

East-West Bikeway Design Guide

Addendum to the
City of Adelaide
Bikeways Design Guide



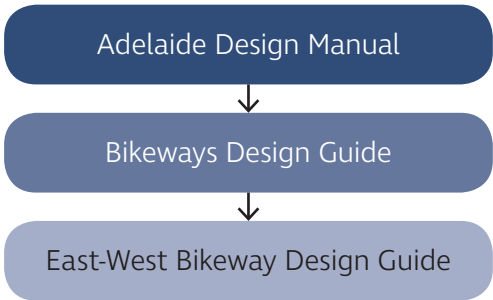
Our role

The City of Adelaide supports the development of active transport infrastructure, and recognises the important role transport projects play in shaping the city through economic investment, urban uplift, sustainability, liveability, creating great streets and public spaces, enhancing the Park Lands and creating healthy communities.

The City of Adelaide is the local road authority with ownership (care, control and maintenance responsibility) of all road-related and public realm infrastructure occurring on city streets.

This document is the **East-West Bikeway Design Guide**, which will form part of the comprehensive **Bikeways Design Guide**.

The Bikeways Design Guide reflects the City of Adelaide’s vision for the design development of bikeways in the city. It is an addendum to the ‘Adelaide Design Manual’ (ADM), the City of Adelaide’s guideline for public domain design.



The Adelaide Design Manual

Adelaide Design Manual

The ADM directly supports the outcomes of the City of Adelaide’s Transport and Movement Strategy 2012-22.

The ADM supports creating environments for safe cycling and green travel options, through implementing separated bikeways and redefining uses and road space allocation of existing corridors.

The ADM draws upon significant community engagement, providing the next stage of physical street detail. Consulted stakeholders included the City of Adelaide’s Access and Inclusion Advisory Panel, which includes representatives from Access 2 Arts, the Disability Information and Resources Centre, Disability SA, Guide Dogs SA, the Royal Society for the Blind and individual representation.

The ADM is based on these guiding principles:

1. Strive for excellence in design
2. Strengthen the character of the city
3. Provide the canvas for city life
4. Create a public realm that is welcoming and friendly
5. Design spaces sustainably with regard for the big picture
6. Integrate functions of the street harmoniously
7. Cultivate positive relationship between public and private space.

Strategic alignment

The East-West Bikeway aligns with the City of Adelaide’s vision for the city. Alignments include:

City of Adelaide 2020-24 Strategic Plan

Key community outcome: Thriving Communities

- Healthy and resilient communities
- A safe, affordable, accessible, well-connected city for people of all ages and abilities, and all transport modes
- Increase community use of and access to the Adelaide Park Lands
- Implement City Access projects (walking, cycling and public transport) in partnership with the State Government, including the North-South and East-West city bikeways.

Strategic priority for next for years and beyond:

- Support the wellbeing of our communities
- Lead the way in climate action and manage water, waste, transport and greening in a sustainable way
- Transform the ways people move around and connect with each other.

Enabling priorities:

- Build on effective advocacy and partnerships
- Encourage and support new ideas and concepts.

Carbon Neutral Adelaide Action Plan 2016-21

Pathway 2: Zero emissions transport

Strategy 2.8: Develop integrated cycling and walking networks

- 2.8.1: Establish a cycling infrastructure fund and develop a comprehensive and integrated network of bicycle ways that connect Adelaide, North Adelaide and surrounding suburbs to provide safe and convenient access to workplaces, services, shops, leisure activities and bus, train and tram services.

East-West Bikeway Proposed Route

The proposed East-West Bikeway begins to the east on Wakefield Road, and runs along Wakefield Street until Gawler Place. At Gawler Place, the bikeway diverts and exits west onto Flinders Street. It then crosses King William Street, continuing westward until West Terrace.

Key bike connections:

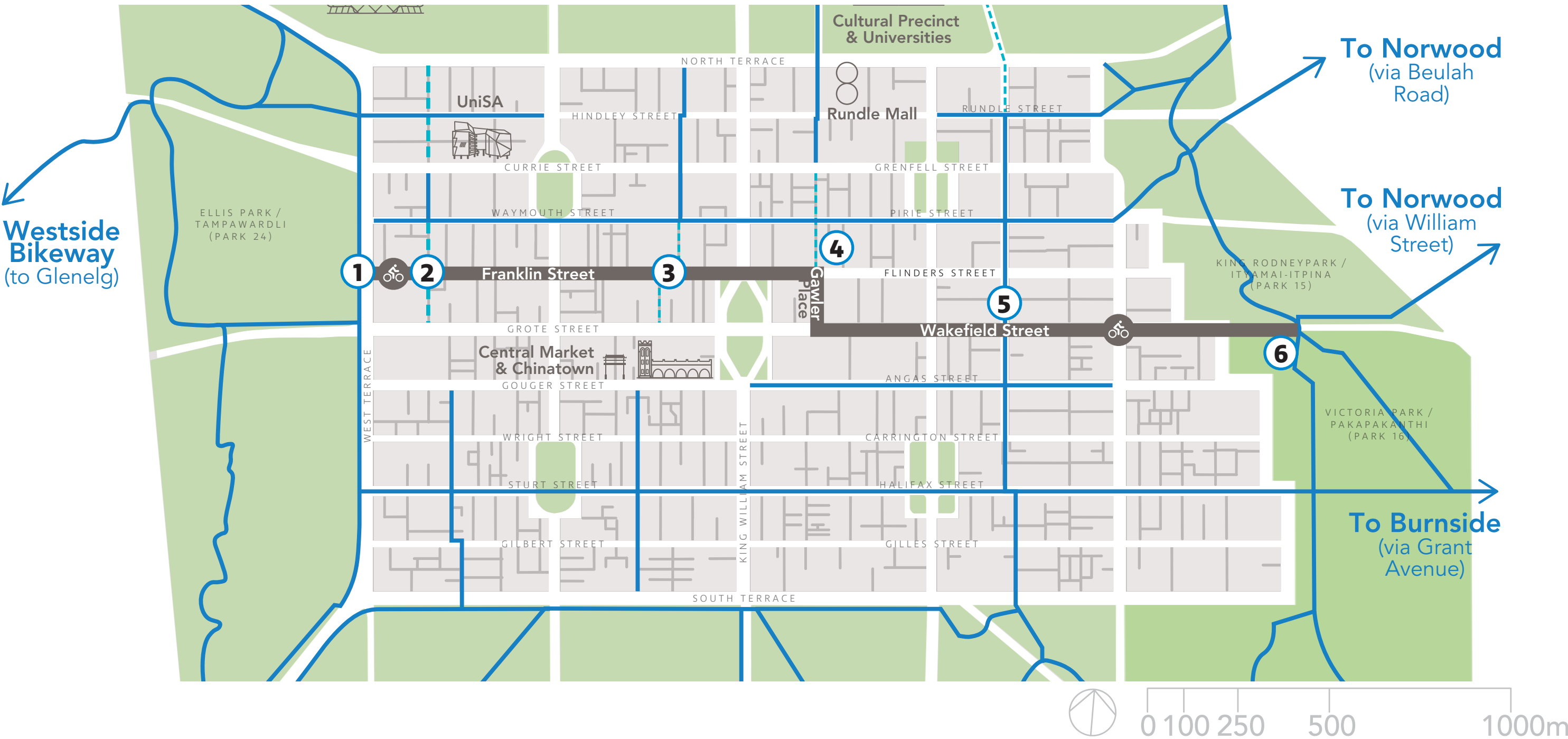
1. West Terrace shared path via existing signals to western suburbs

2. City West Quietway - Gray Street (north) Gray and Blenheim streets (south)

3. Market to Riverbank link at Pitt and Bentham streets
4. Gawler Place (through to Rundle Mall)

5. Frome Street - North-South bikeway

6. Park 15 shared path & Park Lands Trail & east suburbs



Design development and rationale

Several design options were considered when developing the proposed street layout to incorporate the bikeway. The option below was selected as the most appropriate as it provides a balance for street users, including:

- 1 Safe separated space for bike riders
- 2 Increased traffic capacity during peak times where needed
- 3 Lanes for turning vehicles
- 4 Spaces for parked cars during core business hours
- 5 Good visibility between street users, particularly bike riders and drivers
- 6 Central medians where appropriate to assist pedestrian movement across the street
- 7 Identifying space for street greening, including trees where possible

This general street layout will be modified along the East-West Bikeway corridor to reflect the different conditions on the various street sections, including street width and traffic demand.

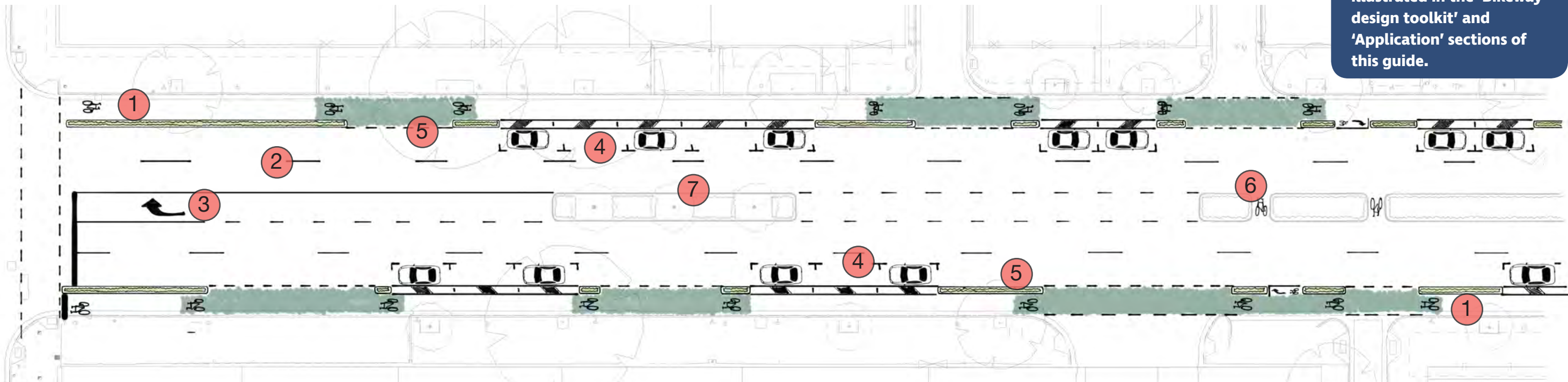
Some on-street parking spaces will be removed when the bikeway is installed. However, surveys of the existing usage of spaces show that existing parking demand will generally be accommodated by the reduced number of parking spaces with the bikeway.

In locations where demand for parking spaces is likely to exceed the number of on-street spaces, we will work with stakeholders to understand the local circumstances and seek appropriate solutions. This could include amendments to the street layout and changes to parking controls in nearby streets.

This bikeway layout is also consistent with the operation of the existing bikeway on Frome Street and can be implemented within the available budget.

The bikeway will create a safer street for everyone, and is likely to encourage people to make more trips by bike.

This is an example of the proposed layout for the East-West Bikeway. The design approaches and their application within this layout are further illustrated in the 'Bikeway design toolkit' and 'Application' sections of this guide.



Possible alternative design approach

We appreciate that the removal of on-street parking spaces is a significant concern for some stakeholders.

As part of our evolving design process we seek ideas from other cities to understand how they manage the competing demands of busy city streets when implementing bikeway projects.

The City of Sydney has recently consulted with their community on a proposal to build a two-way bikeway in the centre of Oxford Street. The City of Sydney states that “The innovative centre cycleway design will provide people cycling with a similar level of ‘green time’ as if they were riding with traffic, but in a safer, separated road environment. The design will also reduce conflict between bike riders and parked cars, buses and vehicles (especially those turning at intersections). People can get to and from the cycleway at every signalised intersection along this part of Oxford Street.”

A snapshot of the design proposed by the City of Sydney is shown on the right. Further details of their proposal can be found on the City of Sydney website:

[Have your say on new cycleways for Oxford, Liverpool and College streets - City of Sydney \(nsw.gov.au\)](https://www.cityofsydney.nsw.gov.au/news-and-events/news/2019/06/20/have-your-say-on-new-cycleways-for-oxford-liverpool-and-college-streets)

We are seeking your thoughts on this example from the City of Sydney and their design approach as part of this consultation process.

Note: A centre road bikeway design has not previously been used in South Australia and may not meet current standards. The design will require approval from the Department for Infrastructure and Transport to proceed. Should the design not be deemed suitable for use in South Australia, a standard kerbside bikeway will be progressed.

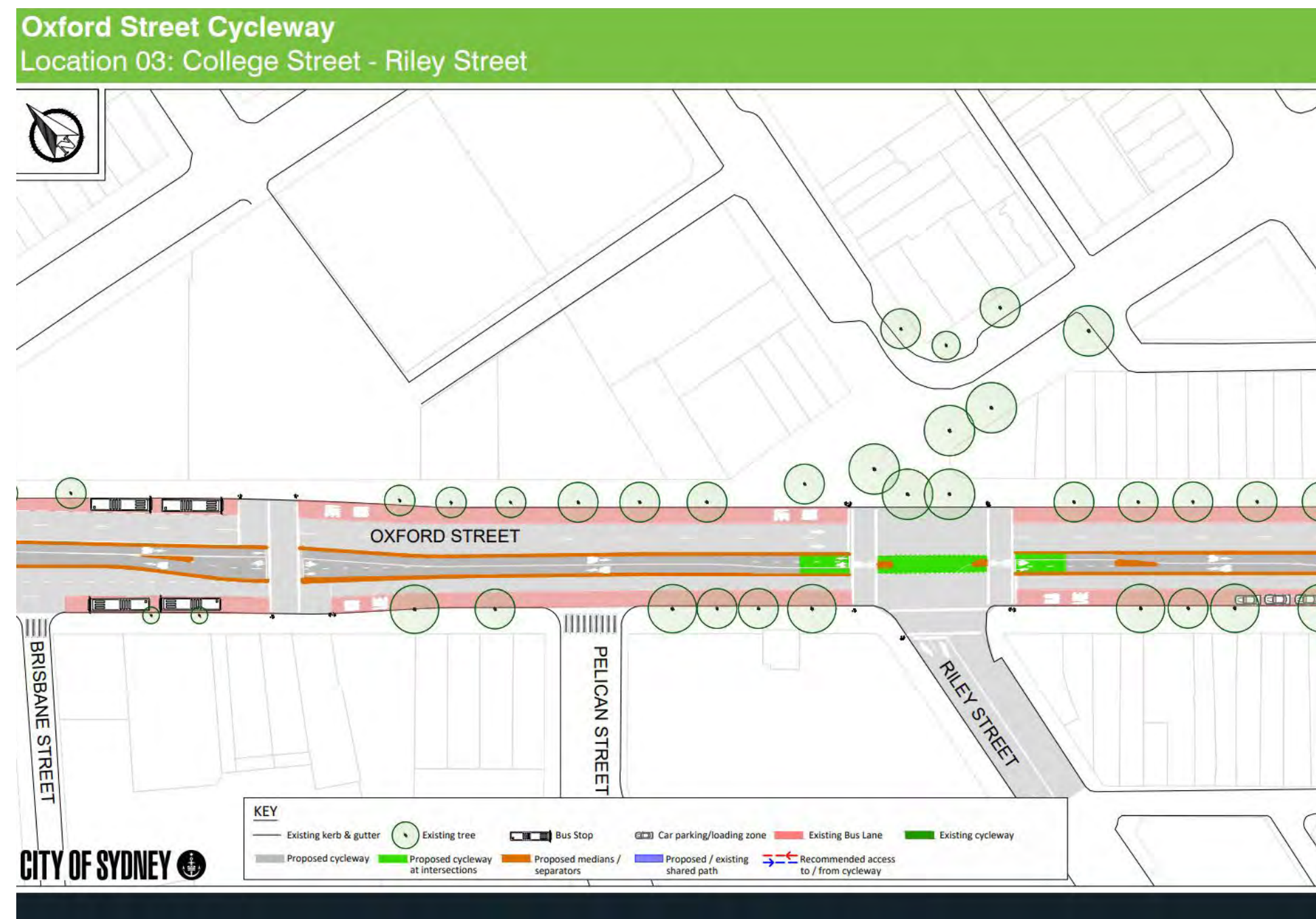


Image Credit: City of Sydney and Government of NSW, New Cycleways for Oxford, Liverpool and College Streets

Street conditions



- Generally 4-6 traffic lanes wide
- Connection to shared paths at West Terrace and the East Park Lands

Pictured: Franklin Street/West Terrace intersection



- Existing kerb protuberances with outdoor dining
- Bikeway and traffic lane widths can be reduced in width at these locations to retain existing protuberances
- Other types of kerb protuberances house a whole range of underground services.

Pictured: Benjamin on Franklin Hotel



- Existing kerb protuberances increase safety by providing extended crossing areas for pedestrians as well as greening opportunities.
- The north-east quadrant of the city, on which Franklin Street is situated, is the hottest area in the City of Adelaide, with the least amount of greening.¹

Pictured: Franklin Street/Byron Place/Elizabeth Street intersection



- Angle parking occurs on both Franklin and Wakefield streets outside of the core CBD.
- Parallel parking, loading zones, bus zones, motorcycle parking bays and drop off zones also exist along the streets.

Pictured: Franklin Street between Crowther St & Shannon Pl



- Many wide driveway crossovers exist along both streets, providing access to large coach buses, service vehicles and multi-storey off-street car parks.

Pictured: Adelaide Central Bus Station



- Drop off zones and passenger loading areas for hotels, serviced accommodations and apartments are located directly in front of the entrances.

Pictured: Quest on Franklin

¹Resilient East Urban Heat & Tree Mapping

All images on this page courtesy of Google.

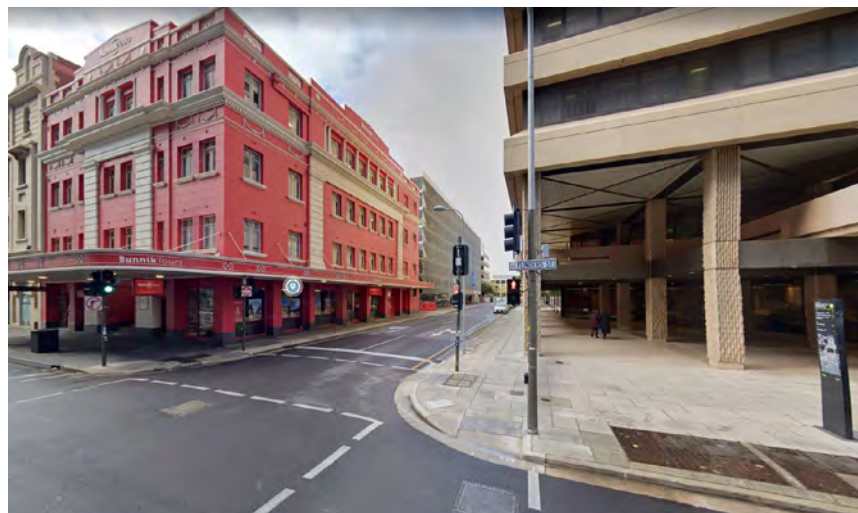
All images on this page courtesy of Google.

Street conditions (continued)



- The U-City building on Franklin Street houses retirement residences, accessible serviced apartments and social services, which will require parking / drop off bays.
- Consultation with key stakeholders will be necessary to determine requirements.

Pictured: U-City (Uniting Communities)



- Existing signals at Gawler Place will need to be altered to facilitate bicycle turning movements.
- Gawler Place South has higher pedestrian numbers as it is a key north-south link, as well as some vehicle movement due to the multi-storey off-street car park.

Pictured: Gawler Place/Flinders Street intersection



- Wakefield Street and Franklin Street (east) are wide streets with ample greening opportunities.

Pictured: Wakefield Street looking East



- Existing bus stops and shelters on Wakefield Street will need to be considered.
- The interface between the bus shelter/stops and the roadway will need to minimise conflict points between bus passengers, cyclists, motorists and pedestrians.

Pictured: Bus stop H1, Wakefield Street



- Schools require drop off/pick up areas. There are a number of schools along the route, including Christian Brothers College, St Aloysius College and St Mary's College.
- Existing drop off/pick up zones will be integrated into the new bikeway design with great consideration to safety.

Pictured: Christian Brothers College



- Many established trees already exist along the route and are within the road reserve between parking bays.
- The street arrangement will consider existing tree alignment and upgrades to tree surrounds to improve growing conditions.

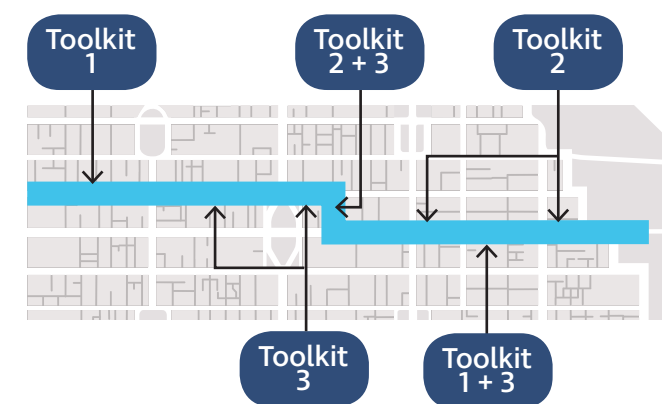
Pictured: Christian Brothers College

Bikeway design toolkit

To design the East-West Bikeway, a number of different approaches can be applied. These approaches, or 'toolkits', form a kit-of-parts that can be applied simultaneously along a street to address various conditions, as outlined below, to implement a functional and safe bikeway.

The many street conditions and operations that the toolkit can be applied to includes:

- Bus stops
- School drop off/pick up zones
- On-street parking
- Loading zones
- Road widths and traffic flow
- Street trees
- Kerb alignments and protuberances
- Garages and driveways
- Side streets and laneways
- Traffic signals and intersections
- Stormwater flow
- Rubbish collection
- Services (e.g. fire hydrants and mail boxes).



An example of different toolkit approaches applied along the East-West Bikeway



Toolkit 1. Linemarking + flexi-posts

Flexi-post bollards are light-weight, flexible posts affixed to the road surface. Using flexi-posts along with linemarking is an affordable and effective way of delineating a roadway that provides a vertical separation between traffic/parking lanes and bicycle riders.

This method is widely used nationally and internationally to create safe separated bike lanes.

Key design elements:

- Bike lane is at same level as traffic and parking lanes
- Use of standard traffic control devices (linemarking and posts) are universally understood by road users
- Vertical element provides clear and visible separation creating a safe bikeway
- Low-impact and fast construction/installation
- Easily maintained
- Approximately 5 year asset lifespan



Broken Head Bike Path, Byron Shire (Image © Durapost)



Kinzie Street, Chicago (Image © Philadelphia2050)



Garden Oaks Drive, New Orleans USA (Image © City of New Orleans)

Bikeway design toolkit (continued)

Toolkit 2. Concrete buffer + integrated greening

Concrete medians can be used as a robust buffer between parking/traffic lanes and bike lanes to ensure protection and strong visual delineation. This toolkit also presents opportunities to integrate greening, improving the overall amenity of a street.

This approach is similar to the North-South bikeway between Carrington and Wakefield streets. It is also widely implemented both nationally and internationally.

Key design elements:

- Bike lane is at same level as traffic and parking lanes
- Concrete buffer can be designed to minimise visual presence, i.e. dark colour
- Tree planting can occur where buffer width allows
- Integrated low-level planting to allow for sightlines
- Regulatory signs and linemarking will be required to reinforce street navigability
- No alterations to drainage system required
- Higher level of maintenance required for greening
- Asset lifespan of up to 20 years



LaTrobe Street, Melbourne (Image © Google)



North-South Bikeway (Image © Google)



Fell & Oak Streets, San Francisco USA
(Image © Sergio Ruiz)

Toolkit 3. Bus stop islands

This treatment is to be used at existing and new bus stops that are located along a bikeway route to facilitate safe interactions between pedestrians, bike riders and buses.

Key design elements:

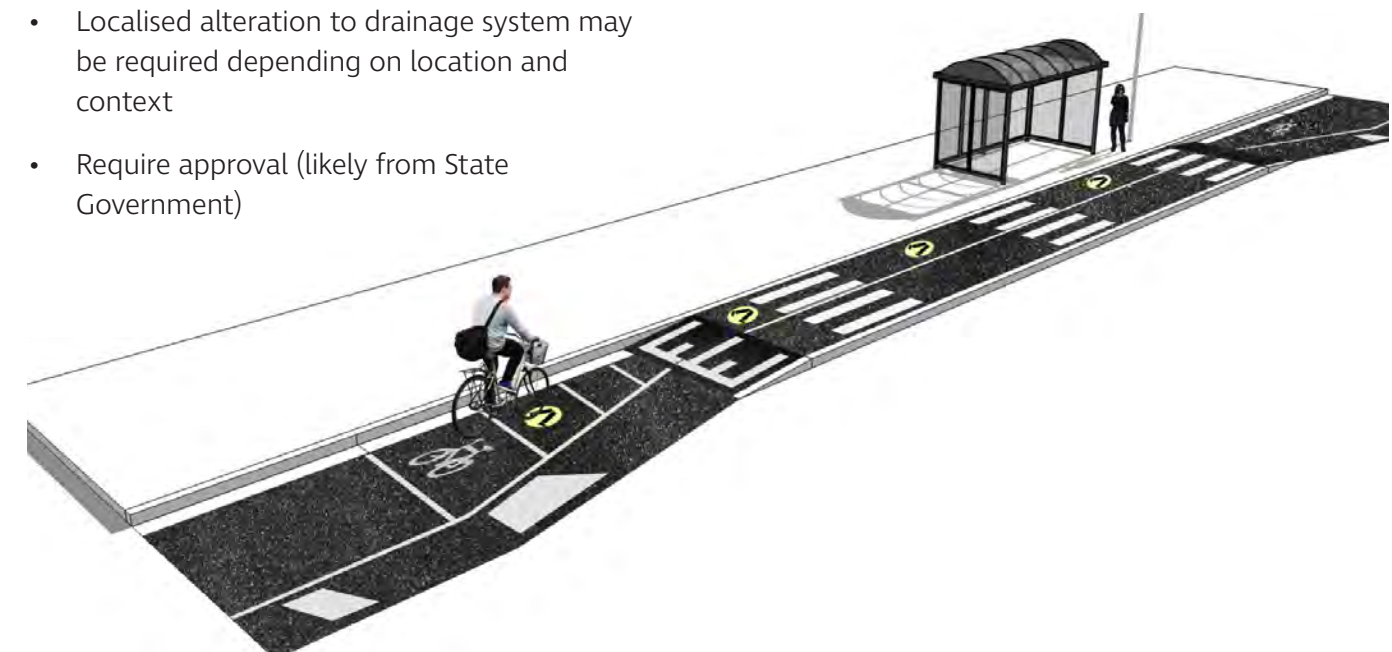
- Providing a clear path of travel through the space for both bike riders and pedestrians
- Increase width of buffer to accommodate bus shelter and pedestrians waiting or loading
- Slow riders down by narrowing bikeway width and/or changing surface treatment or levels
- Direct pedestrian movement providing priority pedestrian crossings with crossing linemarking
- Maintain sightlines in the area by minimising clutter
- Regulatory signs and linemarking, where required
- Localised alteration to drainage system may be required depending on location and context
- Require approval (likely from State Government)



Surry Hills, Sydney (Image © Anna McDonald)



North-South Bikeway



Bikeway design toolkit (continued)

Toolkit 4. Planter boxes

Planter boxes are a temporary, low-impact and reasonably low cost way of implementing greening without high disturbance to a site.

With the right species, planter boxes can beautify and reinforce the character of city streets, and provide shade and shelter to all users of the bikeway and footpath.

Key design elements:

- Planter boxes to be used on footpaths adjacent to the bikeway, or “leftover” areas in the road reserve away from traffic
- They are not to be used as physical separators between the bikeway and the traffic
- Implement in continuous groups where appropriate, to create an immediate visual and environmental impact to the bikeway and its surroundings
- Trees planted should be appropriate to the street environment, including being considerate to adjacent street trees, building awnings, signage and traffic signals
- Low-level planting choices to be plants that have compact or trailing forms (no spreading properties), no higher than 600mm, have minimal plant litter and have dense foliage
- Require regular maintenance regimes, especially for low-level planting
- Require regular watering (through a watering truck or similar), especially during early stages of establishment
- Require horticulture and maintenance staff
- Require machinery and associated heavy vehicles to load/unload planter boxes to site



North Terrace, Adelaide (Image © Daryl Tian)



Sydney trial cycleways (Concept image © City of Sydney)

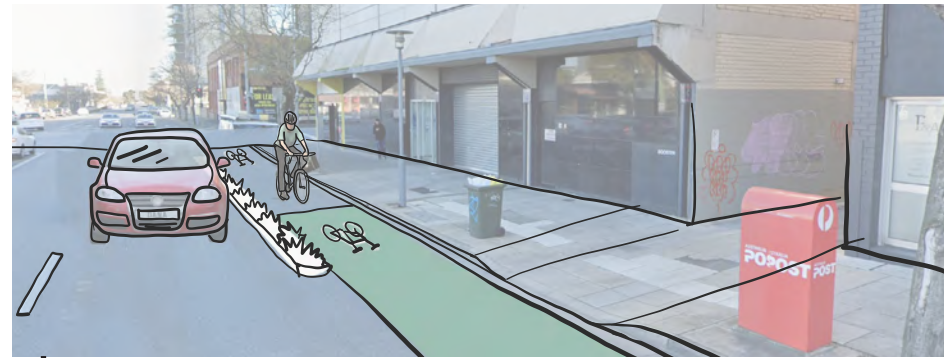


Leigh Street, Adelaide (Image © Glam Adelaide)

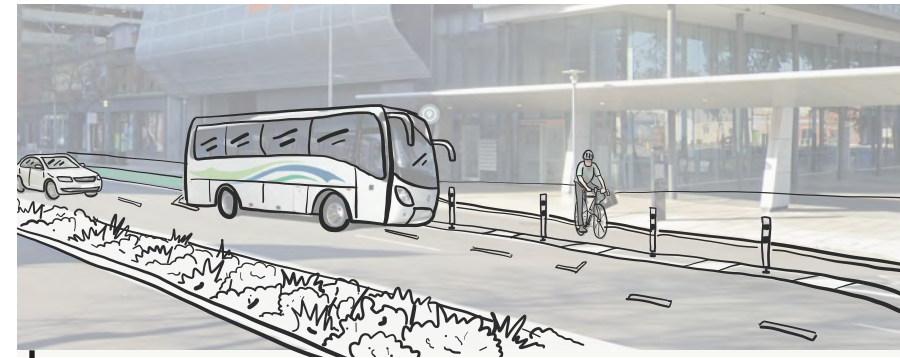


Application

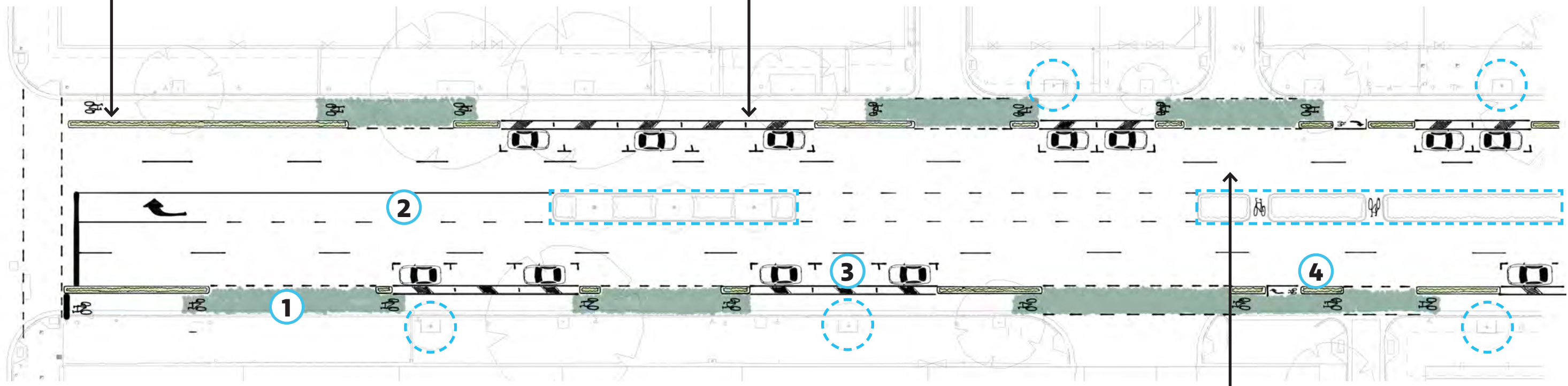
The toolkit can be applied simultaneously along the East-West Bikeway, depending on each localised situation. Below is a high-level breakdown of how the toolkit can be applied on a typical street block. These approaches will be refined and developed during detailed design on a case-by-case basis.



Toolkit 2: Concrete buffer with integrated greening

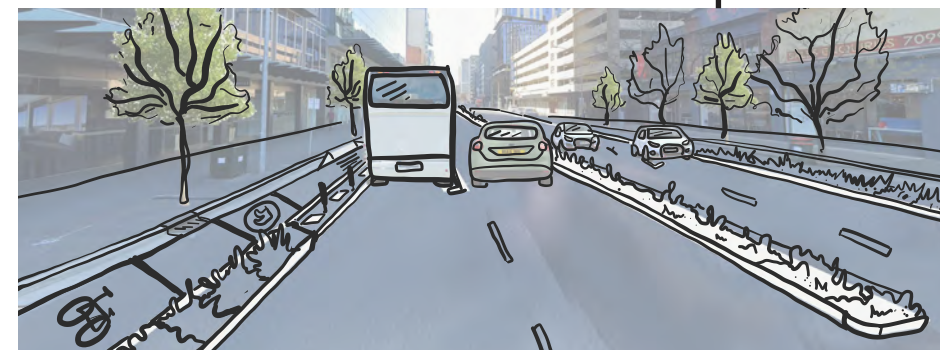


Toolkit 1: Linemarking + flexi-posts adjacent parking spaces



1. Green surface treatment across side streets and driveways
2. Linemarked central median to facilitate vehicle turning movements
3. Off-peak parking arrangement as per Frome Street
4. Bicycle turning areas

 Future opportunities for median with integrated greening & footpath tree planting



Toolkits 1 + 2: Linemarking + flexi-posts adjacent parking spaces with potential future greening

Application

The toolkit can be applied simultaneously along the East-West Bikeway, depending on each localised situation. Below is a high-level breakdown of how the toolkit can be applied. These approaches will be refined and developed during detailed design on a case-by-case basis.

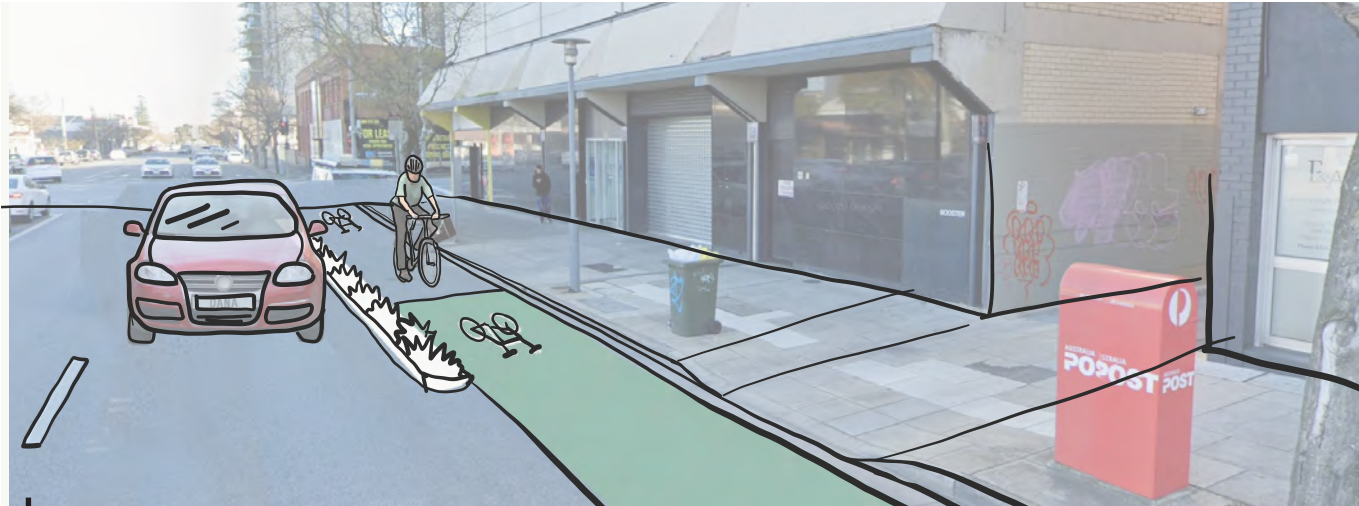
Facilitate drop off / loading areas where required

Schools

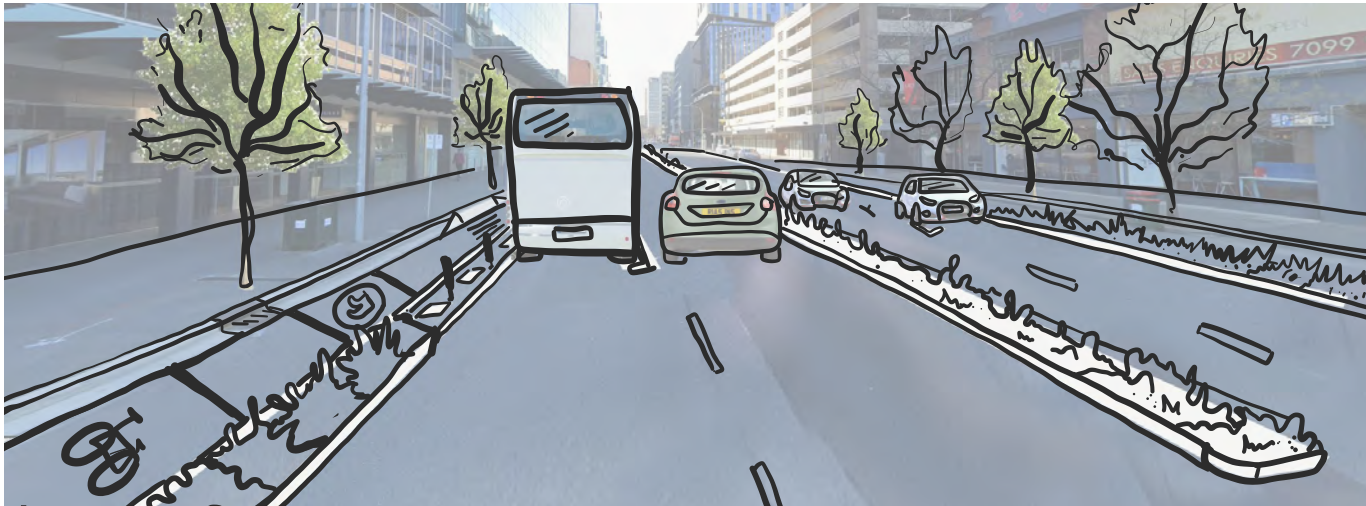
Hotels / accommodation

Require Toolkit 3

Bus stops



Toolkit 2 on the north-eastern corner of Morphett Street



A mixture of toolkit 1, 2 and 3 in front of Quest



Toolkit 1 used in front of Benjamin on Franklin Hotel, where outdoor dining and parking are maintained



Toolkit 1 to allow for loading at the Adelaide Central Bus Station

Application (continued)

The toolkit can be applied simultaneously along the East-West Bikeway, depending on each localised situation. Below is a high-level breakdown of how the toolkit can be applied. These approaches will need to be refined and developed during detailed design on a case-by-case basis.

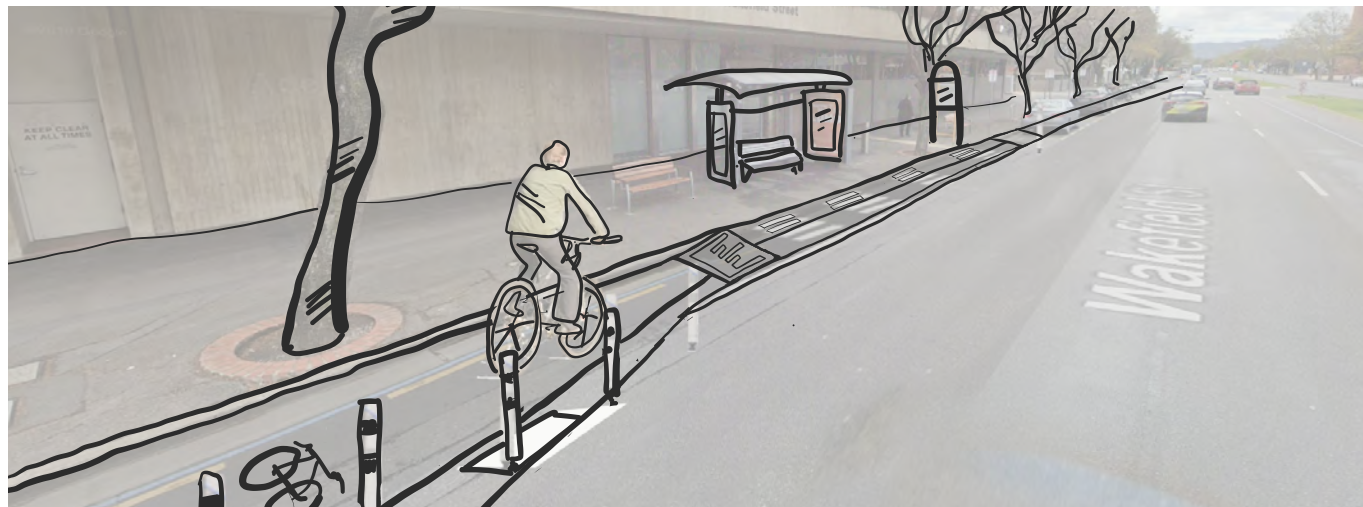
Facilitate drop off / loading areas where required

 Schools

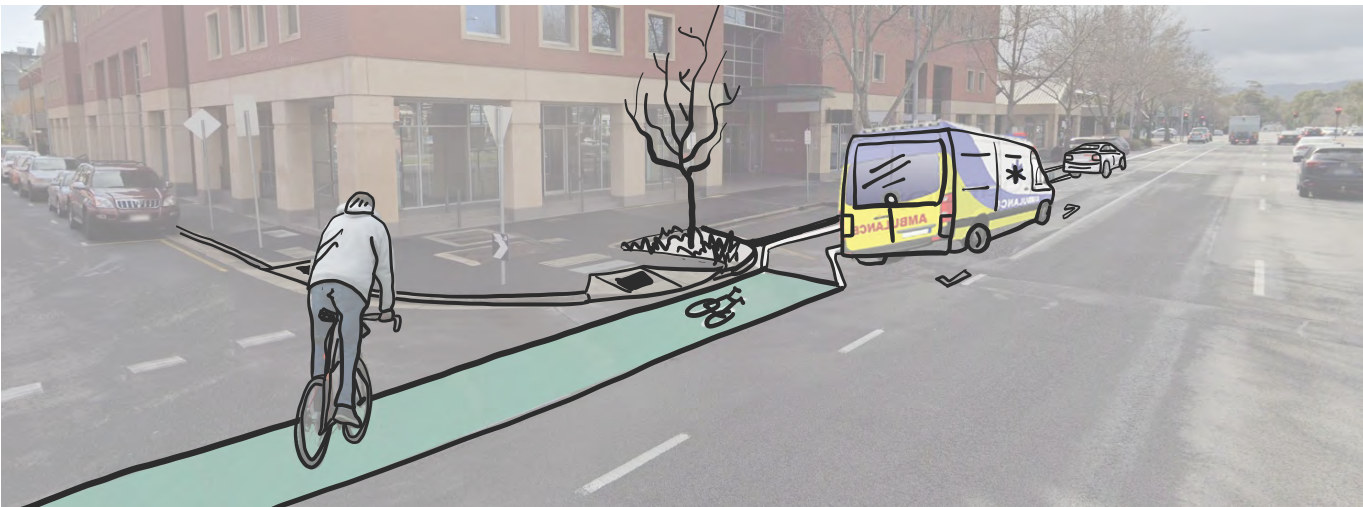
 Hotels / accommodation

Require Toolkit 3

 Bus stops



Toolkit 3 at G1 bus stop on Wakefield Street



Toolkit 1 to facilitate drop off / loading at the old Calvary Hospital where required



Toolkits 1 and 2 to facilitate on-street parking and driveways / garages and add greening to the street



Toolkit 3 at Bus Stop R1 on Wakefield Street

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