



Hobsons Bay City Council Spotswood East-West Greenline Cycling Corridor

Infrastructure Design Options Assessment Report



Image: Artist impressions of Greenline along McLister Street.



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1. Introduction

Introduction to the project

Background:

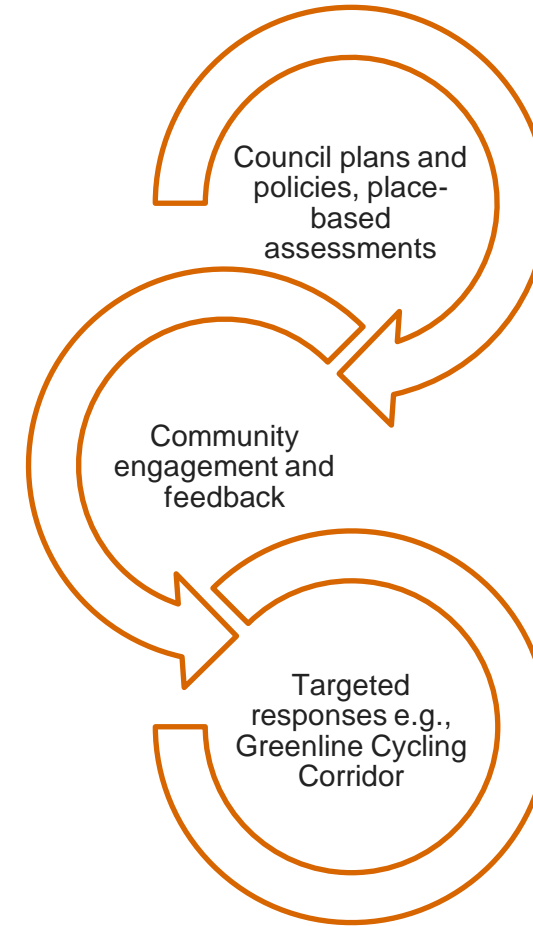
The Spotswood East-West Greenline cycling corridor forms part of Hobsons Bay City Council's top 10 strategic cycling connections and responds to feedback from the local community.

Relevant feedback on the Local Area Movement Plan (LAMP) revealed:

- A lack of a cohesive east-west bicycle route;
- Concerns about heavy vehicle volumes and high volumes of non-local traffic travelling through the local streets of Spotswood.

Relevant results from the Better Places engagement highlighted:

- An opportunity to establish an active transport focus for Spotswood;
- An eagerness to focus future attention on public roads;
- A desire to maintain a sense of community.



Relationship between community feedback and project objectives

Feedback	Project Objectives
A lack of a cohesive east-west bicycle route	Concept designs are supporting the decision-making process for an east-west cycle route
An opportunity to establish an active transport focus for Spotswood	Designs/works will contribute to increased safe cycling space for Spotswood which, in turn, contributes to a positive cycling culture.
Concerns of heavy vehicle volumes and high volume of non-local traffic travelling through the local streets of Spotswood	Designs for the cycle corridor look beyond just the route, they consider wider neighbourhood impacts e.g., flow-on traffic effects, slowing down vehicles through traffic calming, encouraging alternative routes, addressing driver behaviour.
An eagerness to focus future attention on public roads	The east-west route considers different users and outcomes for local public roads, e.g., outcomes that are more sustainable and community-focused.
A desire to maintain a sense of community	The Greenline will allow more people to walk and cycle for local trips, increasing person-to-person interaction and maintaining a sense of community.

Desired project outcomes

Council is now exploring different design options for the East-West Greenline Cycle Corridor. Starting with Birmingham and McLister Streets, the designs will inform how to best use the constrained road reserve widths to achieve the best outcomes for all traffic modes whilst recognising the corridor as both a key aspirational cycling and walking link on a local and state level.

It is expected that in order to maintain adequate landscaping, on-street resident parking and accommodate separate cycling infrastructure associated with the East-West Greenline, reduced road space and one-way traffic is necessary.

Strategic documents/plans which help to inform designs:

- Better Places Spotswood and South Kingsville
- Draft Spotswood Structure Plan
- Northern Local Area Movement Plan
- Victorian Government Strategic Cycling Corridor

Design outcomes

A series of design options have been developed that best suit local needs. The design options will be presented to the community in order to gain feedback and to determine the preferred final design.



Source: Better Places Spotswood and South Kingsville, Place Guide. Hobsons Bay City Council, 2021.

Study area

The Greenline Cycling Corridor will run east-west along Birmingham and McLister Streets.

The two streets interface with Melbourne Road.

The corridor will encompass a residential area, a primary school and new/emerging mixed-used developments.

The connection is one part of a wider strategy to connect different modes of transport across the local area.





2. Data Analysis



Data analysis overview:



Site visit



Parking



Future development considerations



Community engagement / impact

Site visit

A site visit was conducted on Tuesday, 1 February 2022. The visit gave Stantec an opportunity to understand the local area, travelling by both foot and bike. Several design options were considered, based on site limitations and potential opportunities. These findings are shared over the next pages.



Observations from site visit – parameters

- On-street parking and managing community expectations for future parking arrangements.
- McLister Street width is challenging if trying to cater for different modes of transport.
- Trees located on nature strip/footpath make it difficult and costly to widen path for shared or exclusive cycling use.
- Telecommunications infrastructure make it difficult (and costly) to widen path for shared or exclusive cycling use.
- Gas pipelines could be problematic for future works.
- Residential housing and driveway access – safety concerns and potential hesitation.



Observations from site visit - opportunities

- School entrance/access is on Reed Street rather than McLister Street, resulting in more design options.
- Underutilised nature strip along Birmingham Street.
- Opportunities to access to the corridor at rail crossing and Moresby and Stephenson Streets.
- Considerations beyond the corridor such as:
 - Increased bike storage at Spotswood Station and local activity centre;
 - Appropriate traffic calming treatments and wayfinding leading to the Greenline to redirect movement to corridor.



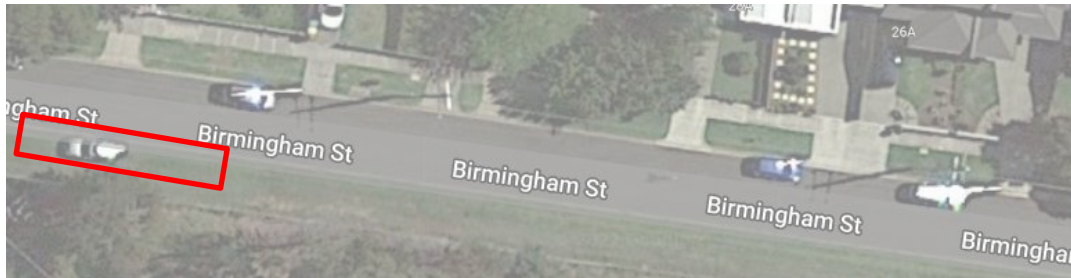
Existing Parking

Birmingham Street

- On street parking, east facing
- Some cars park on the nature strip, west facing



On street parking, east facing – 24/12/2021. Source: Nearmap



Parking on nature strip, west facing. Source: Google Maps

McLister Street

- On street parking, east facing
- No parking west facing



On street parking, east facing. Source: Nearmap

Note: most dwellings along Birmingham and McLister streets have driveways/off-street parking spaces.

Community feedback on subject area

Traffic management

Heavy vehicle traffic and congestion on Blackshaws Road is a significant concern.

"The traffic is killing this suburb."

Using local roads as 'rat runs' is a growing concern

"I really believe traffic is going to destroy Spotswood, if it hasn't already."

"The largest risk to the livability of South Kingsville is the increasing traffic cutting through the suburbs to access the train crossing."

Cycling considerations

"Bike cage at Spotswood station, permanent speed bumps and parking on one side of the road only."

A desire for increased bike lanes between suburbs and path 'beautification'

"We need clear bike paths down Hudsons Rd and zebra crossings to Grazelands. Very dangerous at the moment."

"Blackshaws Rd is a semi-main road used by a lot of cyclists. It is wide enough to add a bicycle lane. There needs to be one given the number of upcoming and in-progress developments in the area."

Changing community mindsets around cycling through positive street designs



3. Design Options

Introduction of Options

This section of the report presents the different design options for the East-West Greenline Cycle Corridor.

Three options have been proposed (Proposal A to Proposal C) where each option is a different combination of designs at the following road sections: McLister Street (east), McLister Street (west) and Birmingham Street; as shown on the maps below.

The road has been divided into three sections for a number of reasons:

- The road carriageway along the corridor varies in width and the design options need to adapt to these variations.
- The land-uses interacting with the road corridor are mixed. McLister Street West, for example, abuts a school and new residential development, therefore, additional safety/capacity measures must be considered. Alternatively, Birmingham Street has a wider nature strip south of the road carriageway and therefore, more flexibility with design outcomes.
- On-street parking opportunities and constraints have influenced the designs in each section of the corridor.



Presentation of Options

A series of three proposals are presented:

- Proposal A
- Proposal B
- Proposal C

Each proposal starts with an explanatory page. Included as part of the explanatory slide is a short analysis on the positives and/or negatives of designs and why it is being considered as either the preferred proposal (Proposal A) or secondary proposal (Proposals B-C).

A full analysis and justification as to why a proposal is a preferred or secondary option is provided in the following section (Section 4). A red-amber-green assessment criteria is used for this analysis.

For each proposal, the explanatory slide is then followed by a list of benefits, issues, opportunities. This list has also helped inform the full analysis and justification of designs in Section 4.



Design example from Sydney, Australia

Alignment with Movement and Place

Our proposed options have been developed with the Movement and Place Guidelines in mind.

Under these guidelines, the Greenline Cycling Corridor is classified as a Main Route (C2) within the strategic cycling network. This means the corridor should be designed to:

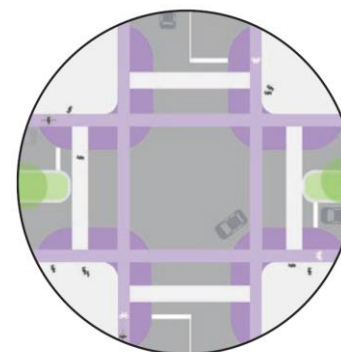
- Accommodate high cycling volumes at midblock and intersections;
- Ensure a high degree of separation from pedestrians;
- Have protected and priority treatments at crossings and intersections (recommended);
- Consider AM and PM transport peak volumes.

The Guidelines recommended a number of treatment options for C2 routes such as one-way protected bike lanes, raised pedestrian bike lanes and bi-directional bike lanes (pgs. 92-94).



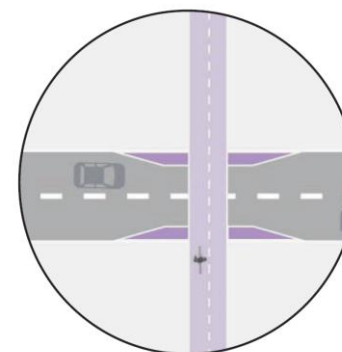
Intersections

Protected intersections give full protection to drivers and people on bikes through high conflict areas.



Crossings

Crossing provide a way for off-road paths to cross the roadway in a safe and prioritised manner.



Components of a cycling network as per Movement and Place Guidelines



3.1. Proposal A

Proposal A – Preferred

Proposal A includes a bi-directional cycle lane on the north side of McLister Street and the south side of Birmingham Street. The road carriageway is changed to one-way and becomes entry only from Melbourne Road. Permitted general traffic movements are shown below.

Proposal A has been determined as the preferred option for several reasons. The protected bi-directional lanes provide better outcomes for the Greenline due to a high level of cycling service. It provides extensive planting opportunities and easier, more cost-effective implementation. This option also helps to simplify operations at the Melbourne Road intersection, thus reducing delays. A full analysis is provided in Section 4.



McLister Street (east)

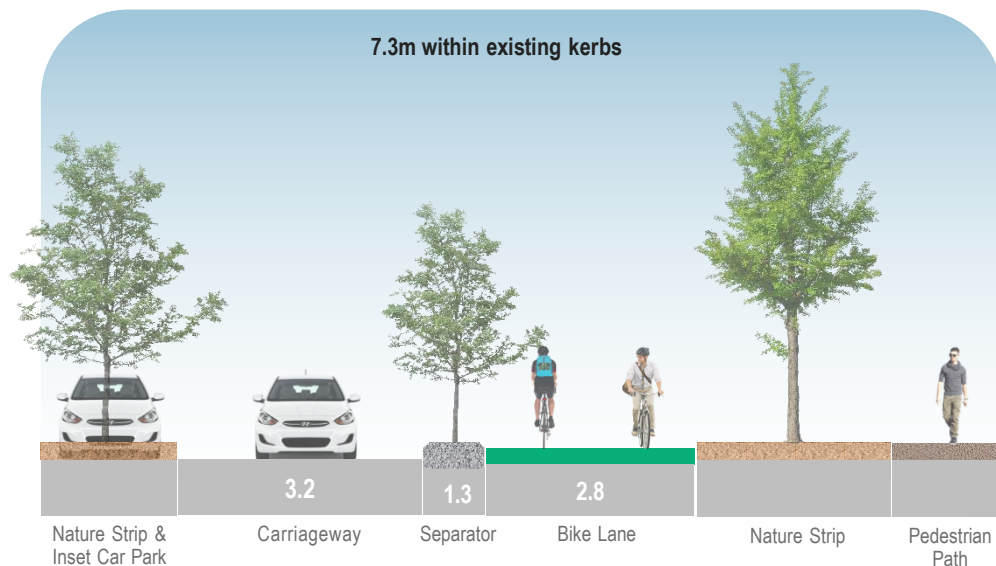
Introduction of option:

Options for McLister Street (east) are based on the existing road width (7.3m). We propose changing the current road conditions to one-way eastbound for general traffic by using landscaped kerb extensions. This option removes on-street parking north of the road carriageway but introduces a section of inset parking to the south.

For this option, a 2.8m bi-directional cycle lane is introduced on the northern side of the road and the kerb extensions provide an attractive buffer between the cycle lane and general traffic.



McLister Street (east): Issues and Opportunities



Benefits:

- Separation from general traffic
- Narrowing of carriageway allows for kerb extension with addition of trees and traffic calming (sides could be alternated)
- Insert parking achievable

Issues:

- Loss of some on-street parking
- Interaction with driveways and residential access
- Carriageway changed to one-way

Further opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Provide crossing facilities for pedestrians east near Spotswood station
- Improve connection to southern footpath

McLister Street (west)

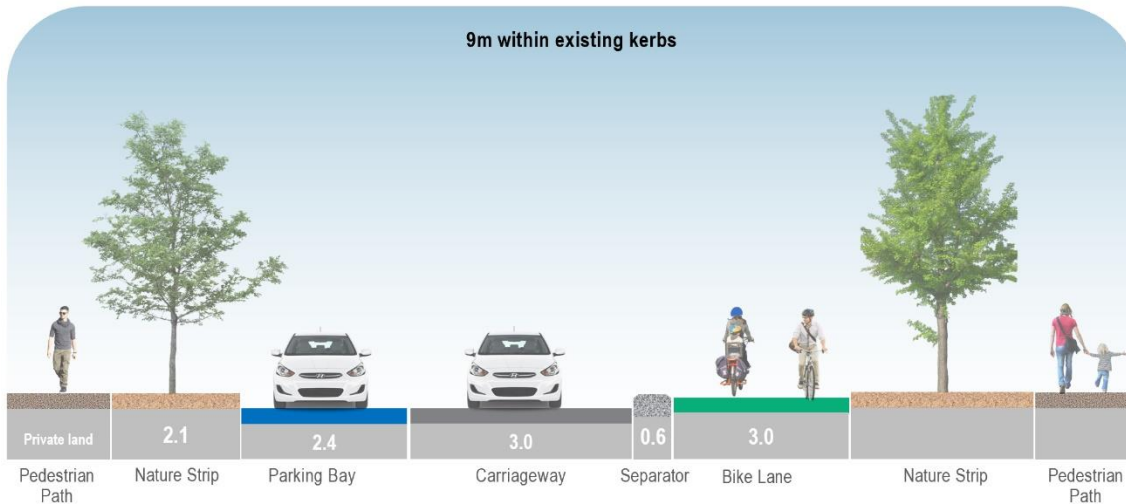
Introduction of option:

Options for McLister Street (west) are based on a 9m road space widening on the southern side. With the additional space, this option proposes a 3m wide one-way eastbound carriageway, accompanied by a strip of parallel parking on the southern side of the street and 90 degree parking as part of the new development. Localised traffic calming measures include intermittent kerb extensions and a zebra crossing for school students.

A 3m protected bi-directional cycle lane is proposed on the northern side of the carriageway with separation from general traffic by way of a concrete island.



McLister Street (west): Issues and Opportunities



Benefits

- Separated bike lanes from general traffic
- One-way carriageway results in reduced non-local traffic
- On-street parking retained
- Additional 90-degree parking introduced
- Localised traffic calming and raised zebra crossing at school
- Integrated with crossing facilities for pedestrians

Issues:

- Volumes of traffic from future developments
- School children and families need to cross roadway

Future opportunities:

- Raised entry requirements across all roads for continuous footpaths

Birmingham Street

Introduction of option:

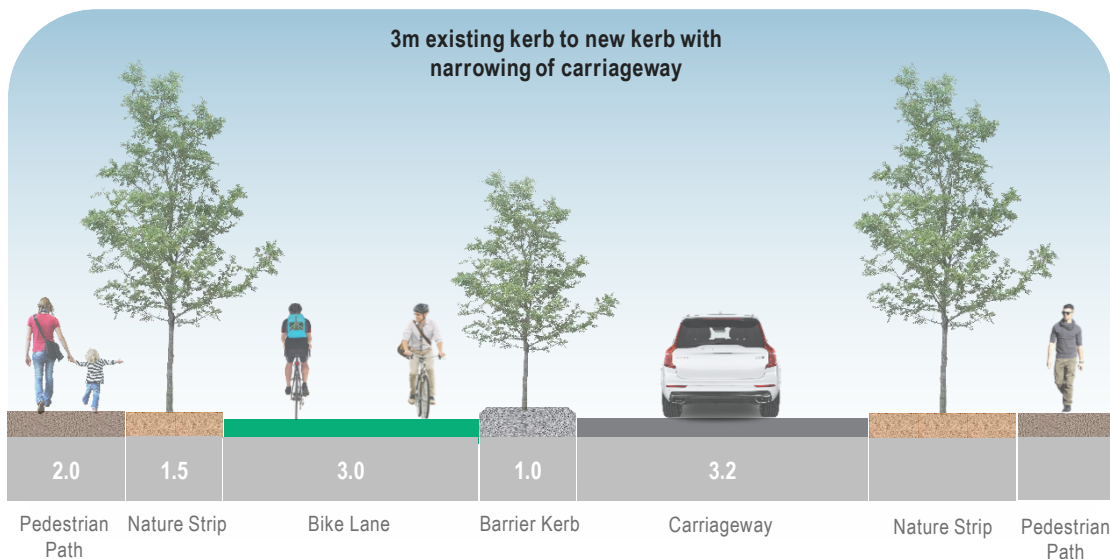
This option proposes a one-way westbound road carriageway of 3.2m.

A 3m bi-directional cycle lane is positioned south of the road, separated by a 1m landscaped barrier kerb.

A 2m footpath is also proposed.



Birmingham Street: Issues and Opportunities



Benefits:

- Separated from general traffic
- One-way carriageway results in reduced non-local traffic
- Footpath is also widened for people walking
- No interference with residential access
- Design allows for natural drainage including rain gardens

Issues:

- Loss of on-street parking
- Narrow carriageway, deliveries blocking traffic

Further opportunities:

- Raised entry treatments across all side roads or continuous footpaths

Other considerations:

- 1m separator can be reduced to 0.5m if additional space is required opposite driveways

Street improvements for primary proposal



Kerb extensions

Installing intermittent kerb extensions will narrow sections of the road and slow traffic down. This treatment can also be used to enhance the crossing points by ensuring vehicles are slowing down on approach, particularly around Spotswood Primary.

Image: driverknowledgetests.com, location unknown



Bike parking

Bike hoops or other bike parking infrastructure can be introduced on the nature strips along McLister and Birmingham streets. This minor improvement allows ease of access to end destinations and improves security for bikes, compared to informal cycle parking using poles or other objects.

Image: City of Melbourne



Street greening

The additional of kerb extensions and insert parking allows for more landscaping opportunities along the corridor. This treatment option can act as a natural shade option for cyclists whilst being both environmentally conscious and visually appealing to the street character. Options for street greening could also become a local placemaking activity.

Image: La Trobe St, Melbourne.



3.2. Proposal B

Proposal B – Secondary

Proposal B includes a bi-directional cycle lane on the north side of McLister Street and the south side of Birmingham Street. The road carriageway is changed to one-way and becomes entry only from Melbourne Road. Permitted general traffic movements are shown below. **This option differs from Proposal A as it retains parking along the whole corridor.**



McLister Street (east)

Introduction of option:

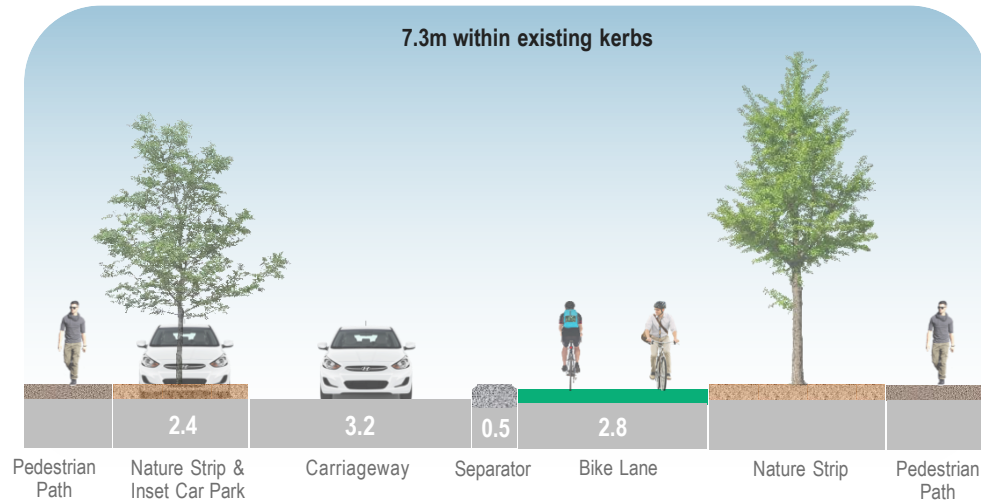
Options for McLister Street (east) are based on the existing road width (7.3m). This option for McLister Street (east) changes the current road conditions to one-way eastbound for general traffic.

This option removes on-street parking north of the road carriageway but introduces insert parking along the southern side.

For this option, a 2.8m bi-directional cycle lane is introduced for the northern side of the road and the kerb separators provide a buffer between the cycle lane and general traffic.



McLister Street (east): Issues and Opportunities



Benefits:

- Separation from general traffic
- Retains on-street parking through insert parking along the entire corridor

Issues:

- Interaction with driveways and residential access
- Carriageway changed to one-way

Further opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Improve connection to southern footpath

McLister Street (west)

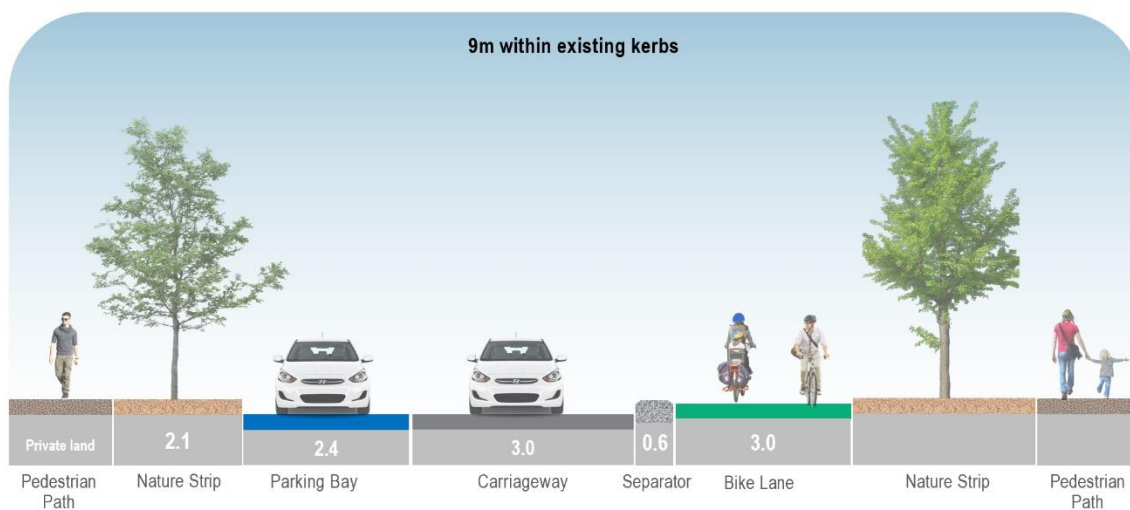
Introduction of option:

Options for McLister Street (west) are based on a 9m road space widening on southern side. With the additional space, this option proposes a 3m wide one-way eastbound carriageway, accompanied by a strip of parallel parking on the southern side of the street and 90 degree parking as part of the new development. Localised traffic calming measures include intermittent kerb extensions and a zebra crossing for school students.

A 3m protected bi-directional cycle lane is proposed on the northern side of the carriageway with separation from general traffic by way of a concrete island.



McLister Street (west): Issues and Opportunities



Benefits

- Separated cycle lanes from general traffic
- One-way carriageway results in reduced non-local traffic
- On-street parking retained
- Additional 90-degree parking introduced
- Localised traffic calming and raised zebra crossing at school
- Integrated with crossing facilities for pedestrians

Issues:

- Volumes of traffic from future developments
- School children and families need to cross roadway

Future opportunities:

- Raised entry requirements across all roads for continuous footpaths

Birmingham Street

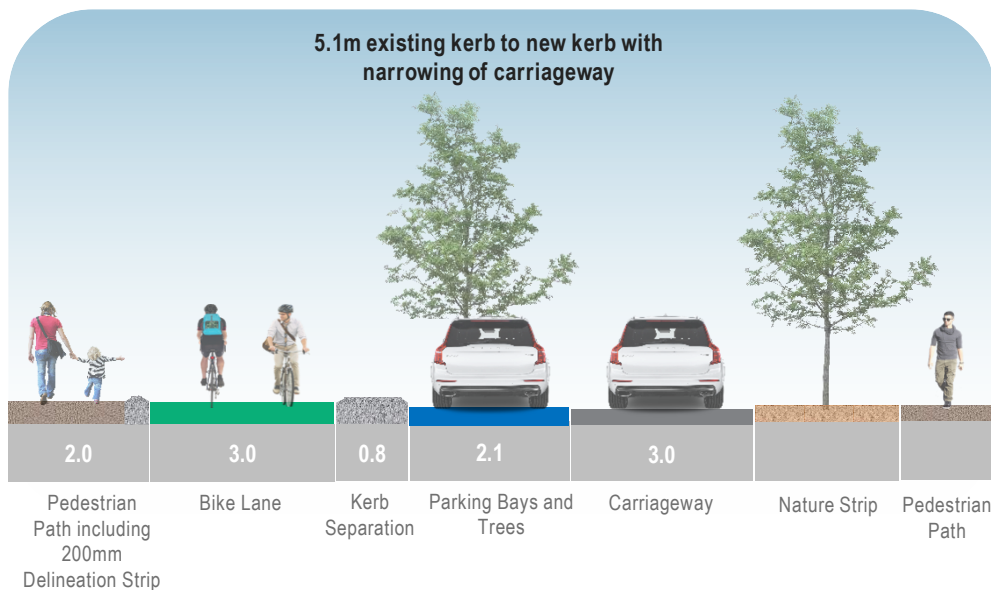
Introduction of option:

This option proposes a 3m one-way carriageway westbound, accompanied by a 2.1m parking bay with intermittent kerb extensions to the south.

A raised 3m bi-directional cycle lane is to be positioned to the south of the parking bay with a 0.8m separator.



Birmingham Street: Issues and Opportunities



Benefits

- Separation from general traffic
- On-street parking retained
- One-way carriageway results in reduced non-local traffic
- Increased number of on street parking facilities
- Raised cycleway easier to maintain as gutter is still in carriageway

Issues:

- Impact on future development access
- Poorer greening opportunities compared to Proposal A.
- Limited shade in the summer

Future Opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Provide crossing facilities for pedestrians

Other considerations:

- The parking could be flipped to the northern side of the carriageway; however, this would remove ability for kerb extensions and tree planting as shown due to driveways.



3.3. Proposal C



Proposal C - Secondary

Proposal C gives the option to have one-way traffic reversed with a left-out-only operation at Melbourne Rd so that a simple signal sequence is still possible. It retains the bi-directional cycle lane on the north side of McLister Street and the south side of Birmingham Street. It also retains on-street parking along the whole corridor.



McLister Street (east)

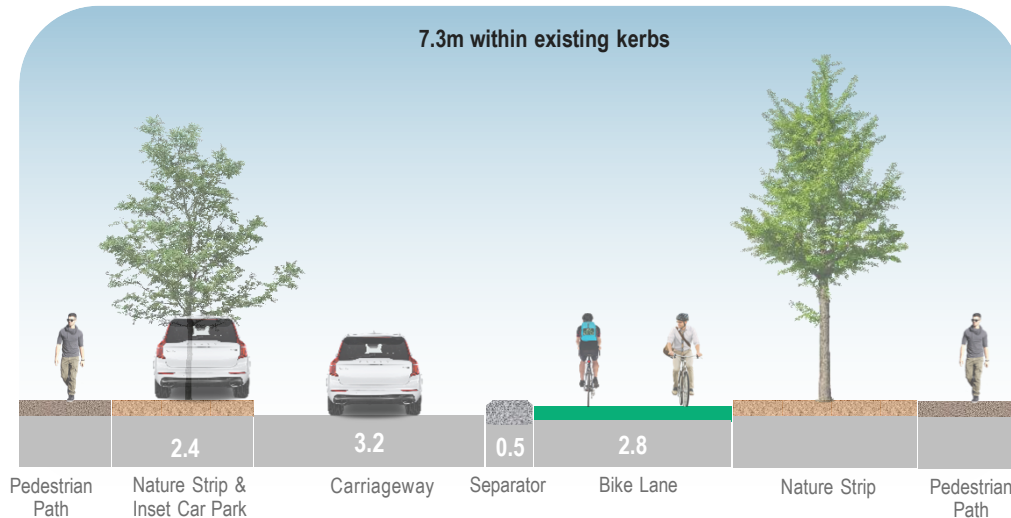
Introduction of option:

This option for McLister Street (east) changes the current road conditions to one-way *westbound* for general traffic. This option removes on-street parking north of the road carriageway but introduces insert parking along the entire southern side.

For this option, a 2.8m bi-directional cycle lane is introduced for the northern side of the road and the kerb separators provide a buffer between the cycle lane and general traffic.



McLister Street (east): Issues and Opportunities



Benefits:

- Cycle lanes protected from general traffic
- On-street parking remains
- Traffic is slowed by shared space

Issues:

- Interaction with driveways and residential access
- Parking limits road space allocation
- Inset parking reduces greening opportunities

Further opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Improve connection to southern footpath

McLister Street (west)

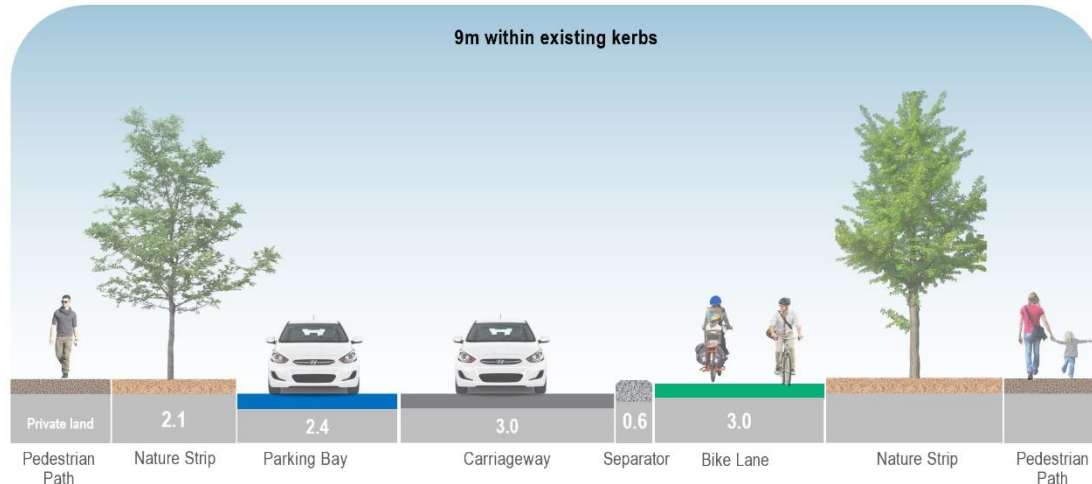
Introduction of option:

This option proposes a one-way *westbound* road carriage of 3m, accompanied by a 2.4m of parking strip to the south. Localised traffic calming measures include intermittent kerb extensions and a zebra crossing for school students.

A 3m protected bi-directional cycle lane is proposed on the northern side of the carriageway.



McLister Street (west): Issues and Opportunities



Benefits:

- Cycle lane protected from general traffic
- Retains on-street parking through insert parking along the entire corridor

Issues:

- Interaction with driveways and residential access
- Carriageway changed to one-way

Further opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Improve connection to southern footpath

Birmingham Steet

Introduction of option:

Option 4 proposes a 3m one-way road carriage eastbound, accompanied by a 2.1m parking bay with intermittent kerb extensions to the south.

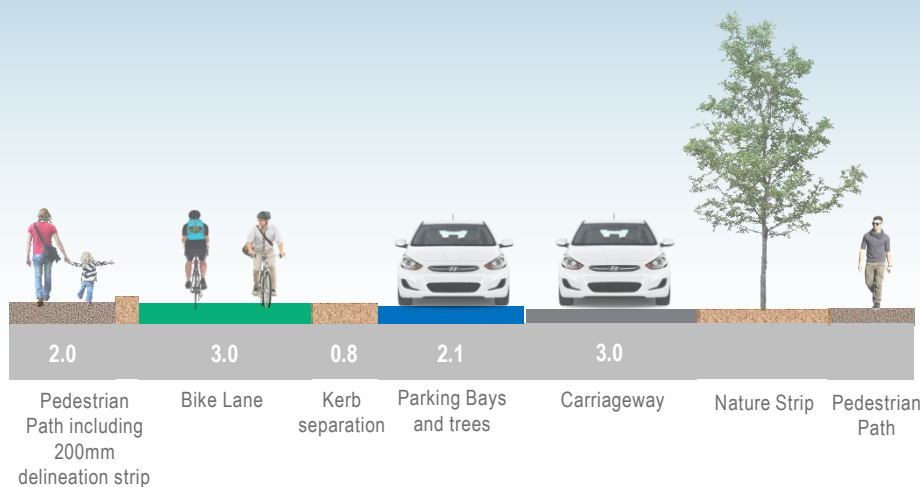
A raised 3m bi-directional cycle lane is to be positioned to the south of the parking bay with a 0.8m separator.



Birmingham Steet: Issues and Opportunities



5.1m existing kerb to new kerb
with narrowing of carriageway



Benefits

- Cycle lanes protected from general traffic
- On-street parking retained
- One-way carriageway results in reduced non-local traffic
- Limited impact to residential access on north side
- Improved cycle conditions due to raised cycleway

Issues:

- Impact on future development access
- Poor greening opportunities compared to Proposal A
- Limited shade in the summer

Future Opportunities:

- Raised entry treatments across all side roads or continuous footpaths
- Provide crossing facilities for pedestrians

Other considerations:

- The parking could be flipped to the northern side of the carriageway; however, this would remove ability for kerb extensions and tree planting as shown due to driveways.



3.4. Melbourne Road Intersection

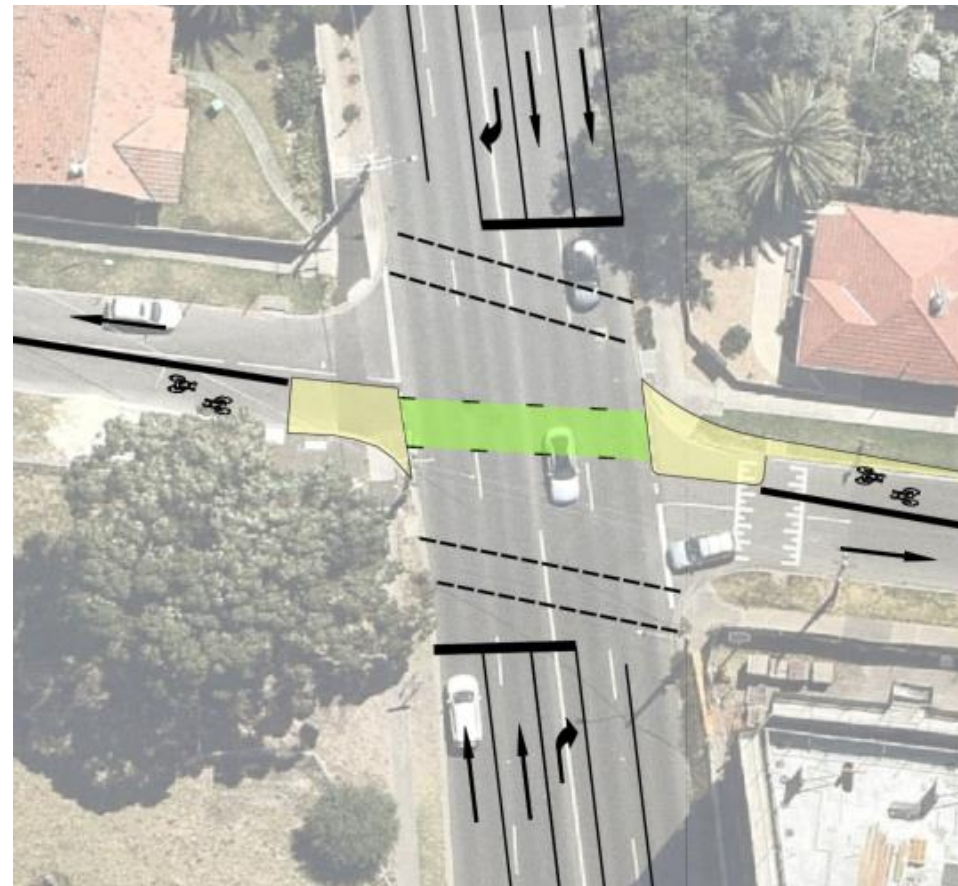
Melbourne Rd Intersection – Proposals A and B

A proposed design for the intersection of Melbourne Road and McLister / Birmingham Street was recently prepared by the Department of Transport.

The design has right turn lanes which will compliment the treatments suggested by Stantec where one way access **into** the side streets is proposed.

A key design element in bringing the designs together is ensuring that right turning traffic can comfortably turn into each street. The pedestrian and cycle crossing is anticipated to be phased whilst all traffic is stopped although the cycle crossing could benefit from a bonus crossing with right turning traffic.

As shown, the cycle crossing will link the two cycle tracks together and exact spatial requirements will be established as the design evolves.



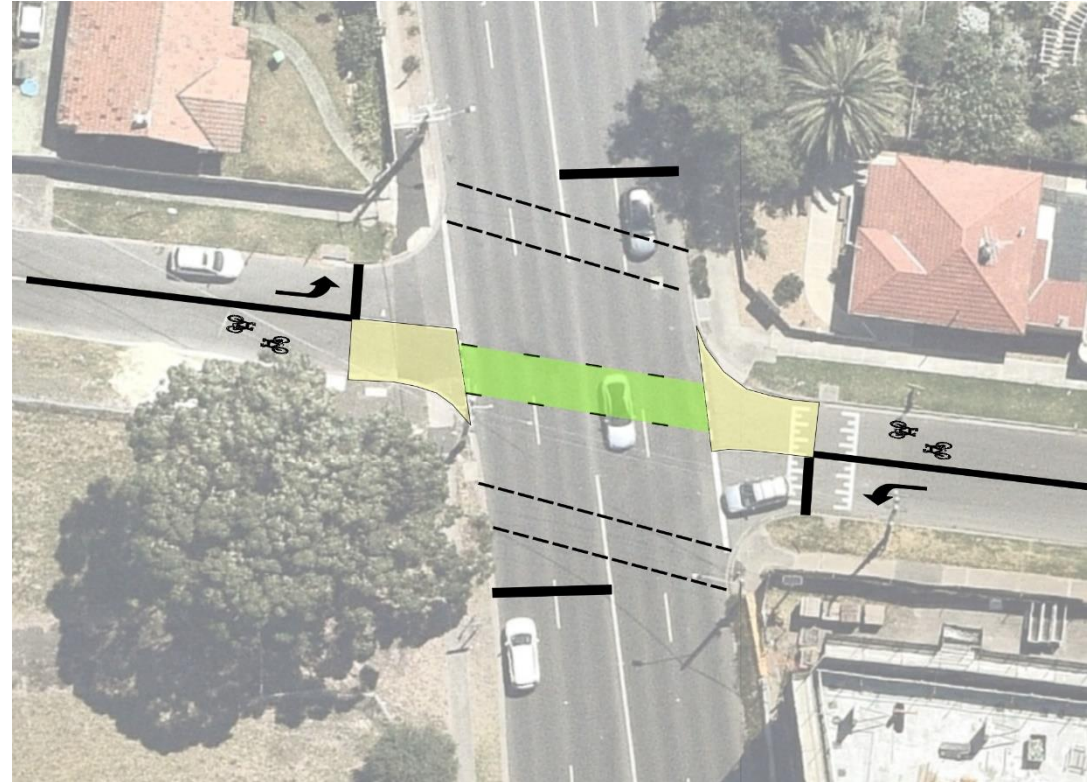
Source: Modified plan of Melbourne Road Concept Layout Plan – Option 2. DWG No G18315A-02-05
Works are required as part of the McLister Street development

Melbourne Rd Intersection – Proposal C

This design compliments proposal C and proposes that general traffic has left turn only access onto Melbourne Road.

The pedestrian and cycle crossing is anticipated to be phased whilst all traffic is stopped to ensure the safety of those crossing.

As shown, the cycle crossing will link the two cycle tracks together and exact spatial requirements will be established as the design evolves.





4. Justification of Designs

Justification of Design Options

The previous section outlined the different design options for the East-West Greenline Corridor, with Proposal A introduced as the preferred option and Proposals B and C as secondary options.

To demonstrate why Proposal A is the preferred option, an assessment of the options is presented in this section.

The red-amber-green criteria to the right was used to conduct the evaluation of each options.

Each option received a total score out of 36 and a comparison between the options is shown on the following page.

Safety Midblock How protected are cyclists from the on-road traffic?	0	Cyclists share lanes with traffic
	1	Cyclists protected by painted lines
	2	Cyclists protected by hard measures with occasional exposure to driveways
	3	Cyclists fully protected
Safety Intersection How protected are cyclists through the intersections?	0	Cyclists share lanes with traffic
	1	Cyclists have painted lane / cycle box
	2	Cyclists have protection / cycle box
	3	Cyclists separated in both time (traffic signal phase) and space
Interaction with other modes How much do cyclists have to interact with cars or pedestrians?	0	Cyclists and general traffic / pedestrians mix frequently
	1	Cyclists have occasional interaction with traffic or pedestrians
	2	Cyclists have occasional interaction with pedestrians but not traffic
	3	Cyclists have controlled interaction with pedestrians but not traffic
Journey Time Do cyclists have the space to pass each other?	0	Cyclists have to give way at side roads
	1	Cyclists travel at speed of slowest cyclist
	2	Cyclists can usually pass each other (< 2m wide)
	3	Cyclists can easily pass each other (cycle lane greater than 2m wide)
Connection How easy is it for cyclists to access the bicycle path?	0	Cyclists must dismount to connect to facility
	1	Cyclists share connection to facility with general traffic
	2	Cyclists share connections in a safe environment
	3	Cyclists have dedicated connections / crossings
Interaction with on-street parking Are cyclists at risk from car dooring?	0	Cyclists are exposed to medium / high risk of dooring
	1	Cyclists have a buffered zone between parked cars
	2	Cyclists are protected from dooring
	3	Dooring is not possible
Greening Are we adding or taking away greenery?	0	Mature trees removed and not replace
	1	Trees removed but replaced
	2	No reduction of trees or green space
	3	Net gain of trees / green space
Parking Is there a loss of parking?	0	Full loss of parking
	1	> 50% loss of parking
	2	< 50% loss of parking
	3	No loss of parking (including space identified elsewhere)
Pedestrians Are pedestrians prioritised throughout the corridor?	0	1.5m width footpaths with no pedestrian priority at side streets
	1	Footpaths are widened and limited priority is provided at side streets
	2	Footpaths are widened and pedestrians are prioritised at side streets
	3	Footpaths are widened and pedestrians are prioritised along the corridor
Through traffic along the corridor What is the impact on traffic?	0	Volumes and speed stay the same
	1	Reduction in speed with no traffic redistribution
	2	Minor reduction in speed and traffic redistribution
	3	Major reduction in speed and traffic redistribution
Cost How much does it cost?	0	Land purchase required
	1	Large excavations, tree removal, drainage and utility alterations
	2	Construction within kerbs and building up existing carriageway
	3	Light construction (posts, rubber separators, paint)

Assessment results

We assessed different options for the corridor using a matrix assessment. Option 1 scored highest for McLister Street (east) and Option 2 scores highest for McLister Street (west). For Birmingham Street, Options 1, 2 and 4 scored the same. All these options propose a bi-directional cycle way. The options for Birmingham Street were narrowed down to Option 1 and 2; Options 3 and 4 have been included in the appendix for reference.

In terms of proposals, each proposal is made up of a combination of options. Based on the combinations, Proposal A scores highest. This option for this proposal are presented on the following page.

McLister Street (east)	
Option 1	21
Option 2	13
McLister Street (west)	
Option 2	24
Option 1	19
Birmingham Street	
Option 1	24
Option 2	24
Option 4	24
Option 3	20

Proposal	Included options	Points
Proposal A	McLister (east) Option 1, McLister (west) Option 2, Birmingham St Option 1	69
Proposal B	McLister (east) Option 2, McLister (west) Option 2, Birmingham St Option 2	61
Proposal C	McLister (east) Option 1, McLister (west) Option 1, Birmingham St Option 1	64

Assessment results

The preferred option for each section is shown in the images below. Combined, these options form Proposal A.

Birmingham Street Option 1



McLister Street (west) Option 2



McLister Street (east) Option 1





5. Other Considerations

Connections to broader cycling network

Treatment option for Moresby and Stephenson

Streets: Moresby and Stephenson Streets can serve as entry points from the Federation Trail and Blackshaws Road into the Greenline corridor.

- At the corner of Stephenson and Moresby Streets, heading east to the Greenline, there needs to be a treatment option to address cyclists' visibility concerns. Currently there is a sharp turn and an informal path made by cyclists.

Treatment options for Stephenson Street and

Blackshaws Road intersection: Direct cyclists north on Stephenson Street away from Blackshaws Road and Melbourne Road.

Future potential treatment options include:

- Stage 1: wayfinding
- Stage 2: kerb treatment
- Stage 3: zebra /raised intersection

Justifications: Poor visibility; treatment to avoid future congestion; increased connection and accessibility .

The areas for future treatment are circled in orange on the map.



Bike facilities for Spotswood Station and Spotswood Activity Centre

At present, this area not very appealing or attractive for cycling. Several heavy vehicles were observed passing through the strip shops on the day of the site visit. This does not promote a safe cycling environment.

More cycle parking and facilities are required for Spotswood's local activity centre along Hudsons Road and Spotswood Station. Bike hoops could be placed along the footpath and several at the station.

The more cycling is enabled and promoted in the area, the more cyclists will be attracted to visit the activity centre and access the railway station.



Bike facilities for Spotswood Station and Spotswood Activity Centre

Potential for bike shelters, lockers, hoops and repair stations to enable cycling.





GTA, now Stantec

Attention: Hobsons Bay City Council

Date: 12 April 2022

**Prepared and reviewed by: Clare Huggins &
James Laing**