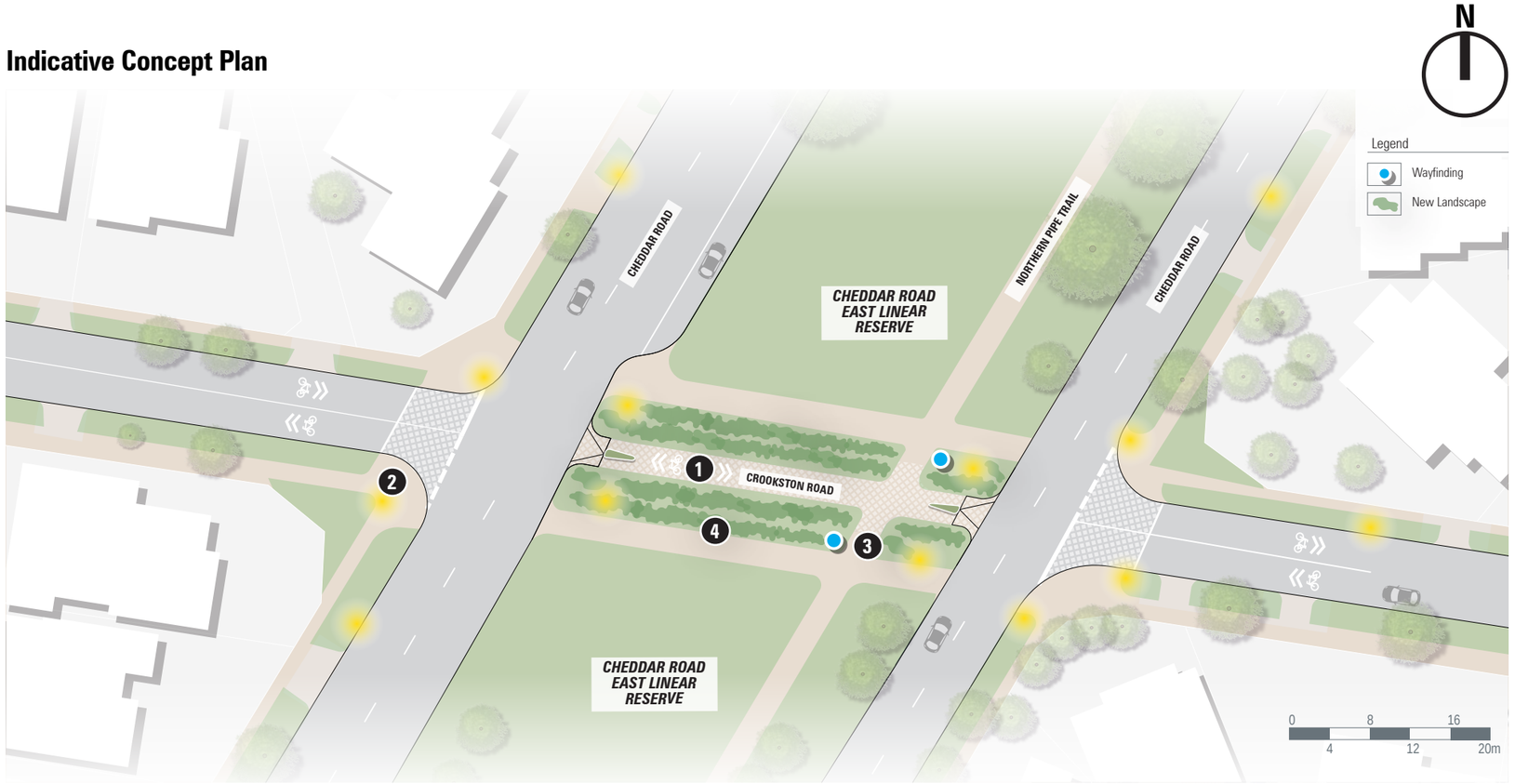
Site Objectives

- To improve pedestrian and cyclist safety across Cheddar Road.
- To provide a legible connection to existing shared trail within Cheddar Road central median.
- To manage traffic movement along Cheddar Road with intersecting side streets.

Key Actions

1. A shared path through the middle of the Cheddar Road median, restricting vehicle movement across.
2. Apply kerb extension and surface treatments at Cheddar Road and Crookston Street intersections.
3. Potential wayfinding opportunities at key junction to assist with corridor legibility.
4. Seek to increase understorey planting along median with reference to water authority requirements for appropriate species.

Indicative Concept Plan



Existing Conditions



Indicative Precedents


Landscape along pathway


Gateway table at intersection



Wayfinding/ signage for cyclists


Pavement treatment across median



5 CORRIDOR 5: PRESTON ACTIVITY LINK

EXISTING CONDITIONS SUMMARY

Key Attributes

An east-west aligned corridor extending from Darebin Creek to Elizabeth Street in Preston. This corridor has the highest level of activity and intersections with major roads including St Georges Road, High Street and Plenty Road. It is acknowledged that this route will need to integrate with a potential level crossing removal design in Preston. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

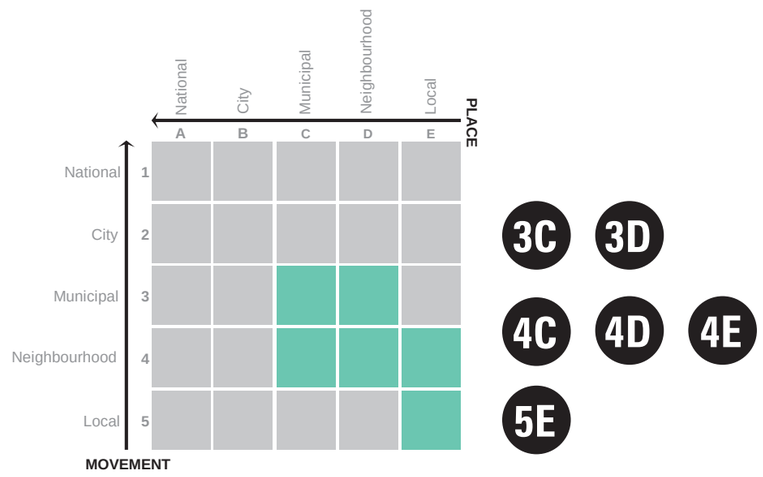
- TW Blake Park;
- Preston Market;
- Preston Station;
- HP Zwar Park;
- Preston West Primary School;
- Northland Shopping Centre; and
- Coburg Pine Ridge Cemetery.

Key Challenges

- Managing pedestrian and cycle movement over major junctions including High Street and Plenty Road, noting High Street includes high levels of commercial activity.
- Improving cycle infrastructure to the east of High Street given higher traffic volumes and number of key destinations along the extent.
- Acknowledging future development occurring along the corridor including new schools and higher density housing.

Movement & Place Designation

Corridor 5 comprises a total of 6 street types including:





KEY OUTCOMES

Cycle Infrastructure



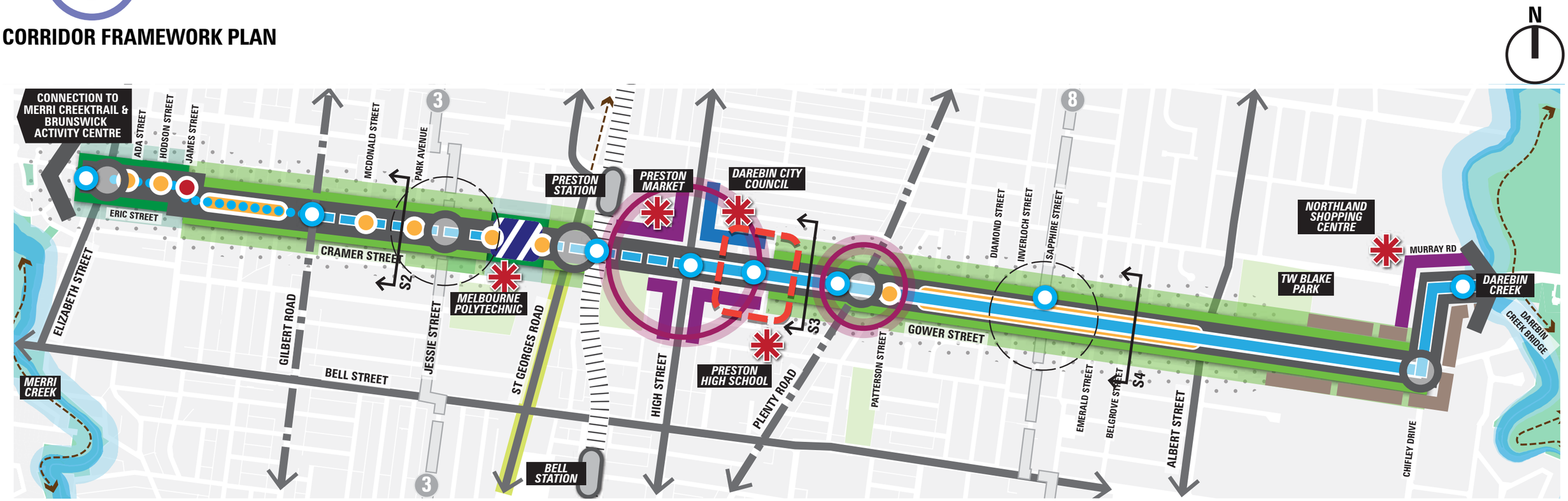
2.8km PROTECTED | **1.18km** DEDICATED | **0.43km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
1	8	3.4 KM

Junction Upgrades	Traffic Calming	Vehicle Restriction
5	16	1

5 CORRIDOR 5: PRESTON ACTIVITY LINK

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Traffic calming
- Traffic restriction
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 5
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement protected cycle lanes along the majority of the corridor, taking advantage of the generous road width and critical destinations along its extent.
2. Focus high quality pedestrian and cycle upgrades landscape improvements within and leading toward activity nodes at High Street and Plenty Road.
3. Implement improved street greening initiatives, leading toward Preston Activity centre.
4. Implement a slow zone at the tertiary education frontage to improve the overall arrival experience pedestrian safety from Preston Station.
5. Implement a slow zone to the eastern end of the corridor, integrated with new access to Darebin Creek Trail.

5 CORRIDOR 5: PRESTON ACTIVITY LINK

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 50.

CYCLING CONFIDENCE — CORRIDOR 5: PRESTON ACTIVITY LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Eric St	Shared cycle and vehicle	N/A	
James St	Shared cycle and vehicle	N/A	
Cramer St (West Of Gilbert)	Shared cycle and vehicle	N/A	
Cramer St (Gilbert Rd To St Georges Rd)	Dedicated cycle facility (line marking with buffer)	Dedicated (line marking, no buffer)	Refer to indicative cross **Section 2** on page 52. Provide line marked buffers to separate the bicycle lanes from traffic. Buffers must be minimum 0.6 m wide. Traffic lanes to be a minimum 2.9 m. Removal of car parking on one side of the street between Jessie St and St Georges Rd, adjoining the TAFE as necessary to accommodate.
Cramer St (St Georges Rd To High St)	Dedicated (line marking, no buffer)	Dedicated (line marking, no buffer)	Cycle lane treatment modified to fit.
Gower St (High St To Plenty Rd)	Protected cycle facility	Dedicated (line marking no buffer)	Refer to indicative cross **Section 3** on page 52. Potential removal of car parking on south side of the street between High St to Plenty Rd. Refer to Key Site Indicative Concept design. Gower Street between Cooma Rd and Plenty Rd - remove parking on south side, and provide linemarked buffers (min 0.6m width) between parking and bicycle lane, and bicycle lane with traffic lane. Refer to cross section drawing for dimensions (Traffic Works Typical Treatment Type C).

CYCLING CONFIDENCE — CORRIDOR 5: PRESTON ACTIVITY LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Gower St (Plenty Rd To Albert St)	Protected cycle facility (Copenhagen style)	Dedicated (line marking no buffer)	Refer to indicative cross **Section 4** on page 52. Gower Street between Plenty Rd and Albert Street passes through primarily residential use, with frequent driveways. Recommend maintain existing cross section, however, at the side road intersections, construct kerb outstands, and raised side street treatment. Midblock kerb outstands with planting can also be implemented (requires parking removal).
Gower St (Albert St To Chifley Drive)	Protected cycle facility (Copenhagen style)	Dedicated (line marking no buffer)	Refer to indicative cross **Section 4** on page 52.
Chifley Drive to Murray Road	Protected cycle facility (2-way cycle lanes)	N/A	Protected 2-way cycle path on east side of the road within verge. Conversion of footpath on eastern side of Chifley Drive to a 2.5 m wide shared path.
Murray Road to Darebin Creek Bridge	Protected cycle facility (2-way cycle lanes)	N/A	Protected 2-way cycle path on east side of the road within verge. Conversion of footpath on the southern side of Murray Road between Chifley Drive and the entry point to the Darebin Creek Trail to a 2.5 m wide shared path. 'CYCLIST DISMOUNT' signs can be installed on each end of the bridge crossing, with a future option to widen the bridge or to remove an approach lane to allow the widening of the path across the bridge.

Corridor intesections

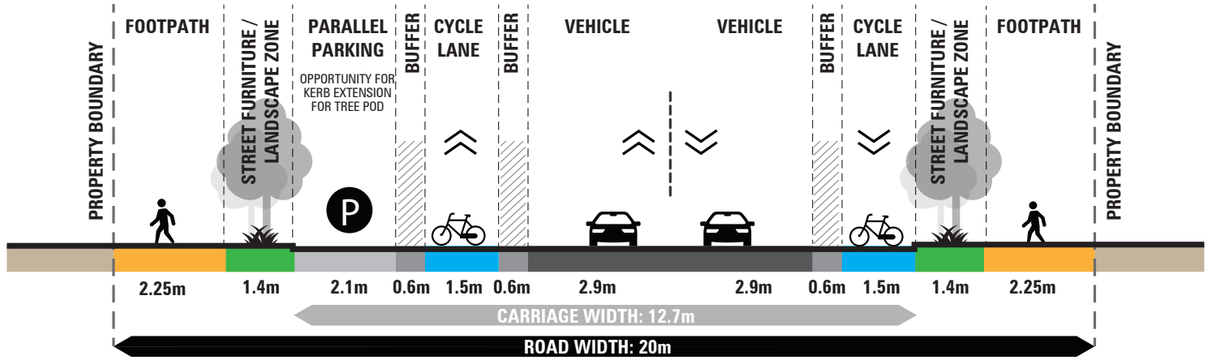
MINIMISE CONFLICT / PRIORITISE PEOPLE — CORRIDOR 5: PRESTON ACTIVITY LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Eric St & Elizabeth St Junction	New crossing	Signalised pedestrian and cycle crossing.
Eric St & Ada St Junction	Type K	
Eric St & Hodson St Junction	Type K	
Eric St & James St Junction	Type M Vehicle restriction	Closure at intersection of Eric and James St. Provide pedestrian and cycle access only. Opportunity for a new open space.
James St & Cramer St Junction	Type L	Reverse priority intersections at James St / Cramer St. Raised approaches on James Street.
Cramer St (Between James & Gilbert Rd)	Type H Type K	Mid block pinch point. Raised intersection at Cramer St / Grange St.
Cramer St (Gilbert Rd To St Georges Rd)	Type E	Refer to indicative cross **Section 2** on page 52. Provide line marked buffers to separate the bicycle lanes from traffic. Buffers must be minimum 0.6 m wide. Traffic lanes to be a minimum 2.9 m. Removal of car parking on one side of the street between Jessie St and St Georges Rd, adjoining the TAFE as necessary to accommodate.
Cramer St & Mc Donald's St Junction	Type F	
Cramer St & Park Avenue Junction	Type F	
Cramer St & Jessie St Junction	Roundabout removal Type N	Intersection with Corridor 3 - At Jessie St / Cramer St, consider removing roundabout and providing priority to Cramer St, and allow bicycle lanes to continue through the intersection. Provide raised side street treatments on Jessie Street approaches. Costed in Corridor 3. Raise existing school crossing (east of Jessie St) and provide kerb extensions.

5 CORRIDOR 5: PRESTON ACTIVITY LINK

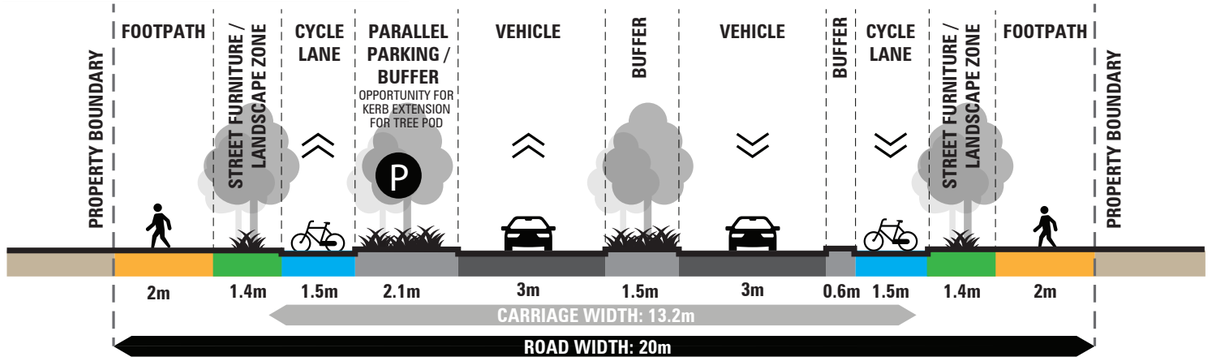
MINIMISE CONFLICT | PRIORITISE PEOPLE

CORRIDOR 5: PRESTON ACTIVITY LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Cramer St (St Georges Rd to High St)	Type E	Cycle lane treatment modified to fit.
Gower St (High St To Plenty Rd)	Refer Key Site Indicative Concept treatment Type C	Refer to indicative cross **Section 3**. Potential removal of car parking on south side of the street between High St to Plenty Rd. Refer to Key Site Indicative Concept design Gower Street between Cooma St and Plenty Rd - remove parking on south side, and provide linemarked buffers (min 0.6m width) between parking and bicycle lane, and bicycle lane with traffic lane. Refer to cross section drawing for dimensions (Traffic Works Typical Treatment Type C).
Gower St & Plenty Rd Junction	Signalised intersection upgrade	Removal of slip lane improved cycle and ped crossing.
Gower St & Patterson St Junction		Covered in bicycle treatment
Gower St & Diamond St Junction	Roundabout improvement	
Gower St & Inverloch St Junction	Type K	
Gower St & Sapphire St Junction	Roundabout improvement	Intersection with Corridor 8.
Gower St & Emerald St Junction	Type K	
Gower St & Belgrove St Junction	Type K	
Gower St & Albert St Junction	Signalised intersection upgrade	
Gower St & Chifley Drive Junction	Roundabout improvement	
Gower St (Albert St To Chifley Drive)	TypeD	

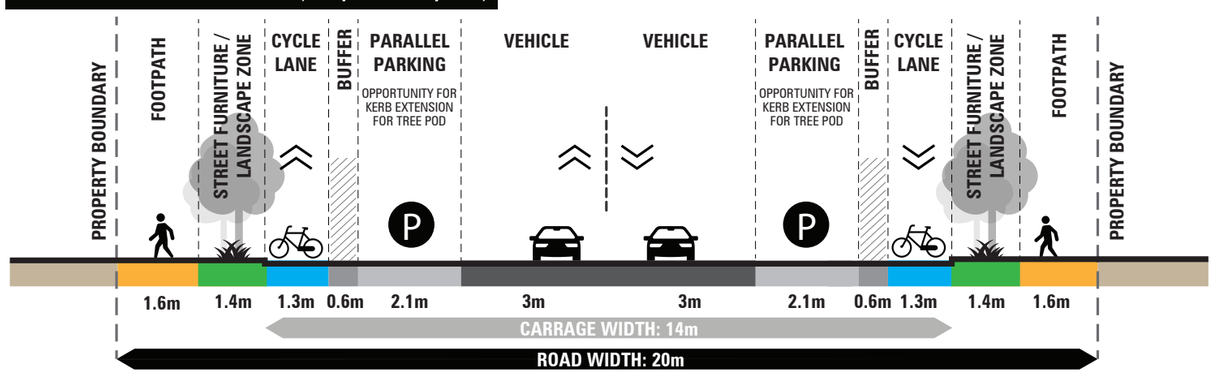
SECTION 2: CRAMER STREET (Gilbert St to St Georges Rd)



SECTION 3: GOWER STREET (High St to Cooma Rd)



SECTION 4: GOWER STREET EAST (Plenty Rd to Chifley Drive)



5 CORRIDOR 5: PRESTON ACTIVITY LINK

KEY SITE: GOWER & COOMA STREET INTERSECTION

Site Features

- Located within the civic and commercial precinct of Preston Activity Centre.
- It provides a direct east-west connections between High Street, Preston and Northland Activity Centres.
- Association with Preston Library, Darebin Children and Kindergarten, as well as future school at the south eastern corner of Gower and Cooma Streets.

Site Objectives

- To support and improve pedestrian amenity around key civic nodes as well as childcare and education services.
- To create a safer cycling environment between two of Darebin's major commercial strips.
- To reduce the perception of dominant car environment.
- To manage vehicular access to private properties.
- To maximise landscaping opportunity and opportunities for additional new open space.
- To establish a safe, consistent and legible pedestrian and cycling environment.

Key Actions (refer to indicative concept plan)

1. Implement a Copenhagen-Style cycle path to both sides of the street by removing car parking on the south side of the street and realigning car parking on the north side, closer to moving traffic.
2. Apply a contrasting material treatment to cycle paths, including across intersecting streets.
3. Introduce a new pedestrian crossing between the future school and kindergarten comprising rumble strips along vehicle approaches.
4. Implement new street trees along kerbs ensuring species do not restrict views to oncoming traffic and cyclists.
5. Consider widening existing footpath to the east of High Street by reducing existing nature strip to accommodate for street furniture, lighting and landscaping.

Indicative Concept Plan



Existing Conditions



Indicative Precedents


Seating node associated with key destinations


Zebra crossing at pinchpoint


Protected cycle path with median


WSUD landscape in verge



6 CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK

EXISTING CONDITIONS SUMMARY

Key Attributes

An east-west aligned corridor extending from the Darebin Creek Trail to Egan Reserve along the Thornbury/Preston boundary. This corridor traverses through multiple activity centres and intersects with corridors 3 and 8 as well as the St Georges Road cycle path.

Key Destinations

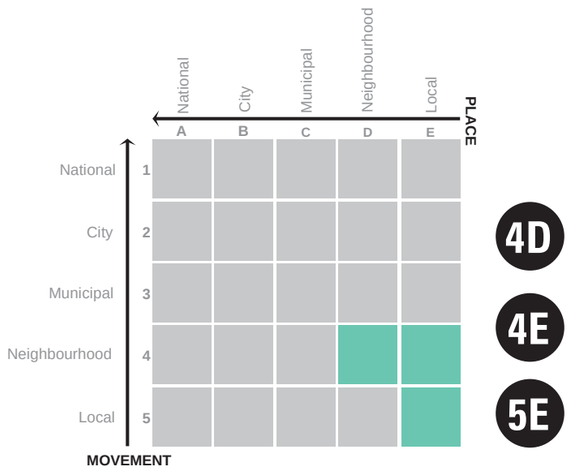
- Gilbert Road Activity Centre;
- Douglas Nicholls Sporting Complex;
- Preston PAC;
- Penders Grover Primary School; and
- Thornbury High School.

Key Challenges

- Providing adequate cycle infrastructure to improve safety along the corridor given high vehicle volumes associated with activity and employment nodes.
- Managing pedestrian and cycle movement at the Miller Street and St Georges Road junction, navigating vehicle movement and tram movement associated with the Tram Depot.
- Improving pedestrian and cycle access and safety over the Miller Street Tram Bridge and the Miller Street Tram-about.
- Managing cycle access over the High Street/ Plenty Road junction.
- Improving pedestrian and cycle amenity through the eastern industrial precinct.

Movement & Place Designation

Corridor 6 comprises a total of 3 street types including:





KEY OUTCOMES

Cycle Infrastructure



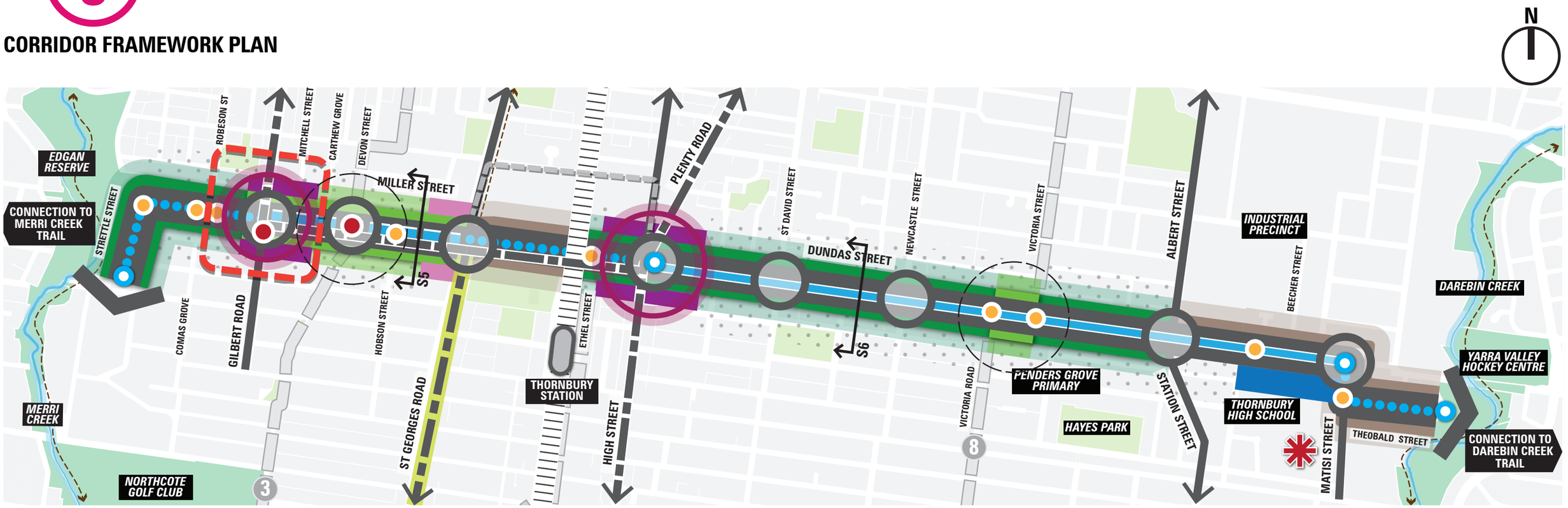
2.22km PROTECTED | **0.61km** DEDICATED | **1.39km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
-	4	650M

Junction Upgrades	Traffic Calming	Vehicle Restriction
8	15	2

6 CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Traffic calming
- Traffic restriction
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 6
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Corridor intersection
- Possible rerouting
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement protected cycle lanes along the majority of the corridor, taking advantage of the generous road width and critical destinations along its extent. Consider a new cycle bridge adjacent to the existing tram bridge at Miller Street.
2. Focus high quality pedestrian and cycle upgrades including landscape improvements within and leading toward activity nodes at Gilbert Road and High Street/ Plenty Road.
3. Upgrade junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor, particularly at Thornbury High School and St Georges Road.
4. Implement traffic calming measures at the intersection with local residential streets to support the protected cycle path designation.

6 CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 55.

CYCLING CONFIDENCE

CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Miller St (Strettle St to Gilbert Rd)	Shared cycle and vehicle	N/A	
Miller St (Gilbert Rd to St Georges Rd)	Dedicated cycle facility	N/A	Refer to indicative cross **Section 5** on page 57. Bicycle lane at road level including 1.2m lane with a 0.3m buffer (line marking) to parallel car parking. Minimum 3.3 m wide lane required for shared tram/vehicle lanes
Miller St (St Georges Rd to High St)	Shared cycle and vehicle	N/A	Alternative route from St Georges Rd to Oakover Rd via existing shared path. Construct 2.5m shared path on the western side of Railway Pl.
Dundas St (High St to Station St)	Protected cycle facility (2 way on south side with 1.4m cycle lane width + 1m buffer)	Protected cycle facility	Refer to indicative cross **Section 6** on page 57. Transition bicycle lanes from one way to proposed two-way bicycle lanes at High St. As per example provided by Trafficworks. Recommend the separation to be line marking rather than the separator due to the number of driveways along this section.

CYCLING CONFIDENCE

CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Dundas St (Albert St to Matisi St)	Protected cycle facility	Dedicated cycle lane, shared with car park	Refer to indicative cross **Section 6** on page 57. (2 way on south side with 1.4m cycle lane width + 0.6m buffer. Remove car parking on south side of Dundas St. Continue the two-way cycle lane through the intersection and bicycle lanterns to be installed on the approach. Recommend the separation to be linemarking rather than a built kerb due to the number of crossovers providing property access along this section.
Matisi St	Shared cycle and vehicle	N/A	Continue two way bicycle facility within nature strip on west side of Matisi St. End shared path at Theobald St.
Theobald St	Shared cycle and vehicle	N/A	Construct pram ramp at intersection and provide shared cycle and traffic lanes along Theobald St connecting to Darebin Creek Trail.

MINIMISE CONFLICT PRIORITISE PEOPLE

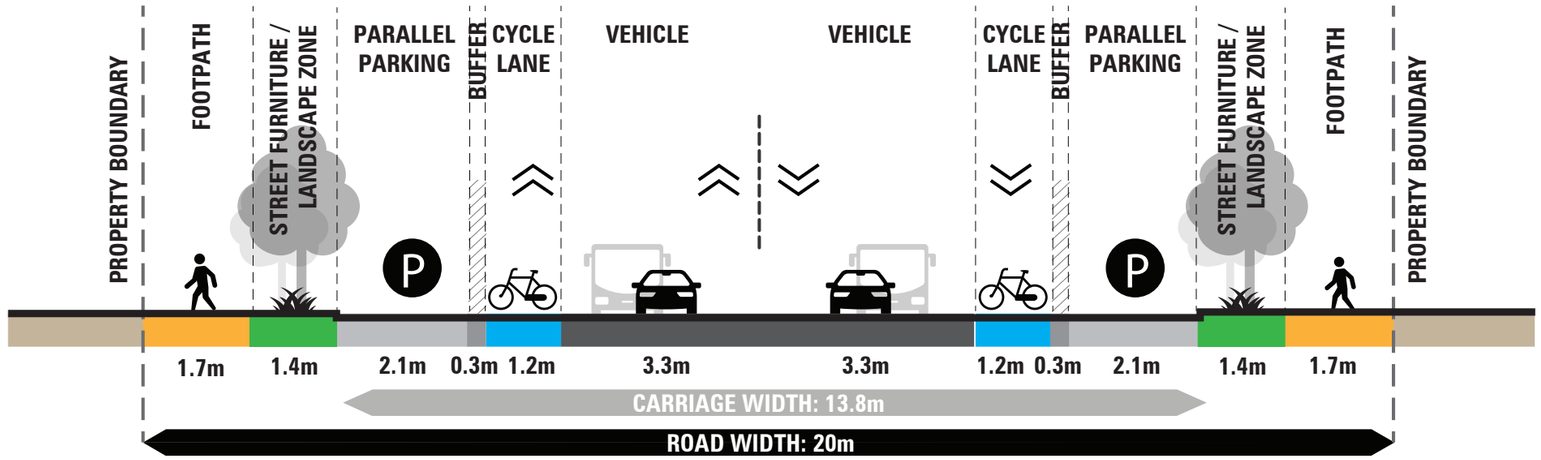
CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Strettle St To Miller St Junction	Rumble strips	Install rumble strips along curve at Strettle St / Miller St.
Miller St & Comas Grove Junction	Type K	Raised side street intersection treatment.
Miller St & Robeson St Junction	Type K	Raised side street intersection treatment.
Miller St & Gilbert Rd Junction	Refer Key Site Indicative Concept treatment	Junction upgrade & vehicle restriction for through vehicle movement.
Miller St & Devon St Junction	New ped and cycle crossing integrated with future tram super stop upgrade. As per Corridor 3 Key Site Indicative Concept design	Intersection with Corridor 3 - Refer to Key Site Indicative Concept design for guidance. Potential closure of Devon St for open space opportunity. Landscape and street furniture can be provided at Devon St open space.
Miller St & Mitchell St/ Carthew Grove/ Devon St/ Hobson St		Covered by bicycle lane treatment.
Miller St & St Georges Rd	Signalised intersection upgrade	Potential alternative route along St Georges and Oakover Road.
Dundas St (High St To Station St)	Type A Type B (x4 intersections on south side)	Refer to indicative cross **Section 6** on page 57. Transition bicycle lanes from one way to proposed two-way bicycle lanes at High St. As per example provided by Trafficworks. Recommend the separation to be line marking rather than the separator due to the number of driveways along this section.
Dundas St & St David St	Roundabout removal Type K (x2) on St David St approach	Remove roundabouts at St David St and Newcastle St and continue two-way bicycle lanes along the southern side. Install kerb extensions at the northern side of the intersections.
Dundas St & Newcastle St	Roundabout removal Type K (x2) Newcastle St approach	Raised side street intersections at Newcastle St to provide safe pedestrian environment around kindergarten.

6 CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK

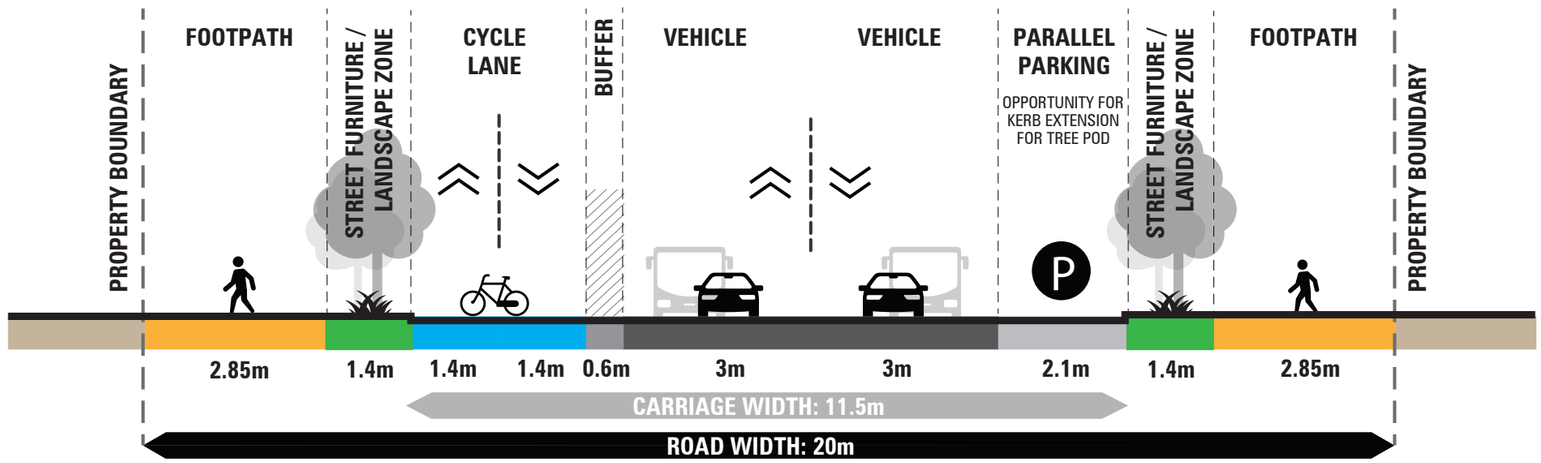
MINIMISE CONFLICT / PRIORITISE PEOPLE — CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Dundas St & Victoria Rd	Type B	Intersection with Corridor 8 - Refer to Trafficworks aerial mark-up for concept. Costed as per bicycle treatment (Appendix A).
Dundas St & Victoria St	Type F	
Dundas St & Albert St	Signalised intersection upgrade	Pedestrian and cycle access improvements at intersection.
Dundas St (Albert St To Matisi St)	Type B (at Jones St)	Refer to indicative cross **Section 6**. (2 way on south side with 1.4m cycle lane width + 0.6m buffer. Remove car parking on south side of Dundas St. Continue the two-way cycle lane through the intersection and bicycle lanterns to be installed on the approach. Recommend the separation to be linemarking rather than a built kerb due to the number of crossovers providing property access along this section.
Dundas St & Beecher St (Thornbury High)	Type A	Continue the two-way cycle lane along the southern side of Dundas St to Matisi St.

Corridor intesections

SECTION 5: MILLER STREET (Gilbert Rd to St Georges Rd)



SECTION 6: DUNDAS STREET (High St to Station St)



6 CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK

KEY SITE: MILLER & GILBERT ROAD TRAM-ABOUT

Site Features

- Located at the Gilbert Road Activity Centre at the Thornbury/Preston border.
- Existing road configuration at the Gilbert Road and Miller Street junction includes a vehicle round-about with trams operating through the centre.
- Formalised pedestrian crossings are limited, with a signalised crossing located to the north of the round-about.
- Built form presents a consistent street profile with fine grain, low rise and typically traditional commercial forms.
- Recent mid rise mixed use residential forms exist on consolidated sites.
- Some footpath trading is present with existing street trees accommodated within the footpath.

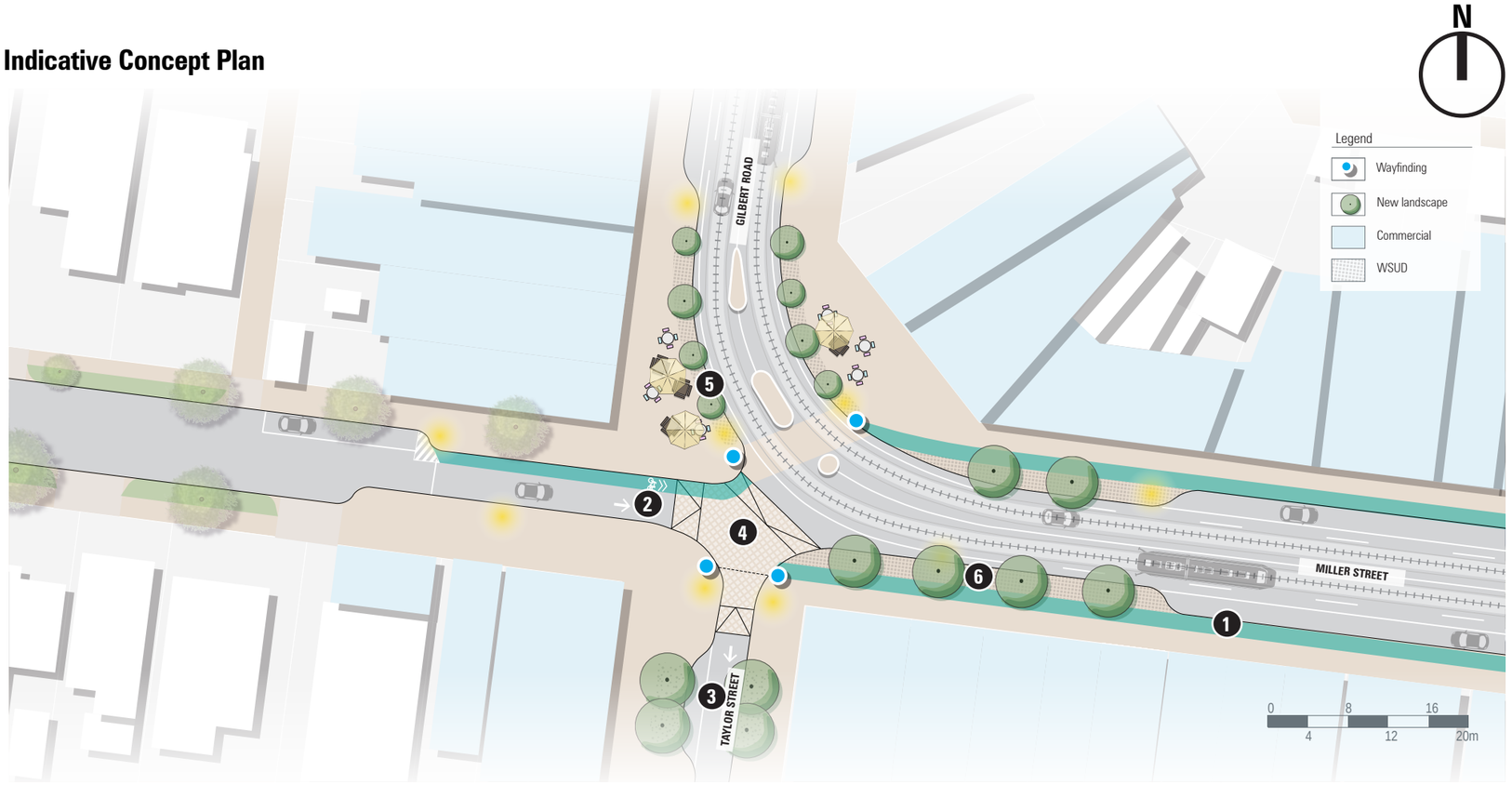
Site Objectives

- To improve east-west pedestrian and cycle access along Miller Street.
- To improve pedestrian movement across Miller Street in the Activity Centre.
- To minimise disruption to the existing tram operations along Miller Street and Gilbert Road.
- To provide opportunities for additional public open space and outdoor dining areas commensurate with Neighbourhood Activity Centres.
- To slow and/or restrict the movement of vehicles along a critical cycle and pedestrian corridor.

Key Actions

1. Implement a separated cycle path (raised on verge) to either side of Miller Street, comprising demarcated crossing points at intersections to improve visibility and safety of cyclists.
2. Restrict west bound vehicle movement along Miller Street at the Gilbert Road junction.
3. Restrict north bound vehicle access along Taylor Street from the Miller Street junction.
4. Implement a raised (paved) gateway table at the Gilbert Road, Taylor and Miller Street junction, where cycle movement transitions between shared and separated configurations.
5. Extend the kerb at the junction to provide new public open space and outdoor dining opportunities.
6. Integrate WSUD initiatives within extended kerb to provide improved landscape amenity, manage drainage and manage pedestrian and cycle conflict.
7. Retain existing alignment of tram tracks and associated tram stops.

Indicative Concept Plan



Existing Conditions



Indicative Precedents


Paving and landscape adjacent to a public transport corridor


Cycle path material differentiation


New street furniture


Demarcated pedestrian crossing at junction


Landscape along verge, providing buffer to road reserve



7 CORRIDOR 7: RESERVOIR STATION TO UNI LINK

EXISTING CONDITIONS SUMMARY

Key Attributes

A north-south aligned corridor, locally referred to as the 'Great Western Shimmy', extending from Edwardes Street in Reservoir to Arthurton Road in Northcote. This corridor winds through predominately residential streets. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

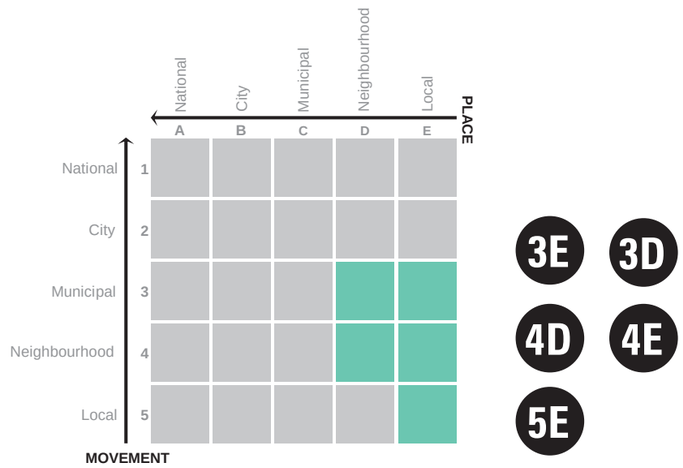
- Crispe Park;
- H.P. Zwar Reserve;
- Melbourne Polytechnic;
- Reservoir Activity Centre and Reservoir Station;
- Bell Primary; and
- Northcote Golf Club.

Key Challenges

- Managing cycle movement through the western industrial precinct and Edwardes Park.
- Creating a safer and high quality pedestrian and cycle environment within Reservoir Activity Centre.
- Improving cycle safety along Dunne Street as a primary link from the Activity Centre to Latrobe University.

Movement & Place Designations

Corridor 7 comprises a total of 5 street types including:





KEY OUTCOMES

Cycle Infrastructure



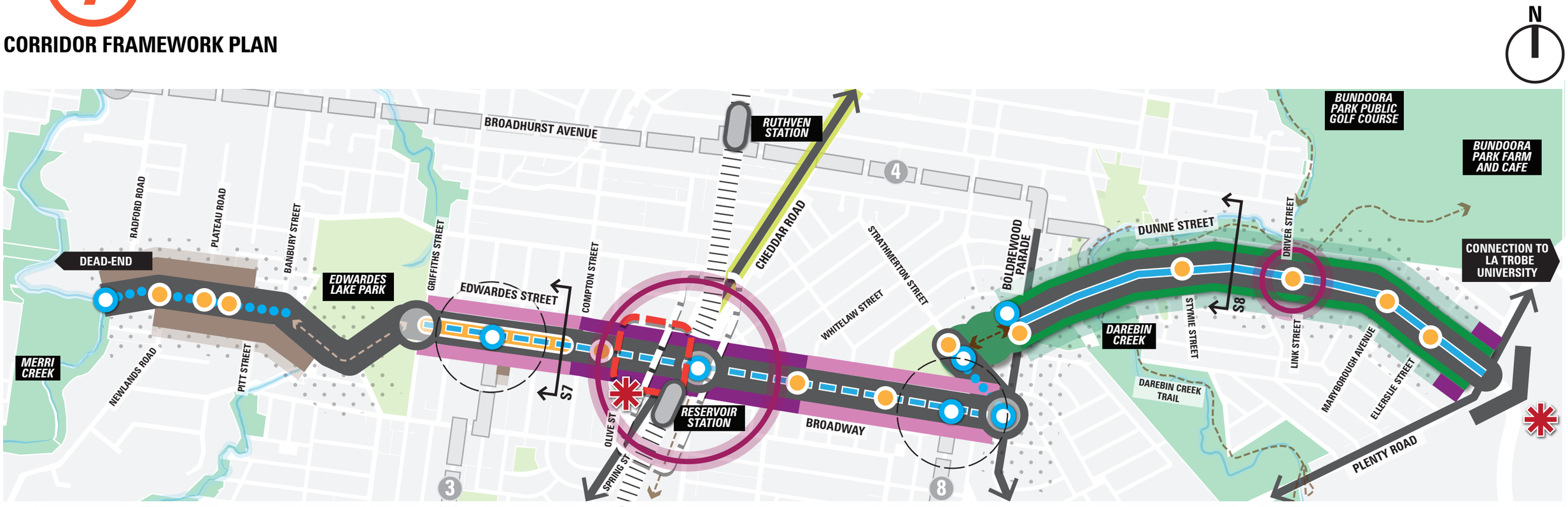
2.38km PROTECTED | **1.57km** DEDICATED | **0.84km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
-	7	-

Junction Upgrades	Traffic Calming	Vehicle Restriction
3	28	-

7 CORRIDOR 7: RESERVOIR STATION TO UNI LINK`

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Future level crossing removal
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 7
- Other Streets for People Corridors
- Major roads
- Existing trail/ off road
- Median shared user path
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Focus high quality pedestrian and cycle upgrades including landscape improvements within and leading toward Reservoir Activity Centre.
2. Implement a shared zone (or slow zone) within the Reservoir Activity Centre, to the west of the rail corridor, providing improved pedestrian connectivity in a commercial main street context.
3. Upgrade junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor, particularly at Cheddar Road (acknowledging the proposed future level crossing removal project).
4. Implement traffic calming measures at the intersection with local residential streets that support the varied cycle treatments along the corridor extent.
5. Provide enhanced wayfinding treatments from Reservoir Activity Centre to Latrobe University.

7 CORRIDOR 7: RESERVOIR STATION TO UNI LINK

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 60.

CYCLING CONFIDENCE

CORRIDOR 7: RESERVOIR STATION TO UNI LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Edwardes St (Radford Rd to Banbury Rd)	Shared cycle and vehicle	N/A	
Edwardes St (Banbury Rd to Griffiths St)	Off -road cycle path on north side	Existing dedicated cycle lane (line marking, no buffer)	2.5 m wide shared path on northern side of Edwardes St between Banbury Road and Griffith St.
Edwardes St (Griffiths St to Compton St)	Separated cycle facility		Refer to indicative cross **Section 7** on page 62. Recommend cycle lane to be at road level due to the number of driveways along this section. The carriageway width along this section is 12m, insufficient to fit the proposed **Section 7**. Recommended to remove on-street parking on the southern side. Provide a 1m wide raised separator between the westbound traffic lane and the westbound bicycle lane.
Edwardes St (Compton St to Olive St)	Protected cycle facility		Refer to indicative cross **Section 2** on page 52 and Key Site Indicative Concept design guidance. Removal of car parking on the south side to give more space to pedestrians and cyclist. On Edwardes St between Compton St and Olive St, provide linemarked buffers to separate the bicycle lanes from traffic. Buffers must be minimum 0.6 m wide. Traffic lanes to be a minimum 2.9 m. Ensure adequate sightlines are achieved at the proposed pedestrian zebra crossing Ensure median width at the zebra crossing is a minimum 2 m (2.5 m desirable), to allow pedestrians to safely refuge.

CYCLING CONFIDENCE

CORRIDOR 7: RESERVOIR STATION TO UNI LINK			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Broadway (Spring St & Whitelaw St)	Dedicated cycle facility (line marking, no buffer)	Yes – retain existing	Opportunity to add vertical element for cycle lane separation (i.e. Bollards).
Broadway (Whitelaw St to Bolderwood Pde)	Dedicated (line marking with buffer)	Dedicated (line marking with buffer)	Green pavement in cycle lane across conflict points at intersections. Raised side street intersection at Fordham Road.
Strathmerton St	Shared cycle and vehicle		
Dunne Street	Separated cycle facility (Two way cycle lanes on the south side)	Shared cycle and on street car park.	Refer to indicative cross **Section 8** on page 62. Removal of car parking on the south side to give more space to pedestrians and cyclist. Dimensions as per typical treatment 8, but remove car parking between cyclists and traffic lane, provide 1m built buffer and 3.5m traffic lanes.

Corridor intesections

MINIMISE CONFLICT PRIORITISE PEOPLE

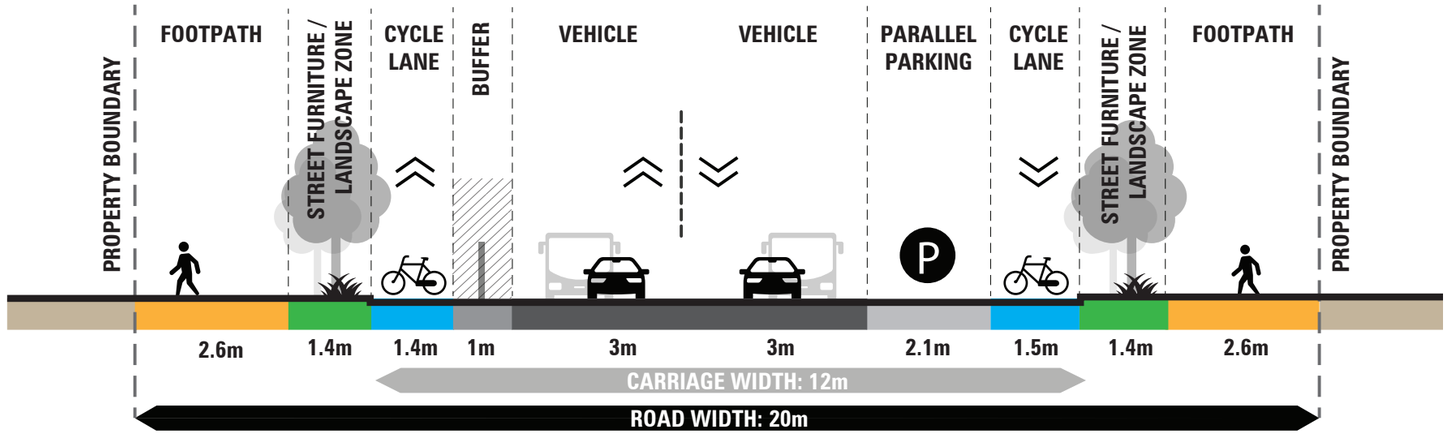
CORRIDOR 7: RESERVOIR STATION TO UNI LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Edwardes St & Plateau Rd/ Pitt St	Type K	Raised side street intersections at Plateau Rd and Pitt St.
Edwardes St & Newland Rd	Signalised intersection upgrade	
Edwardes St & Griffiths St junction	Type K	Raised side street at Griffiths St intersection. Upgrade existing signalised pedestrian crossing to a signalised shared path crossing (i.e. Include cyclist lanterns).
Edwardes St (Griffiths St to Compton St)	Type E – modified to remove parking on one side Type F (x8) at side street intersections	Intersection with Corridor 3 - Refer to indicative cross **Section 7** on page 62. Recommend cycle lane to be at road level due to the number of driveways along this section. The carriageway width along this section is 12m, insufficient to fit the proposed Section 7. Recommended to remove on-street parking on the southern side. Provide a 1m wide raised separator between the westbound traffic lane and the westbound bicycle lane.
Edwardes St (Compton St to Whitelaw St)		Future upgrades to form part of proposed level crossing removal project.
Edwardes St & Spring St Junction	Junction upgrade	(LXRA grade separation project)
Broadway (Spring St & Whitelaw St)	Type K	Opportunity to add vertical element for cycle lane separation (i.e. Bollards).
Broadway (Whitelaw St to Bolderwood Pde)	Type F	Intersection with Corridor 8 - Green pavement in cycle lane across conflict points at intersections. Raised side street intersection at Fordham Road.
Broadway & Bolderwood/ Strathmerton St junction	Amended route Type K Type J	At the Broadway / Strathmerton St roundabout, provide cyclist crossings at the splitter islands (refer to example). Re-route corridor along Strathmerton St past leisure centre and neighbourhood house to connect to two way off-street bicycle facility in reserve.

7 CORRIDOR 7: RESERVOIR STATION TO UNI LINK

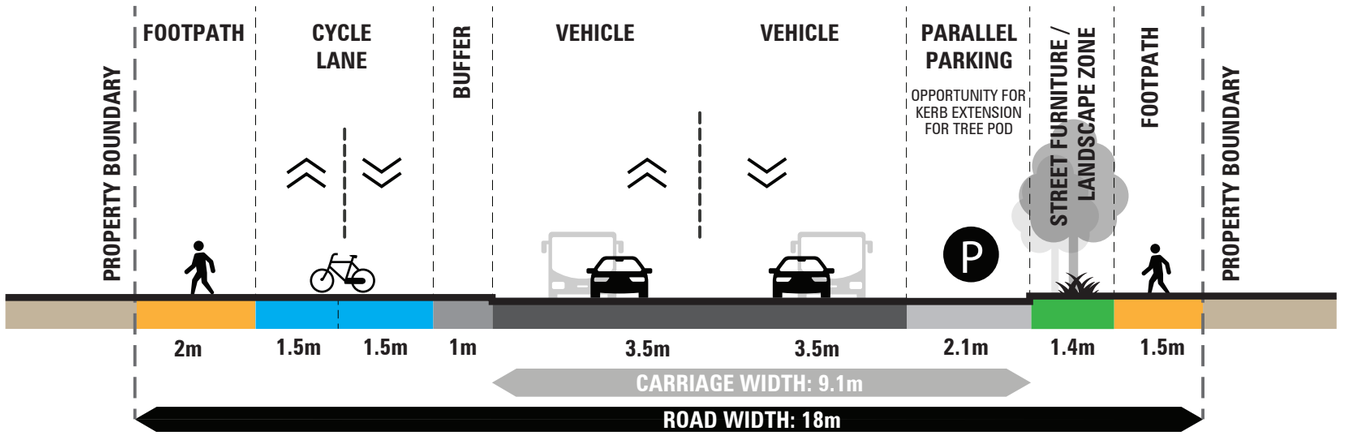
MINIMISE CONFLICT | PRIORITISE PEOPLE

CORRIDOR 7: RESERVOIR STATION TO UNI LINK		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Dunne Street	Type A Type B (x 6 intersections on south side between Darebin Creek Trail and Plenty Road)	Refer to indicative cross **Section 8**. Removal of car parking on the south side to give more space to pedestrians and cyclist. Dimensions as per typical treatment 8, but remove car parking between cyclists and traffic lane, provide 1m built buffer and 3.5m traffic lanes.
Dunne Street & Darebin Creek Trail		Two way off-street cycle lane on south side of Dunne St can connect into Darebin Creek path on south side to allow access to both north and south, via path link under bridge.
Dunne St & Stymie St junction	Type B – modified as required (no bus stop)	Raised side street intersection at Stymie St.
Dunne St & Maryborough Avenue Junction	Type N Type B – modified as required (no bus stop)	Upgrade existing school crossing. Remove roundabout and convert into Dunne St priority with give way for Maryborough St traffic.
Dunne St & Link St/ Driver St junction	Type B – modified as required (no bus stop)	Raised side street treatments at Link Road and Driver Street. Raise existing school crossing east of Link Road.
Dunne St & Ellerslie St junction	Type B	Raised side street treatments at Ellerslie St.

SECTION 7: EDWARDES STREET (Griffiths St to Compton St)



SECTION 8: DUNNE STREET



7 CORRIDOR 7: RESERVOIR STATION TO UNI LINK

KEY SITE: RESERVOIR ACTIVITY CENTRE

Site Features

- Activity Centre context comprising retail, commercial and community facilities to both sides of the street.
- An existing median comprising landscape and pedestrian refuge with line marking buffer to both sides of the road.
- Several bus routes operate along road.
- New public open space and seating nodes positioned at community centre frontage.
- Signalised pedestrian crossing comprising kerb outstand.
- Existing parallel car parking to both sides of the street.

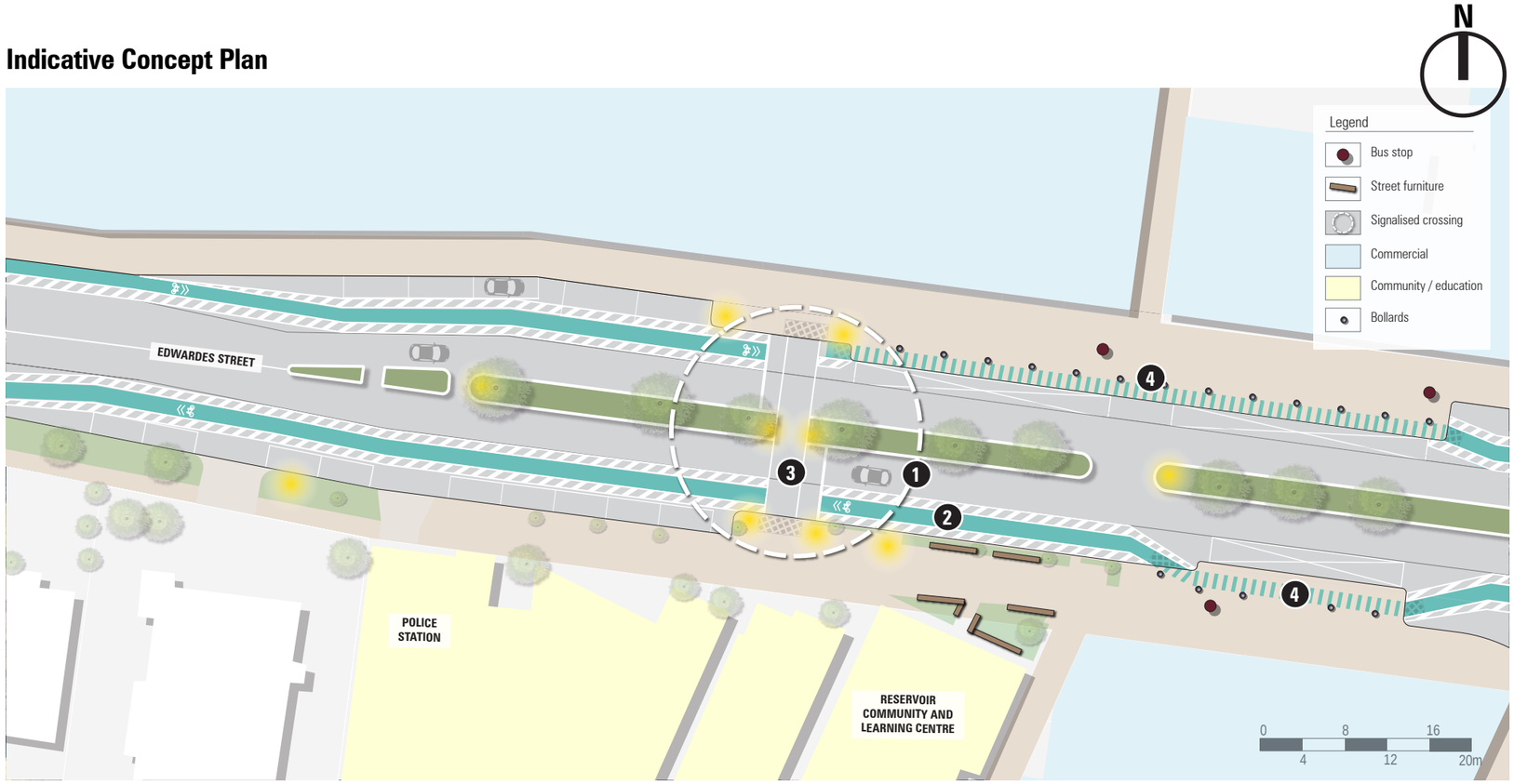
Site Objectives

- To improve the safety and amenity of cycling within the Activity Centre.
- To upgrade existing, tired public realm infrastructure and landscape.
- To provide a transition between cycle modes to either side of Cheddar Road.

Key Actions

1. Remove the ground plane buffer surrounding the existing median and realign vehicle carriageway closer to median.
2. Provide a 1.5m cycle lane with 1m buffer to both sides of each cycle path.
3. Retain existing pedestrian crossing and realign the kerb outstand to accommodate increased cycle path.
4. Cyclists to mount kerb where there is a bus stop to avoid conflict with bus movement on road.

Indicative Concept Plan



Existing Conditions



Indicative Precedents



Buffered cycle path



Wayfinding treatments along kerb line



Public art opportunity at pedestrian crossing



Landscape within paved verge



8 CORRIDOR 8: THE GREAT EASTERN CYCLEWAY

EXISTING CONDITIONS SUMMARY

Key Attributes

A north-south aligned corridor extending from Broadway in Reservoir to Westgarth Street in Northcote. This is the largest of the 8 corridors and provides a critical cycle link to City of Yarra in the south as well as intersecting with east west cycle corridors. This route is being considered for designation as a primary transport cycling route as part of the State Government's Strategic Cycling Network.

Key Destinations

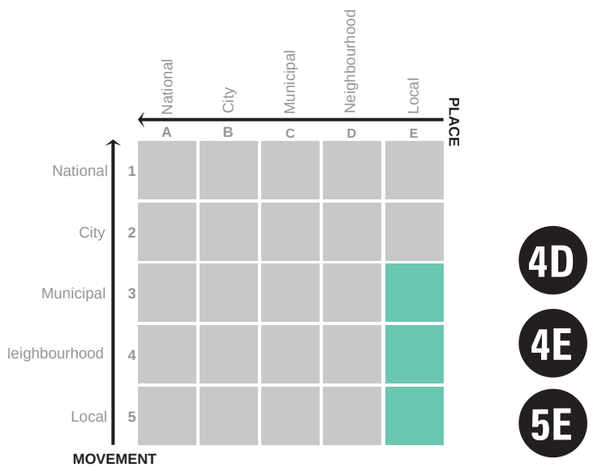
- Dennis Station;
- Nothcote Aquatic Centre; and
- Penders Grove Primary School.

Key Challenges

- Providing safe cycle movement along the corridor length commensurate with existing vehicle numbers.
- Implement safe pedestrian and cycle crossings at major junctions with Separation Street, Bell Street and Plenty Road.

Movement & Place Designation

Corridor 8 comprises a total of 3 street types including:





KEY OUTCOMES

Cycle Infrastructure



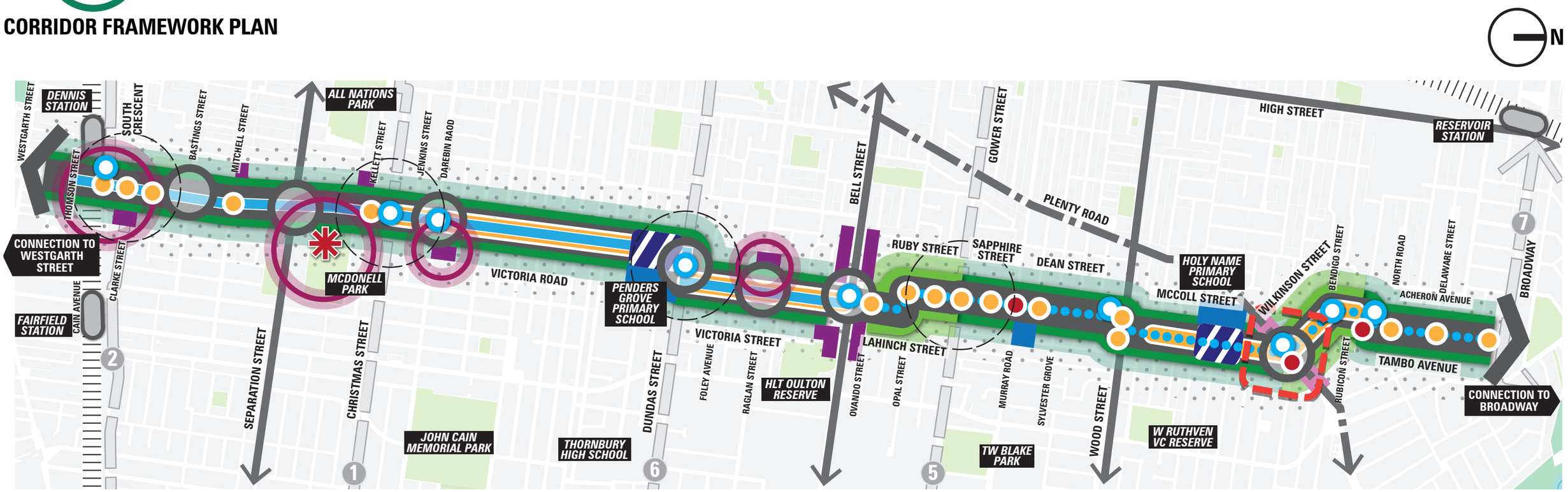
4.05km PROTECTED **0km** DEDICATED **3.67km** SHARED

Shared/ Slow Point	Wayfinding	Street Greening
2	9	1KM

Junction Upgrades	Traffic Calming	Vehicle Restriction
7	43	3

8 CORRIDOR 8: THE GREAT EASTERN CYCLEWAY

CORRIDOR FRAMEWORK PLAN



PRIORITISE PEOPLE

- Activity node
- Key destination
- Shared zone/ slow zone
- Wayfinding improvement
- Street greening opportunities
- Retain / Improve existing street planting

MINIMISE CONFLICT

- Junction improvement
- Traffic restriction
- Traffic calming
- Integrated station node
- Maintain efficient tram movement & improve stops

INCREASE CYCLING CONFIDENCE

- Protected cycle facility*
- Dedicated cycle facility
- Shared vehicle & cycle facility

LEGEND

- Streets for People Corridor 8
- Other Streets for People Corridors
- Major roads
- Corridor intersection
- Key Site

LAND USE

- Commercial
- Residential (medium- high density)
- Residential (low- medium density)
- Institution
- Existing industrial (potential future medium- high density mixed use)
- Open space/ reserve

CORRIDOR AMBITIONS:

1. Implement protected cycle lanes along Victoria Road/ Street, taking advantage of the generous road width and critical destinations along its extent. On-street car parking will be removed from one side of street to accommodate adequate kerb widths.
2. Acknowledge the significance of the corridor as a critical north-south cycle link in Darebin through improved signage and wayfinding opportunities along its extent.
3. Upgrade junctions along intersecting major roads to improve safety and functionality of walking and cycling along the corridor, particularly at Bell Street, Plenty Road and Separation Street.
4. Implement traffic calming measures (and in some cases vehicle restrictions) at the intersection with local residential streets to support the shared or protected cycle designation along those streets.
5. Implement shared zones (or slow zones) at school frontages to improve safety and accessibility for students walking and cycling to school.

8 CORRIDOR 8: THE GREAT EASTERN CYCLEWAY

RECOMMENDED DESIGN TREATMENTS

To be read in association with **Corridor Framework Plan** on Page 65.

CYCLING CONFIDENCE

CORRIDOR 8: THE GREAT WESTERN CYCLEWAY			
Streets/ Junctions	Recommended Cycle Infrastructure	Existing Cycle Infrastructure	Comment
Victoria Rd / Victoria St (between Westgarth St to Bell St)	Separated cycle facility (cycle lane with buffer)	Dedicated cycle lane	Will require removal of car parking on 1 side of the road.
Lahinch St	Shared cycle and vehicle	Shared cycle and vehicle	
Opal St	Shared cycle and vehicle	Shared cycle and vehicle	
Ruby St	Shared cycle and vehicle	N/A	
Sapphire St	Shared cycle and vehicle	Shared cycle and vehicle	
Dean St	Shared cycle and vehicle	Shared cycle and vehicle	Vehicle restriction: limit north bound vehicle movement into Dean St.
Wood St	Shared cycle and vehicle	Shared cycle & car park	
Wilkinson St	Shared cycle & vehicle	N/A	
Acheron Avenue	Shared cycle & vehicle	N/A	
Tambo Avenue	Shared cycle & vehicle	N/A	

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 8: THE GREAT WESTERN CYCLEWAY		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Victoria Rd & Thomson St Junction	Type F	Green pavement at conflict points adjacent to intersections.
Victoria Rd & South Crescent Junction	Type F Type K	Intersection with Corridor 2.
Victoria Rd & Clarke St Junction	Type F	
Victoria Rd & Bastings St Junction	Signalised intersection improvement	Reduce the perception of carriage width. Provide cycle signal priority.
Victoria Rd & Mitchell St Junction	Type F	
Victoria Rd & Separation St Junction	Signalised intersection improvement	Cyclist priority at signals. Remove left turn lane and leave a single through lane with 1 dedicated right turn lane to provide more space for cyclists.
Victoria Rd & Kellett St Junction	Type F	
Victoria Rd & Christmas St Junction	Type K Type N	Intersection with Corridor 1 – improved pedestrian crossing facilities.
Victoria Rd & Jenkins St Junction	Type F	Cyclist priority at signals.
Victoria Rd & Darebin Rd Junction	Signalised intersection improvement	
Victoria Rd & Hammond St Junction	Type F	
Victoria Rd & Speight St Junction	Type F	
Victoria Rd & Clyde St Junction	Type F	
Victoria Rd & Raleigh St Junction	Type F	
Victoria Rd & Gooch St Junction	Type F	

MINIMISE CONFLICT PRIORITISE PEOPLE

CORRIDOR 8: THE GREAT WESTERN CYCLEWAY		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Victoria Rd & Rossmoyne St Junction	Type F	
Victoria Rd & Mansfield St Junction	Type F	
Victoria Rd & Flinders St Junction	Type F	
Victoria Rd & Collins St Junction	Type F	
Victoria Rd & Pender St Junction	Type F Type N Shared Zone	Treatments to improve pedestrian safety in vicinity of school.
Victoria Rd & Dundas St Junction	Type F Type B	Intersection with Corridor 6. Refer to Trafficworks aerial mark-up for concept. Costed as per bicycle treatment (Appendix A).
Victoria St & Dundas St Junction	Type F	
Victoria St & Sussex St Junction	Type F	
Victoria St & Foley St Junction	Type F	
Victoria St & Bailey Ave/ Alfred St Junction	Type F	
Victoria St & Raglan St Junction	Roundabout improvement	Provide cycle lane markings through roundabout. Alternative design as per squared-off example provided by Trafficworks.
Victoria St & Mornane St/ Mihil St Junction	Type F	
Victoria St & Walsh St/ Breffna St Junction	Type F	
Victoria St & Neale St/ Cormac St Junction	Type F	

8 CORRIDOR 8: THE GREAT EASTERN CYCLEWAY

MINIMISE CONFLICT / PRIORITISE PEOPLE — CORRIDOR 8: THE GREAT WESTERN CYCLEWAY		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Victoria St & Bell St Junction	Signalised intersection improvement	Greater cyclist and pedestrian priority and safety improvement at signals.
Lahinch St & Ovando St Junction	Type H	Mid-block
Lahinch St & Opal St Junction	Type H	Mid-block
Opal St & Ruby St Junction	Type H	Mid-block
Ruby St	Type H	Mid-block
Ruby St & Gower St Junction	Refer to corridor 5	Intersection with Corridor 5.
Sapphire St	Type H	Mid-block
Dean St & Sylvester Grove Junction	Type L	
Dean St & Wood St Junction	Type K	
Wood St & Mc Coll St Junction	Type K	
Mc Coll St (Between Wood St & Plenty Road)	Type H (x2) Shared Zone Type N	2 x Mid-block pinch points and wombat crossing near school.
Mccoll St & Plenty Rd Junction	Vehicle restriction: remove left-in slip lane off Plenty Road Type K New signalised crossing	Refer Key Site Indicative Concept treatment.
Wilkinson St & Plenty Rd Junction	Type K	
Wilkinson St (Between Plenty Rd & Rubicon St)	Type H	

MINIMISE CONFLICT / PRIORITISE PEOPLE — CORRIDOR 8: THE GREAT WESTERN CYCLEWAY		
Streets/ Junctions	Recommendation Junction / Intersection Treatment Type	Comment
Wilkinson & Bendigo	Type K	
Acheron Avenue & Tambo Avenue Junction	Vehicle restriction: limit vehicle access	Closure to through traffic and new open space opportunity. Retain cycle access.
Tambo Avenue & North Rd Junction	Roundabout improvement	Provide cycle marking.
Tambo Avenue & Delaware St Junction	Type L	
Tambo Avenue & Broadway Junction	Type K	Intersection with Corridor 7

Corridor intesections

8 CORRIDOR 8: THE GREAT EASTERN CYCLEWAY

KEY SITE: MCCOLL STREET & PLENTY ROAD INTERSECTION

Site Features

- A divided road reserve providing a left-in only lane for traffic travelling south-west along Plenty Road and 2 traffic lanes divided by a landscaped median.
- Tram and bus operations along Plenty Road.

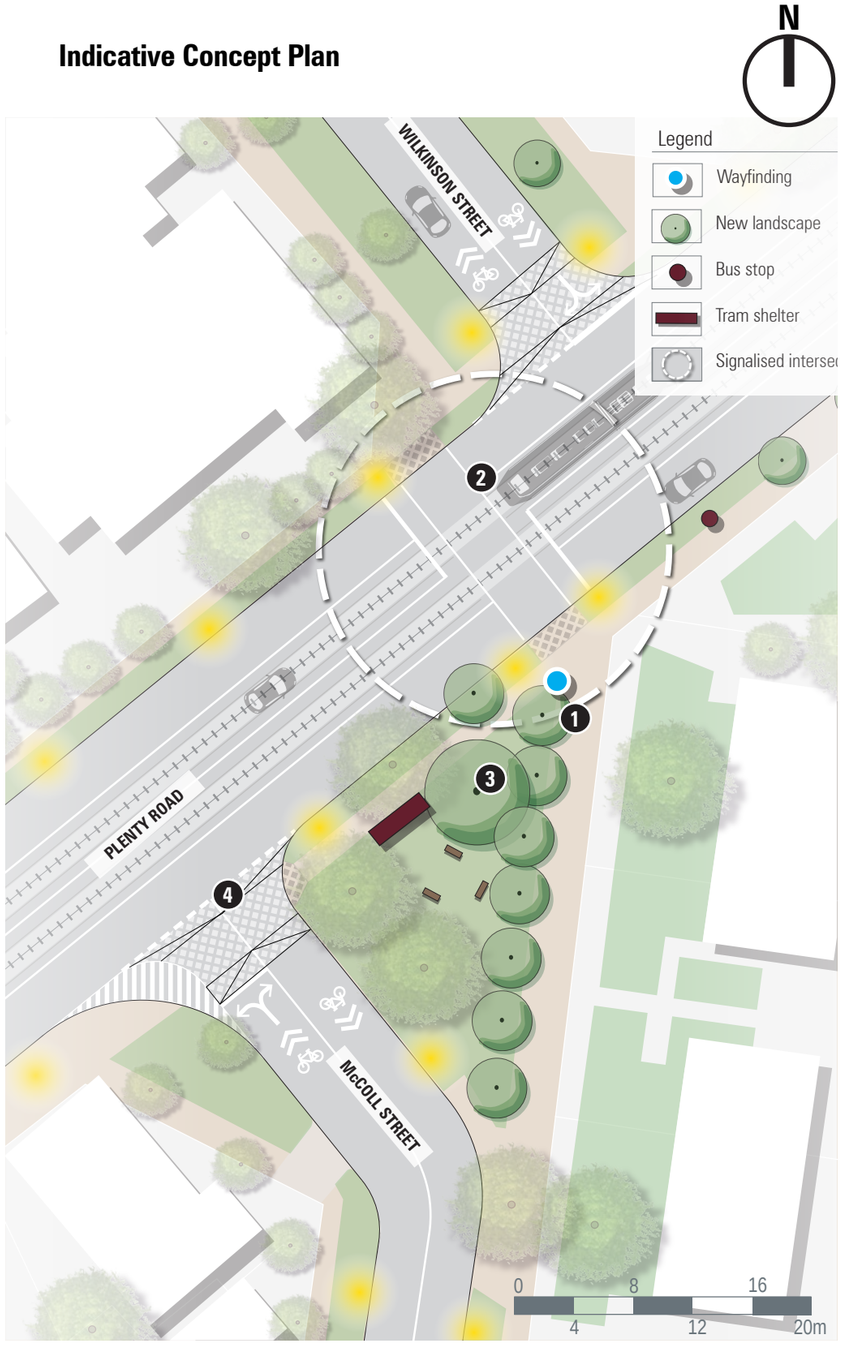
Site Objectives

- To reduce vehicle speeds at a major intersection along the corridor.
- Improve cycle and pedestrian access across Plenty Road to ensure clear delineation of corridor.
- To provide new opportunities for public open space and landscape amenity.

Key Actions

1. Closure of the 'slip lane' to connect the existing median with pedestrian footpath.
2. Implement a signalised intersection over Plenty Road, in association with the tram and bus stops.
3. Implement new landscape and WSUD initiatives within the median reserve. Consider also incorporating a tram stop shelter and bench seat.
4. Reorganise the carriageway, including an extended kerb line marking to reduce vehicle speeds when turning into Plenty Road.

Indicative Concept Plan



Existing Conditions



Indicative Precedents



WSUD landscape adjacent to path



Tram shelter with seating



Wayfinding signage



Lighting opportunity along reserve



EVALUATION & PRIORITISATION

Cycle lane widths and potential capacity

It is noted there is correlation between cycle lane widths and their ability to accommodate volume of cyclists per hour. For each type of cycle facility, anticipated **maximum capacity** estimates are as follows:

- **3m two-way cycle lane the maximum capacity: 7,500 cyclists/ hour** (in both directions) (reference: NACTO)
- **1.5m one-way lane – maximum capacity: 3,400 cyclists/ hour** (reference: Seriani , European Transport Conference 2014)
- **1.2m one-way lane – maximum capacity:** ranges from 2,000 – 3500 cyclists/ hour, or average **2,750 cyclists/ hour** (reference: Transportation Research Record 1636, Allen et al 1998).

The influence of different measures to increase cycle protection, such as raised kerbs, buffers, etc. have an impact on cyclist safety and perception of safety, therefore removing a key barrier to cycling for many. These measures are likely to encourage less confident cyclists to use these cycling facilities.

PRIORITISE PEOPLE

- **12 new pedestrian priority shared zones/ slow zones**
- **3 new open spaces**
- **58 new way finding/ public art opportunity**
- **10.150km additional street greening/ WSUD opportunities**

CYCLING CONFIDENCE

- **40.360 km cycle infrastructure (+48%)**
- **12.820 km additional protected cycle lanes (+128%)**
- **3.780 km additional dedicated cycle lanes (+15%)**
- **23.760 km improved shared cycle lanes (+86%)**
- **11 Direct connections to 3 shared trails**
- **3 Direct connections to St Georges Trail**

MINIMISE CONFLICT

- **Confirmation of 'movement' & 'place' designation**
- **14 new vehicle restrictions to limit rat-running**
- **183 new traffic calming measures**
- **33 junctions upgrade for improved cyclists & pedestrians safety**

Overarching Appraisal

This Feasibility Study demonstrates there are significant opportunities to realise 'Streets for People' along the 8 corridors, with varying degree of intervention and investment.

This Study has also undertaken a more balanced approach to demonstrate how appropriate cycling facility can be accommodated within the constraint of existing carriage widths. In some areas, where on street car parking needs to be re-organised, relocated, or removed, the optimal cycling facility will be provided.

Improving the Corridors as 'Streets for People'

A summary of quantifiable improvement achieved from delivering recommendations found in this report is as follows:

Benefits:

1. Improving cyclist safety and addressing key barriers to cycling to increase cycle modes and sustainable transport use on the corridors.
2. Providing a range of viable, safe and dedicated cycle routes N-S and E-W through the municipality that connect to recreational, employment, educational and community attractors.
3. Providing a safe alternative to car travel, and reducing the number of short trips (less than 5km) made by cars within Darebin.
4. Providing opportunities to reprioritise transport connectors for sustainable transport modes (walking and cycling) through local traffic calming initiatives and access restrictions.
5. Providing safe connections to Public Transport hubs and corridors for a fully integrated sustainable transport journey.
6. Improving the visibility and promoting the viability of cycling to local and regional destinations through identified corridors, specific treatments, wayfinding and high profile treatments on local streets.
7. Complementing the identified priority pedestrian network with opportunities for public realm and cycling improvements to service high demand links and destinations through sustainable and high capacity transport modes.
8. Opportunities to promote the most effective use of existing infrastructure/street space in areas of high demand or potential for conflict on busy transport corridors, and benefit local users in activity centres.
9. Increasing the capacity of the local access transport network through prioritising the most space efficient transport modes.
10. Enabling a proven economic benefit for activity centres through reducing congestion and providing a range of viable transport options for access to goods and services.

EVALUATION & PRIORITISATION

Implementation Plan

The 'Streets for People' can be implemented in Short, Medium and Long Terms. A comprehensive 'Implementation Plan' highlights where possible short term initiatives can be prioritised without diminishing the overarching ambition as soon as decisions are reached and funding becomes available.

Recommended Priority/ Ranking

High Priority: For areas where there is a high demand for sustainable transport, high level of crash stats, anticipated high level of future change and for places of municipal/ neighbourhood role.

Medium Priority: For areas where there is a mid level demand for sustainable transport, high level of crash stats, anticipated medium level of future change and for places of neighbourhood/ local role.

Low Priority: For areas where there is a lower demand for sustainable transport, lower crash stat, lower level of anticipated future change and for places of local role.

BENEFIT MEASURE	CORRIDOR							
	1	2	3	4	5	6	7	8
Proportion of corridor with Municipal (level 3), or Neighbourhood (level 4) Role - refer to 'Movement & Place' approach.	29%	9%	0%	0%	32%	21%	14%	2%
Link or proximity to future significant land use change/ densification	▪ Northcote Plaza. ▪ High Street, Northcote. ▪ Beavers Road Mixed Use precinct. ▪ Gadd Street Redevelopment Precinct. ▪ St Georges Road Corridor.	▪ Fairfield Activity Centre.	▪ Oakover Village	▪ N/a	▪ Northland Urban Renewal Precinct. ▪ Preston Market Redevelopment Proposal. ▪ Preston Central. ▪ Preston High School. ▪ Plenty Road corridor renewal.	▪ High Street/ Plenty Road junction.	▪ Residential Growth Zone surrounding Reservoir Activity Centre. ▪ LaTrobe NEIC.	▪ Northcote aquatic centre precinct. ▪ Plenty Road corridor renewal.
Proportion of corridor with treatment on walkability index score +1500	900m 20%	2450m 54%	1050m 15%	820m 19%	2400m 52%	1950m 46%	2300m 39%	1150m 15%
Safety – number of serious injury or fatality crashes on corridor addressed through treatment. F: Fatality S: Serious injury P: Involved pedestrian C: Involved cyclist	6 S 2 P 1 C Total: 9	12 S 6 C 2 P Total: 20	4 S 1 C Total: 5	1 F 3 S 1 P Total: 5	9 S 2 C 3 P Total: 14	1 F 3 S 1 C 1 P Total: 6	1 F 22 S 11 P 1 C Total: 34	12 S 2 P 5 C Total: 19
Separated (Protected & Dedicated) bicycle lane proposed (m)	540m	710m	540m	0m	3980m	2830m	3950m	4050m
Opportunity for Street Greening (m)	1300m	0m	1200m	2600m	3400m	650m	0m	1000m
Delivery Cost of Corridor Infrastructure (Bike facilities & Traffic Calming)	$2.2m	$4.6m	$5.1m	$1.4m	$9.9m	$8.8m	$11.4m	$16.9m
Existing Capital Works and Infrastructure Projects underway or in planning stage	▪ Future bike connection to CERES ▪ Northern Pipe Trail Upgrade	▪ LXRA near completion at Grange Road. ▪ Fairfield Station Upgrade.				▪ South Morang Shimmy.	▪ Future LXRA at Cheddar Road and Spring Street.	
RECOMMENDED PRIORITY OR RANKING	**HIGH**	**MEDIUM**	**LOW**	**LOW**	**HIGH**	**HIGH**	**HIGH**	**MEDIUM**

EVALUATION & PRIORITISATION

Summary Costing for Each Corridor

A summary of high level costing for cycle infrastructure types are included below. A reference to cost breakdowns is provided in **Appendix C-** High Level Cost Estimates.

ELEMENTS	COST/ LINEAR M	CORRIDOR 1: NORTHCOTE GREEN LINK	CORRIDOR 2: HURSTBRIDGE LINE SHIMMY	CORRIDOR 3: THE GREAT WESTERN SHIMMY	CORRIDOR 4: NORTHERN RESERVOIR CORRIDOR	CORRIDOR 5: PRESTON ACTIVITY LINK	CORRIDOR 6: THORNBURY NEIGHBOURHOOD LINK	CORRIDOR 7: RESERVOIR STATION TO UNIVERSITY LINK	CORRIDOR 8: THE GREAT EASTERN CYCLEWAY	TOTAL
PROTECTED CYCLE INFRASTRUCTURE:										
1 - way	$3,000.00	0	500m	0	0	2390m	610m	620m	4050m	8170
2 - way	$2,500.00	50m	210m	0	0	410m	2220m	1760m	0	4650
COSTING		$125,000.00	$2,025,000.00	$0	$0	$8,195,000.00	$7,380,000.00	$6,260,000.00	$12,150,000.00	$36,135,000.00
DEDICATED CYCLE INFRASTRUCTURE										
Buffer	$350.00	0	0	0	0	810m	0	1120m	0	1930
No buffer	$300.00	490m	0	540m	0	370m	0	450m	0	1850
COSTING		$147,000.00	$0	$162,000.00	$0	$394,500.00	$0	$527,000.00	$0	$1,230,500.00
SHARED CYCLE INFRASTRUCTURE										
Sharrow	$150.00	3780m	3770m	5470m	4410m	430m	1390m	840m	3670m	23760
COSTING		$567,000.00	$565,500.00	$820,500.00	$661,500.00	$64,500.00	$208,500.00	$126,000.00	$550,500.00	$3,564,000.00
OFF ROAD CYCLE INFRASTRUCTURE										
Off road trail	$2,100.00	180m	100m	810m	0	0	0	1090m	0	2180
COSTING		$378,000.00	$210,000.00	$1,701,000.00	$0	$0	$0	$2,289,000.00	$0	$4,578,000.00
SUB TOTAL FOR BIKE INFRASTRUCTURE		**$1,217,000.00**	**$2,800,500.00**	**$2,683,500.00**	**$661,500.00**	**$8,654,000.00**	**$7,588,500.00**	**$9,202,000.00**	**$12,700,500.00**	**$45,507,500.00**
TOTAL TYPICAL TREATMENTS (Types A to O)		$758,421.60	$1,591,898.40	$2,084,277.60	$467,664.00	$837,081.60	$1,010,112.00	$2,191,629.60	$3,530,884.80	$12,471,969.60
TOTAL OTHER TREATMENTS		$225,000.00	$220,000.00	$344,000.00	$225,000.00	$420,000.00	$180,000.00	$40,000.00	$620,000.00	$2,274,000.00
SUB TOTAL FOR TREATMENTS		**$983,421.60**	**$1,811,898.40**	**$2,428,277.60**	**$692,664.00**	**$1,257,081.60**	**$1,190,112.00**	**$2,231,629.60**	**$4,150,884.80**	**$14,745,969.60**
TOTAL INDICATIVE COST		**$2,200,421.60**	**$4,612,398.40**	**$5,111,777.60**	**$1,354,164.00**	**$9,911,081.60**	**$8,778,612.00**	**11,433,629.60**	**$16,851,384.80**	**$60,253,469.60**

Costing Notes

- All cost estimates include 20% contingency
- Vehicle restriction costed as raised table (Typical Treatment Type M)
- Protected cycle lane cost - midpoint from IST P50 costing and GHD St Kilda Rd costing (+ 4 yrs @3%pa for CPI)
- Dedicated and Shared cycle lane cost - IST report P50 (P90 - 30%)
- Buffer - allowance for lane and buffer marking as per Traffic Works schedule of rates
- Off-Road cycle lane cost - IST P50
- A cost allowance for signalised intersection upgrades has been included ($40K/intersection where identified). This can be modified and updated in detailed design.

Other Treatment Types & Allowances:

- Route priority change
- Junction treatment
- Roundabout improvement
- Roundabout removal
- Shared area
- New signalised ped and cycle crossing
- Linemarking

EVALUATION & PRIORITISATION

High Level Costing for Typical Treatment

A summary of high level costing for typical treatment types (Type A to Type N) are included below. A reference to cost breakdowns is provided in **Appendix C-** High Level Cost Estimates.

It is acknowledged that in some cases, there may be a cheaper treatment available, however these should be used with caution so it does not undermine the general principles for 'Streets for People'.

TYPICAL TREATMENTS HIGH LEVEL COSTING		
TYPE	REFERENCE (APPENDIX A & APPENDIX C)	COST RANGE**
Protected	2- way treatment (one side of road) with kerb separator.	$2,500/ linear metre
	1- way treatment (both sides of road) with kerb separator.	$3,000/ linear metre
Dedicated Bike Lane	1- way treatment (both sides of road) with buffer	$350/ linear metre
	1- way treatment (both sides of road) without buffer	$300/ linear metre
Shared Cycle & Vehicle	Sharrow	$150/ linear metre
Off Road	Trail	$2,100/ linear metre
Chicane	**Type I:** SE Chicane 15m (7.2m Carriageway)	$35,490 - $42,588
Pedestrian Refuge Crossing	**Type J:** Refuge Crossing	$34,310 - $41,172
Gateway Table	**Type K:** Raised on Side Street Treatment	$54,840 - $65,808
Raised T-Intersection	**Type L:** Raised T-intersection with connecting shared path	$84,230 - $101,076
Raised Shared Path Crossing	**Type M:** Raised shared path crossing (non-priority path)	$33,340 - $49,608
Raised Wombat Crossing	**Type N:** Raised wombat crossing	$38,878 - $46,653.60

TYPICAL TREATMENTS HIGH LEVEL COSTING		
TYPE	REFERENCE (APPENDIX A & APPENDIX C)	COST RANGE**
Pavement Marking*	Green coloured surface treatment for bicycle lanes	$230-150/m2
Pavement Marking	100mm wide solid line	$4/m
Pavement Marking	Bicycle Symbol	$200 each
Pavement Marking	Pavement arrow	$150 each
Pavement Marking	Patterned material (for flat top speed humps, raised intersections, etc.)	$150/m2
Pavement Marking *	Chevron linemarked buffer (including solid edgelines)	$45-65/m
Other *	Reinforced concrete infill (for concrete islands)	$110-150/m2
Other	TGSIs (based on two rows of five)	$600
Other *	Removal of kerb and channel	$40-80/m
Other *	Kerb and channel	$100- 150/m
Other *	Asphalt	$450-600/m3
Other	Holding rail	$560 each

Note:
* *Depending on scale*
** *The lower rate may be applied when delivered over a large scale.*

CONCLUSION

Streets are an integral part of the public realm and occupy a large proportion of the urban area. Aside from performing a critical functional role, streets equally perform an important contribution to the character of a place as well as foster business activity and community connectivity. Furthermore, the design of streets can influence the behaviour of road user's and their perception of which mode has the highest priority in any given streetscape.

This Study is aimed at **restoring a balance in the role of streets between their functional modal requirements and their role in defining places and spaces for people**. While population and economic growth demonstrates steady growth rate, public investment in a high-quality public realm must maintain pace with the emerging demand for better integrated sustainable transport options. This includes improved pedestrian/ cyclist connections to existing public transport nodes and neighbourhood level destinations (including but not limited to schools, employment districts and neighbourhood centres). This Study has sought to pursue an integrated approach in which improvements to the public realm have taken into consideration the broader land use, character and urban development potential.

Summary of Key Recommendations

- Adopt the **'Movement and Place'** approach to determine appropriate street design response, consistent with international standard and VicRoads standard of road management.
- Future street design, or public realm upgrade within the study corridors, refer to 3 **guiding principles** belwo to achieve an integrated people- oriented place and space:
  - **Prioritise People** - Recognising people as the main users of streets and that future street design should maximise opportunities to improve pedestrian safety and amenity.
  - **Minimising conflict** between the varying modes of transport, with higher priority given to pedestrian and cyclists without compromising the functional role of streets and requirements to support adjacent existing and future uses.
  - **Increasing cycling confidence** along the corridors by providing high-quality cycling infrastructure that is well connected, easily navigated with varying degrees of separation and safety from moving traffic.
- **Three preferred design responses** were curated in response to the Guiding Principles as follows:
  - **'Protected' design response:** Along municipal level connections, where traffic volume is higher leading to key destinations (ie. Activity centre, employment node, school, etc.) and streets are generally wider with some provision of public transport, ensure pedestrian and cyclists are protected from high volume vehicle movement. A higher level of protection through physical barriers is likely to increase the safety of cyclists.
  - **'Dedicated' design response:** Along neighbourhood level connections, where traffic volumes are moderate (including a number of streets accommodating public transport), ensures pedestrian and cyclists are provided with clearly dedicated, continuous movement space that is not hampered by prevailing traffic condition.
  - **'Shared' design response:** Along lower order local streets, there is a higher level of expectation that all modes of travel can safely share the street. Often within a narrower street profile, the perception of a reduced carriage width and lower vehicle speeds will contribute to a more inviting people-oriented public realm.
- Future detailed design should utilise a suite of 'kit of parts' comprising 15 typical design treatments suitable for Darebin Context. These typical design treatments includes recommendation for appropriate pedestrian environment, cycle infrastructure and traffic calming measures.
- These typical design responses have been designed based on 40km/hour design speed.
- Future site specific investigation for reduced kerb radii where the study corridor intersect with perpendicular streets at detailed design stage.
- Minimise unnecessary wholesale retrofit of street profile, or re-arrangemnet of kerbline for private vehicle benefit. Footpath widening and re-arrangement of on street car parking at and around key destinations should be contemplated to cater for greater pedestrian volume.
- Variation to cycle infrastructure configuration is possible in response to existing street profile.
- Prioritise implementation of east- west corridors (1, 5, 6, 7) to achieve cross connections to existing key cycle routes along Darebin Creek, Merri Creek, St Georges corridor and key destinations (school, employment cluster, community function).
- Interim measures can be implemented in the short term for traffic calming and cycle infrastructure to encourage people-oriented travel behaviour without diluting the long-term ambition for a more permanent solution.
- Implementation of design proposition at key sites can be pursued in the short to medium terms.

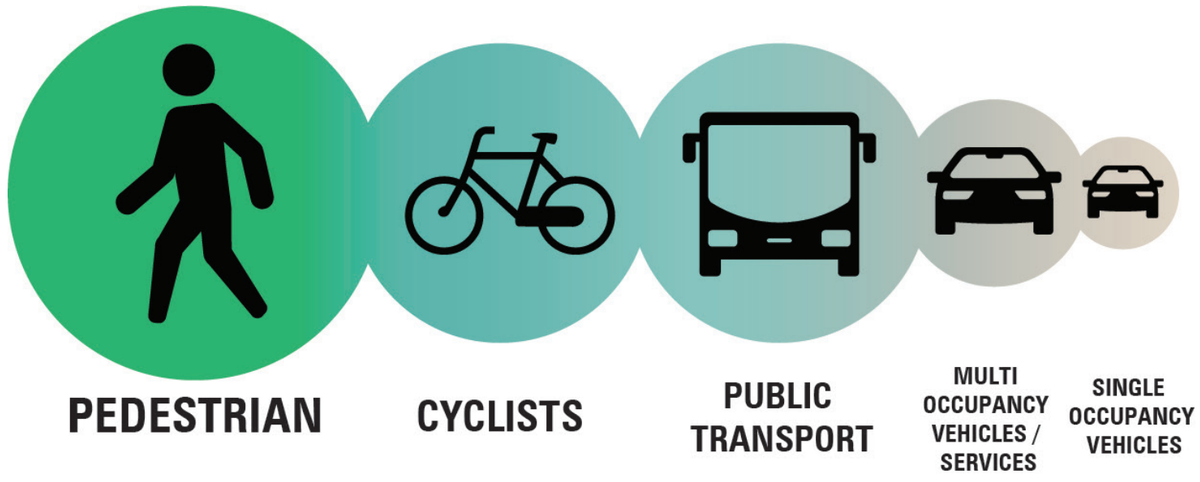


Diagram demonstrating 'Streets for People' modal hierarchy

GLOSSARY

Activity node

Areas within the study area which comprise a mix of commercial, retail and community uses where walking and cycling may be prioritised.

Corridor legibility (Gateway)

Enhance the arrival experience at corridor entry nodes and key junctions through implementing pause points, signage, lighting and/or landscape that reflects the local character of the area.

Dedicated Cycle Facility

Cycle paths located within the carriageway which can provide line marked buffers between vehicle movement and parallel car parking, where space is available.

Junction Improvement

Critical intersections along corridors (typically with major roads) which require the reconfiguration of pedestrian and cycle infrastructure (in tandem with vehicle movement) to improve safety of access across the junction and enhance legibility.

NACTO

National Association of City Transportation Officials

Off-road cycle path

Cycle paths located within public open space, easements or environmental corridors and are free from vehicle movement and/or car parking.

Protected Cycle Facility

Cycle infrastructure located within the carriageway or at kerb level that provides physical protection from parked and/or moving vehicles through raised buffer treatments (such as a kerb).

Shared Cycle Facility

Cycle paths located within the carriageway which are shared with vehicles and car parking. Rather than linear linemarking, cycle designation is shown through symbols on the ground.

Shared zone/ Slow point

An area along a corridor, typically associated with an activity or major public transport node which requires special road treatment (to varying degrees) that is designed to prioritises pedestrian and cycle movement and slow vehicle speeds. A shared zone may be raised to kerb level or treated with an alternative road pavement to distinguish the node from the rest of the corridor. These areas may also be integrated with street furniture and enhanced landscape treatments to encourage the gathering of people.

Street greening

Landscape located within the public realm (typically within a verge) which reflects the local landscape character of the corridor, seeks to slow the movement of vehicles and represents best practice sustainability initiatives (canopy coverage, understorey planting, WSUD).

Traffic calming measure

Located along corridors at intersections with local streets where the carriageway could be reduced, through kerb outstands and improved crossing points. These areas can also accommodate new landscape and paving treatments.

Vehicle restriction

Located along a corridor at strategic intersections which would benefit from the removal or limitation of vehicle access to maximise pedestrian and cycle movement. Road closures may be associated with a proposed shared zone or removal of turning lanes at intersections.



TYPICAL DESIGN RESPONSE TECHNICAL DRAWINGS (PREPARED BY TRAFFICWORKS)



DAREBIN STREETS FOR PEOPLE KEY ISSUE PAPER

APPENDIX C



HIGH LEVEL INDICATIVE COSTING (BY MARTYN GROUP & TRAFFICWORKS)