Absolutely Positively
Wellington City Council
Me Heke Ki Pōneke

WCC Transitional Cycleways Multi Criteria Analysis

Molesworth-Mulgrave

14 December 2022

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Version	Date	Author	Approver
DRAFT	17/06/2022	S Thornton	C Groom
DRAFT	22/06/2022	S Thornton	C Groom
DRAFT	22/07/2022	S Thornton	C Groom
DRAFT	31/08/2022	S Thornton	C Groom
DRAFT	10/10/2022	C Groom	C Groom
FINAL	14/12/2022	S Thornton	C Groom

Contents

Introduction

Background

The Transitional Cycleways Programme, led by Wellington City Council (WCC), will take a new approach to the installation of cycleways to help increase the pace of change. By using lower-cost materials that can be adjusted once they are in place, WCC can install an interim bike network and gain feedback in real time. This will also inform future permanent changes while gaining benefits earlier.

This report sets out the options analysis process for the Molesworth-Mulgrave Transitional Cycleway.

Project area

The Molesworth-Mulgrave Transitional Cycleway comprises a network of proposed routes as shown in Figure 1 with an east-west route shown in green and north-south route shown in blue. There is currently no dedicated provision for cyclists along these route (except for Bunny Street east), so cyclists are required to share traffic lanes with vehicles. This suppresses cycling demand that could be unlocked with a suitable facility.

For ease of assessment the route has been split into sections to reflect the differing road environments as shown in Figure 1. However, sections NS1-3 have been combined for the purpose of the option assessment.

The section environments are described below:

Table 1: Section environment

Section	Description of environment
EW-1 Tinakori	Town-centre / residential land-use, 30-50km/h speed limit, narrow corridor with parking both sides, high traffic volumes
EW-2 Hill	Residential / central city land-use, 50km/h speed limit, very narrow corridor with parking both sides, moderate traffic volumes
EW-3 Aitken	Central city land-use, 50km/h speed limit, wide corridor with parking both sides, moderate traffic volumes
EW-4 Pipitea	Central city land-use, 50km/h speed limit, narrow corridor with parking both sides, moderate traffic volumes
NS-2/3 Molesworth / Mulgrave	Central city land-use, 50km/h speed limit, narrow one-way corridors with parking one or both sides, high traffic volumes
NS-4 Bunny west	Central city land-use, 30km/h speed limit, very narrow shared space with parking one sides, low traffic volumes
NS-5 Bunny east	Central city land-use, 30km/h speed limit, wide corridor with parking both sides and median island, moderate traffic volumes
NS-6 Lambton	Central city land-use, 30km/h speed limit, wide corridor with parking one side and median island, high traffic volumes

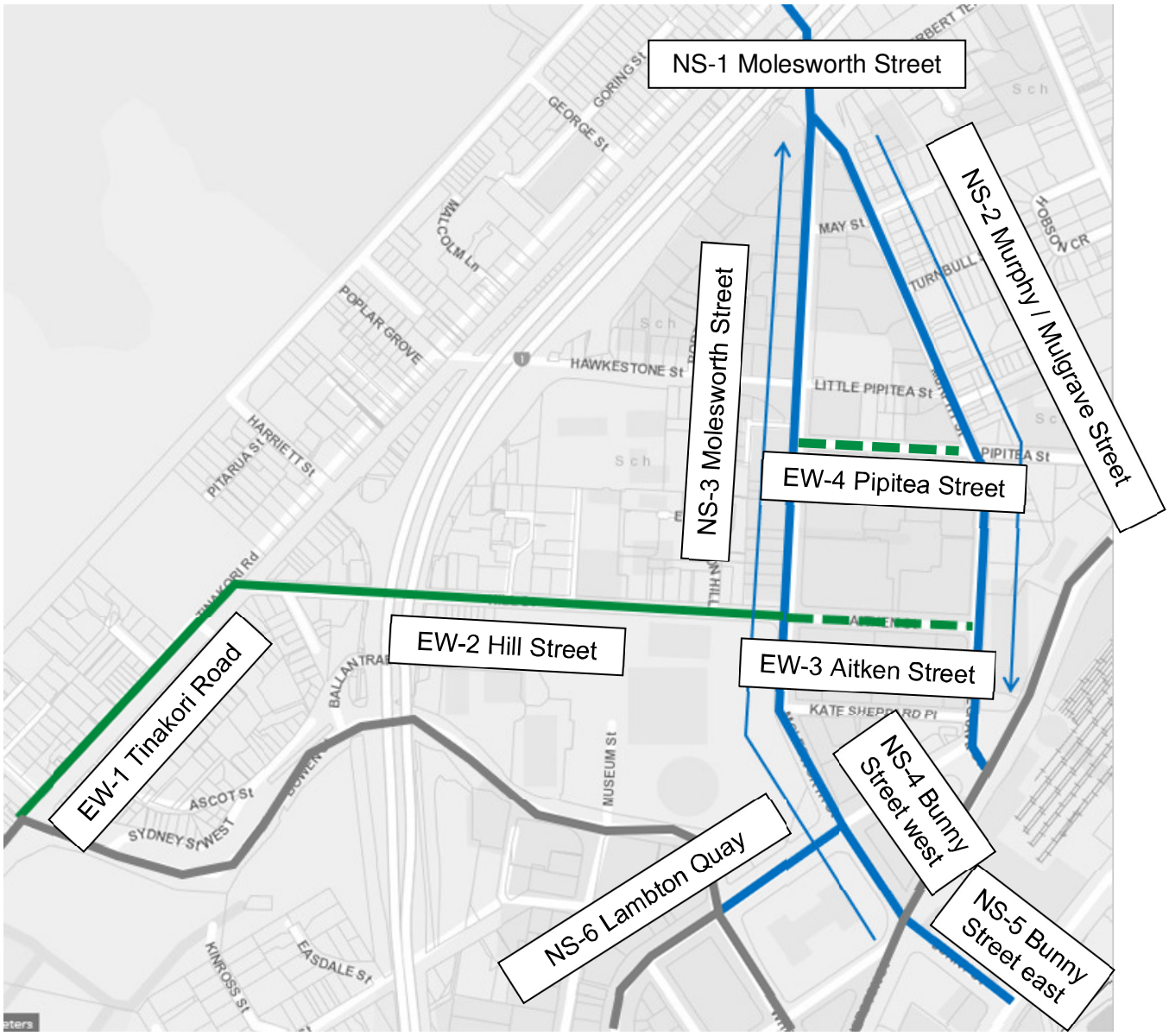

Figure 1: Project scope

Multi criteria analysis process

Criteria, considerations and weightings

The multi criteria analysis (MCA) was developed by WCC utilising the design objectives and considerations developed for the Transitional Cycleways Programme to ensure consistency across projects.

The project criteria were weighted based on relative importance, with the Criteria 1, the safety and convenience of cyclists, weighted the highest and Criteria 6, improved amenity being weighted the lowest. The individual considerations within each criterion were weighted in a similar fashion.

The objectives, considerations and their associated weightings are given in Table 2.

Table 2: Criteria, considerations, and weightings

Criteria	Weight	Consideration	Weight
1. Improve safety, accessibility and convenience for people cycling and using micro-mobility devices	40%	Improved safety	20%
		Improved convenience	20%
2. Improve safety, accessibility and convenience for people walking and using mobility devices	15%	Improved safety	10%
		Improved convenience	5%
3. Improve travel time of public transport	15%	Improved bus speed and reliability	15%
4. Provide high priority parking and mitigate parking impact	15%	Retain high priority parking (e.g., short term and loading followed by residential).	7.5%
		Mitigate parking impact (e.g., car share options, etc)	7.5%
5. Enable benefits to be delivered quickly with minimal disruption	10%	Alignment with other planned works in the road corridor	5%
		Ability to deliver quickly / less disruption compared to a typical project	5%
6. Improve place amenity in the area	5%	Provides opportunities for improved urban amenity	5%

Scoring

A seven-point scale was used for the scoring, -3 to +3. The project team identified how each consideration would be assessed and the specific application of each score through a combination of qualitative and quantitative assessment.

Options considered in long list assessment

The long list to short list analysis can be found in Appendix A. Options that were not considered appropriate for sections of this route and not progressed to the short list and MCA include:

- **Alternate routes:** The route described has been identified by the Wellington Cycle Network Plan which has been consulted on and approved in a separate process which considered alternate route options. Our assessment is not intended to repeat this.
- **Shared path where the existing footpath is not wide enough:** The route is intended to form a key part of the cycle network with high cyclist volumes. A narrow shared path would not be compliant with Austroads and Waka Kotahi guidance due to the lack of adequate space for both pedestrians and cyclists.
- **Change in road space through kerb realignment:** The transitional cycleways are intended to require minimum physical works and ability to amend or reinstate if required. Extensive kerb realignment or similar works will result in permanent changes not suitable for this programme.

Multi criteria analysis outcomes

Summary for each section is provided in the following Sections. For detailed breakdown refer scoring tables attached in Appendix B.

Section EW-1: Tinakori Road

The current situation for Tinakori Road is shown in Figure 2.

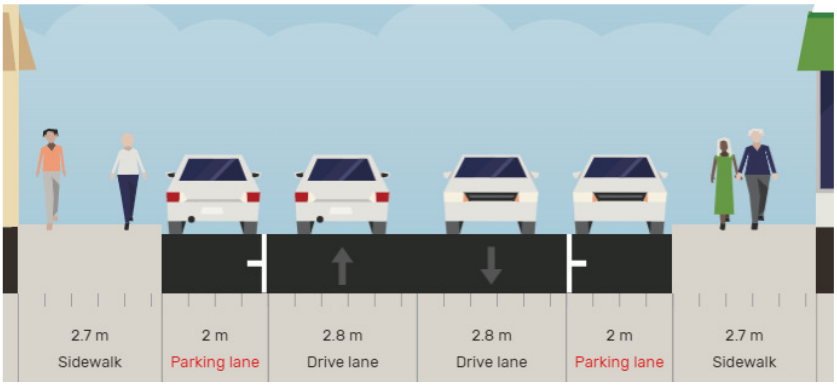

Figure 2: Section EW-1 - existing cross section (looking north)

Three options were assessed in the MCA for Section EW-1, and a summary of results is provided in Table 3. The options considered were:

- EW-1A – uphill protected cycle lane (Figure 3)
- EW-1B – uni-directional protected cycle lanes (Figure 4)
- EW-1C – minor safety improvements only (not shown) but are expected to include traffic calming features and extending the 30km/h section to the intersection with Hill Street

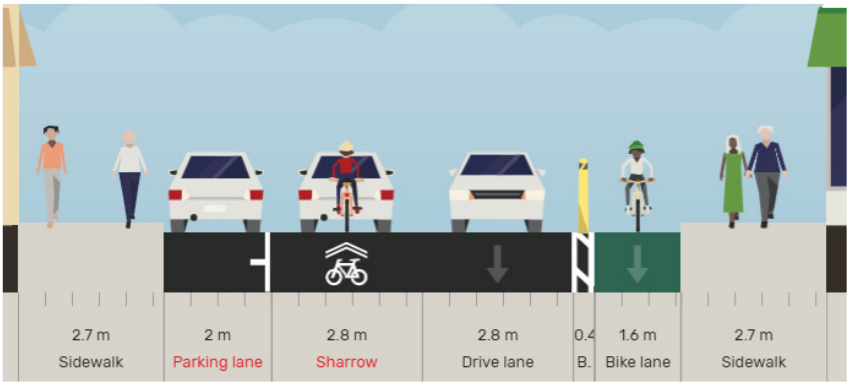

Figure 3: Option EW-1A – uphill protected cycle lane (looking north)

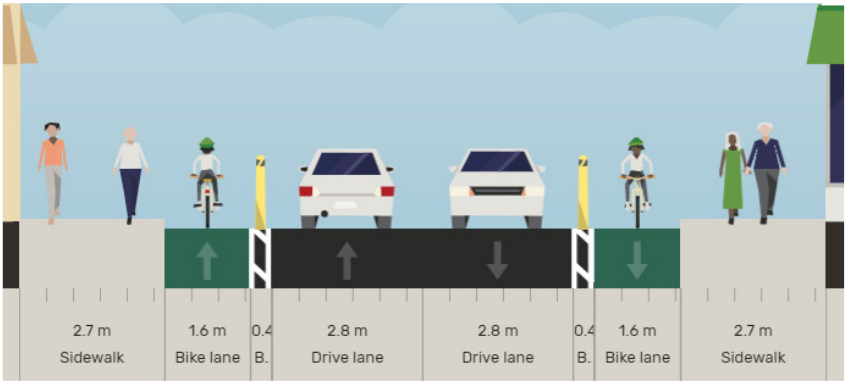

Figure 4: Option EW-1B – uni-directional protected cycle lanes (looking north)

Table 3: Multi criteria analysis summary for Section EW-1

	Option EW-1A	**Option EW-1B**	**Option EW-1C**
Description	Uphill protected cycle lane	Uni-directional protected cycle lanes	Minor safety improvements only
Weighted Score	0.60	0.73	0.20
Rank	2	1	3

Option EW-1B received the best score during the MCA, however it was also the only option to score -3 for one of the criteria (retain high priority parking for businesses and residents where essential).

Option EW-1A reduces the parking impact and provides facilities that are consistent with the facilities proposed for the adjacent Botanic Gardens to waterfront transitional cycleway project.

Option EW-1C has little to no impact on parking but would not provide a cycling facility in either direction.

Preferred option

Option EW-1B will provide a better outcome for people on bikes, however it will have a significant impact on local businesses in an area which has a high place function and on-street parking is well utilised. The proposed treatment for other transitional cycleway projects with a similar village / town-centre section such as Aro Valley is to retain the parking and reduce speeds (current average operating speed ~30km/h) as much as possible. This section of the proposed network is also identified as a secondary route with the primary route running down Bowen Street. For the reasons set out above, the preferred option is **EW-1C (minor safety improvements)**.

Section EW-2: Hill Street

The current situation for Hill Street is shown in Figure 5.

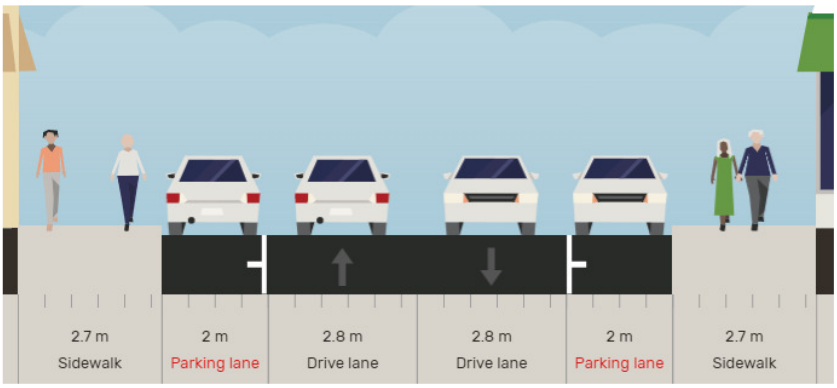

Figure 5: Section EW-2 - existing cross section and Option 2B (looking west)

Two options were assessed in the MCA for Section EW-2. A summary of results is provided in

Table 4. The options considered were:

- EW-2A – uphill protected cycle lane (Figure 6)
- EW-2B – minor safety improvements only (same as current cross section) but are expected to include traffic calming features such as creating localised street narrowing to reduce travel speeds and the attractiveness of the route for through travel.

Options for cycle lanes in both directions were not assessed due to the narrow width of the carriageway.

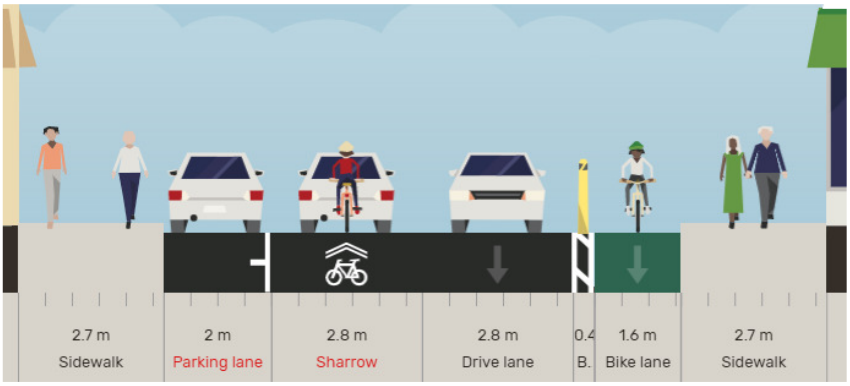

Figure 6: Option EW-2A – uphill protected cycle lane (looking west)

Table 4: Multi criteria analysis summary for Section EW-2

	Option EW-2A	Option EW-2B
Description	Uphill protected cycle lane	Minor safety improvements only
Weighted Score	0.3	0.3
Rank	1	1

Both options scored equally in the MCA with Option EW-2A scoring better for bikes but worse for pedestrians and parking (including school bus stops). As with Tinakori Road, this section is identified as secondary route with Bowen Street and Molesworth / Mulgrave forming the primary network in this area.

Preferred option

Due to the low traffic volumes using this section and the opportunity to leverage off existing traffic calming measures the preferred option is **EW-2B (minor safety improvements)**. Minor safety improvements for Hill St also aligns with the preferred option for Tinakori Road with both Hill St and Tinakori Road being secondary cycling routes.

Section EW-3: Aitken Street

The current situation for Aitken Street is shown in Figure 7.

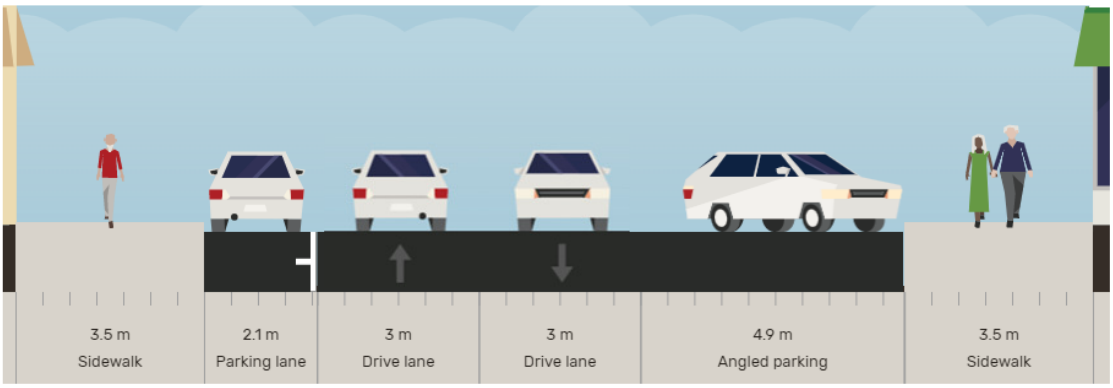

Figure 7: Section EW-3 – existing cross section (looking east)

Three options were assessed in the MCA for Section EW-3. A summary of results is provided in Table 5. The options evaluated are:

- EW-3A – buffered cycle lane outside parking (Figure 8)
- EW-3C – protected cycle lane both sides (Figure 9)
- EW-3D – minor safety improvements only (same as existing cross section)

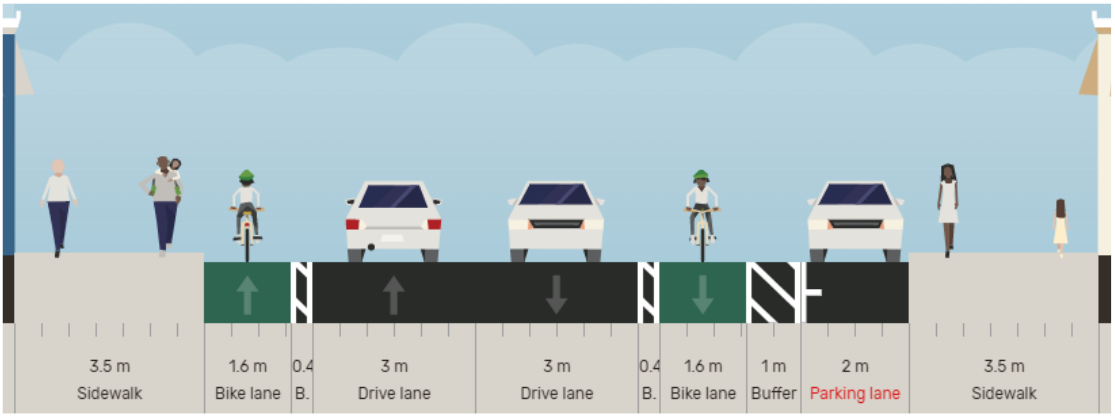

Figure 8: Option EW-3A – buffered cycle lane outside parking (looking east)

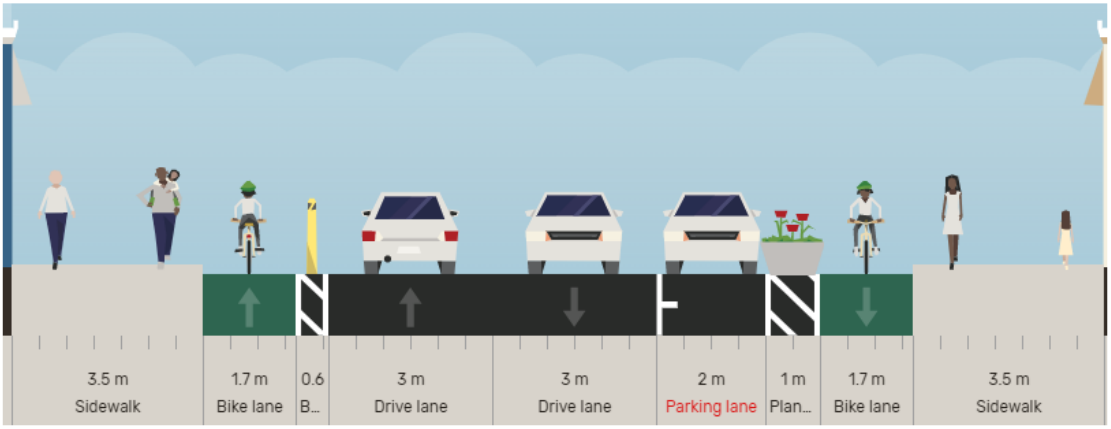

Figure 9: Option EW-3C – protected cycle lane both sides (looking east)

Table 5: Multi criteria analysis summary for Section EW-3

	Option EW-3A	Option EW-3C	Option EW-3D
Description	Buffered cycle lane outside parking	Uni-directional protected cycle lanes	Minor safety improvements only
Weighted Score	0.5	0.6	0.3
Rank	2	1	3

Option EW-3C received the best score during the MCA. Option EW-3A had a similar weighted score.

This section does not form part of the proposed bike network but has been considered as part of this project to provide a connection between Mulgrave Street and Molesworth / Hill Street. Option EW-3A provides flexibility to accommodate the temporary bus stops that will be installed on Aitken Street in the short term (whilst the bus interchange is reconstructed).

Preferred option

Due to the low traffic volumes and speeds (~25km/h average operating speed) on this section of the route and the need to accommodate bus layover spaces, **Option EW-3A (buffered cycle lane outside parking)** is proposed to be taken forward to concept design. Following the completion of the bus interchange works consideration should be given to changing the layout to protected cycle lanes during the Transformational Programme.

Section EW-4: Pipitea Street

The current situation for Aitken Street is shown in Figure 10.

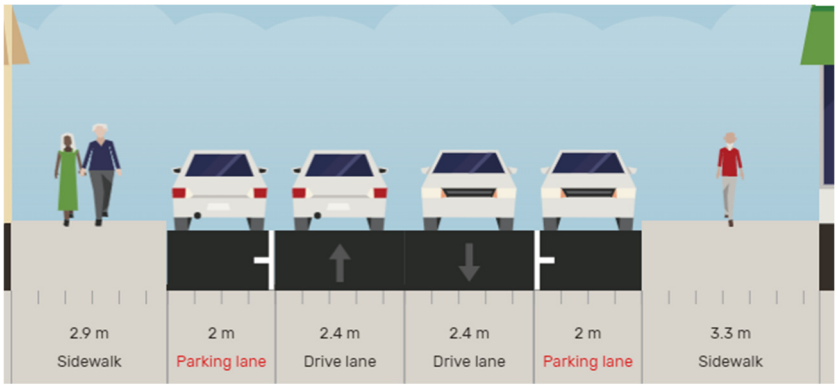

Figure 10: Section EW-4 – existing cross section (looking east)

Three options were assessed in the MCA for Section EW-4. A summary of results is provided in Table 5. The options evaluated are:

- EW-4A – painted uni-directional cycle lanes (Figure 8)
- EW-4B – protected bi-directional bike lane + convert to one-way road (Figure 9)
- EW-4C – minor safety improvements only (same as existing cross section)

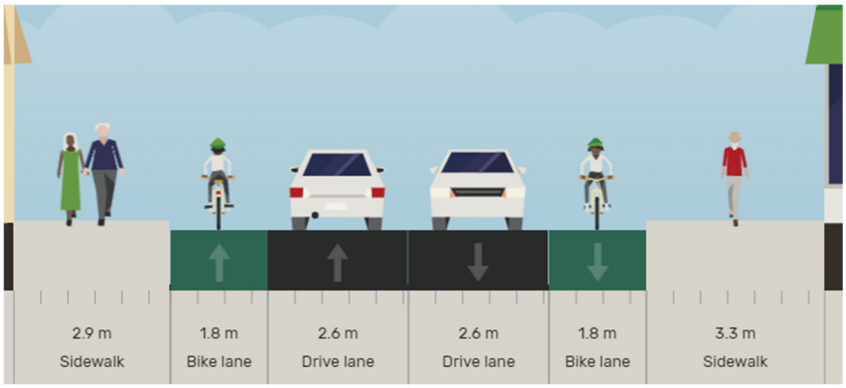

Figure 11: Option EW-4A – painted uni-directional cycle lanes (looking east)

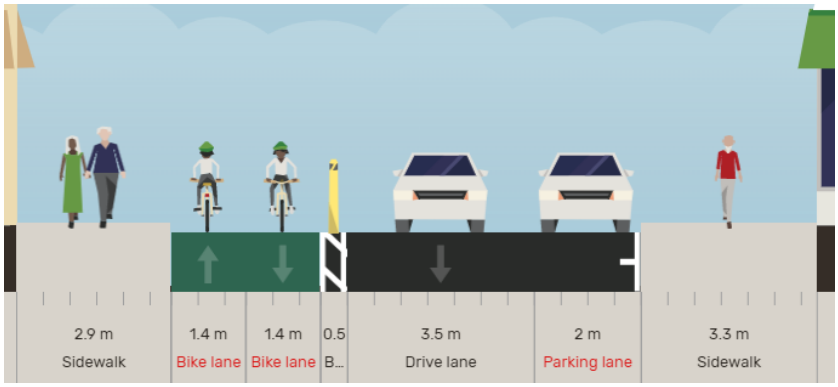

Figure 12: Option EW-4B – protected bi-directional bike lane + convert to one-way road (looking east)

Table 6: Multi criteria analysis summary for Section EW-3

	Option EW-4A	Option EW-4B	Option EW-4C
Description	Painted uni-directional cycle lanes	Protected bi-directional bike lane + convert to one-way road	Minor safety improvements only
Weighted Score	0.2	0.3	0.5
Rank	3	2	1

Option EW-4C received the best score during the MCA.

This section does not form part of the proposed bike network but has been considered as part of this project to provide a connection between Mulgrave Street and Molesworth Street.

Preferred option

Due to the low traffic volumes and narrow cross-section on this section of the route, **Option EW-4C (minor safety improvements only)** is proposed to be taken forward to concept design.

Section NS-2/3: Molesworth Street / Murphy Street / Mulgrave Street

The cross section of the Molesworth St/ Murphy Street corridor varies considerably along its length and therefore five typical cross section points have been taken which are shown below (Figure 19).

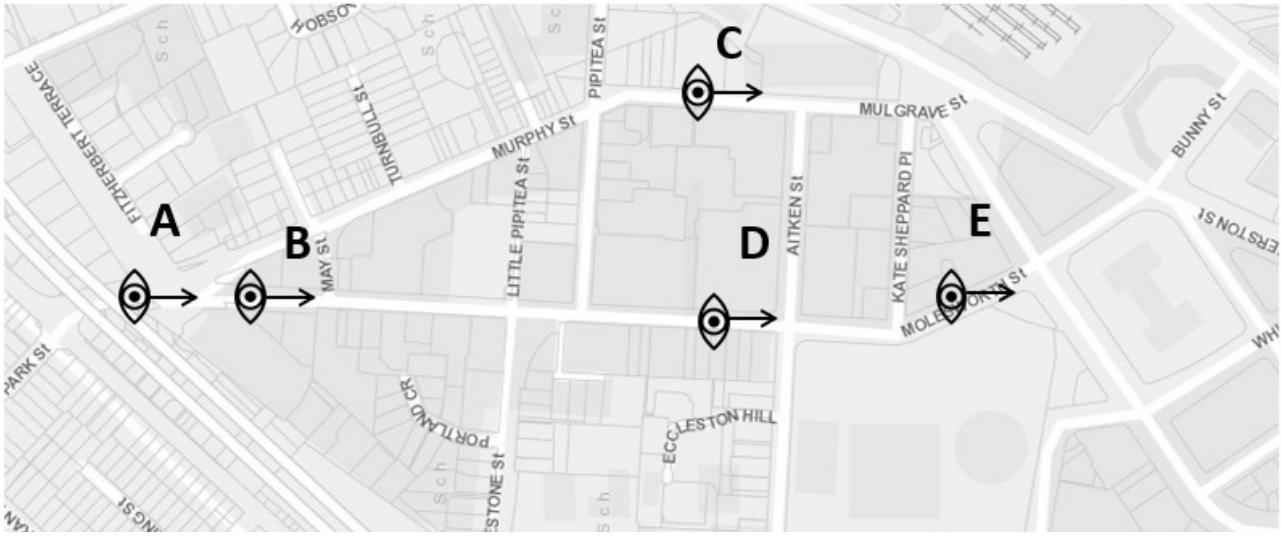

Figure 13: Map showing location of cross section points

The existing road layout is shown in Figure 14 to Figure 18 below. Lane widths vary from 2.8m to 5.3m with some sections having parallel parking with section E having angled parking.

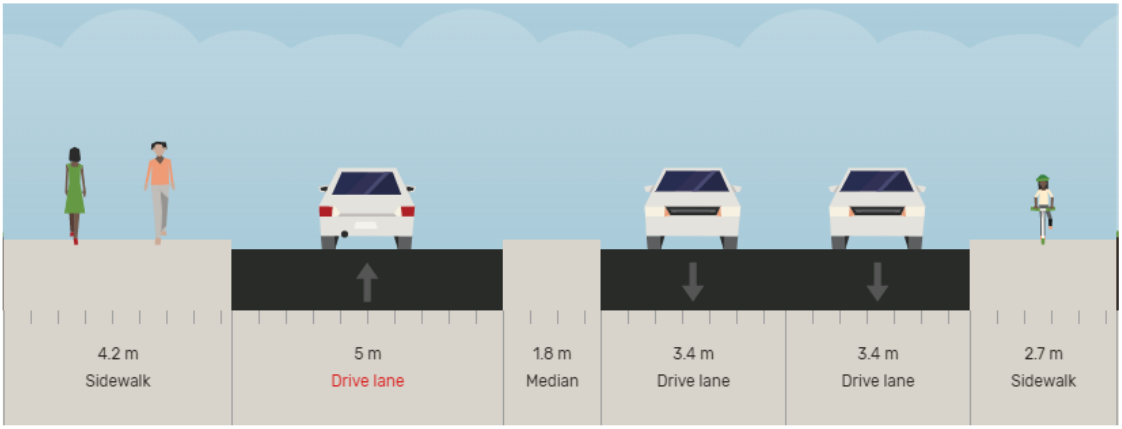

Figure 14: Existing cross section A (looking south)

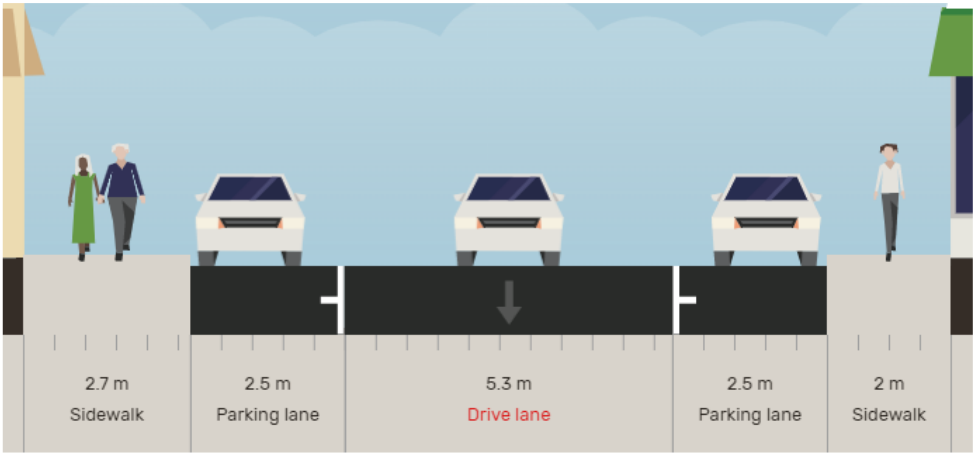

Figure 15: Existing cross section B (looking south)

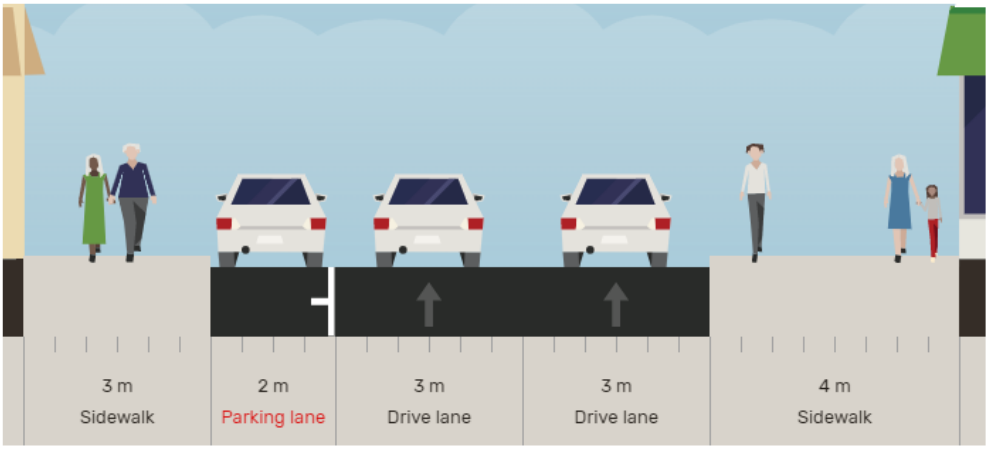

Figure 16: Existing cross section C (looking south)

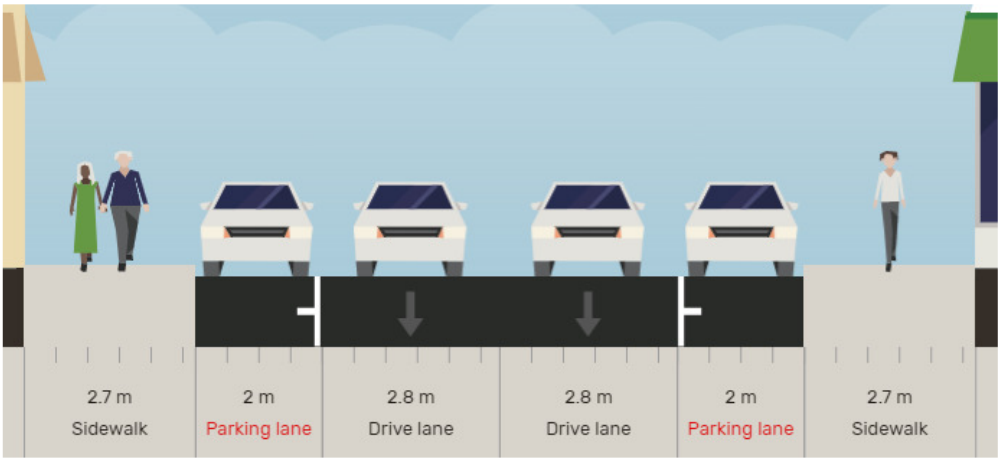

Figure 17: Existing cross section D (looking south)

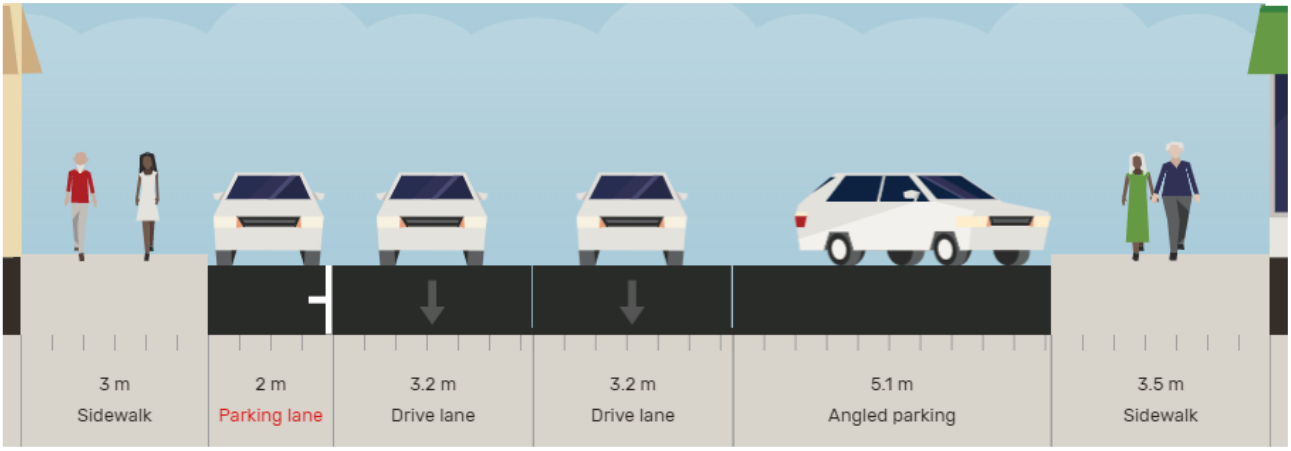

Figure 18: Existing cross section E (looking south)

Options evaluated

Three options were assessed in the MCA for Section NS-2/3. A summary of results is provided in Table 7. The options evaluated are:

- NS-2UA/3UB protected cycle lanes in each direction (Figure 19)
- NS-3BA bi-directional cycle facility on Molesworth full-length (Figure 20)
- NS-2UA/3UB/3BA protected cycle lanes both directions with bidirectional facility on part of Molesworth Street (Figure 21)

During the longlist assessment the side of the road (On Molesworth, Mulgrave / Murphy Streets) for any proposed cycle facility was considered including the left (traditional) side and the right side.

The right side was chosen as the preferred location for the following reasons:

- Avoided conflicts with high volume / high-speed motorway on/off ramps
- Avoided conflicts with bus stops (safety implications for waiting pedestrians and bus / cycle interactions)
- Provided improved cycle connectivity between Molesworth Street and Murphy / Mulgrave Streets (via connecting side streets such as Pipitea Street) and better connectivity to Bunny Street.

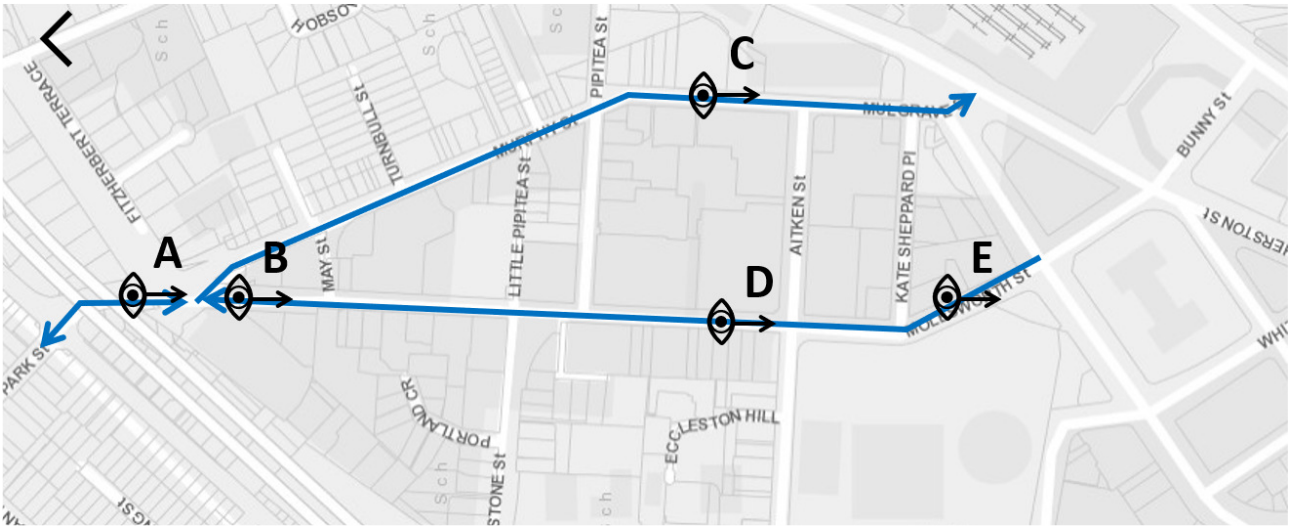

Figure 19: Option NS-2UA/3UB protected cycle lanes in each direction

Figure 20: Option NS-3BA bi-directional cycle facility on Molesworth full-length

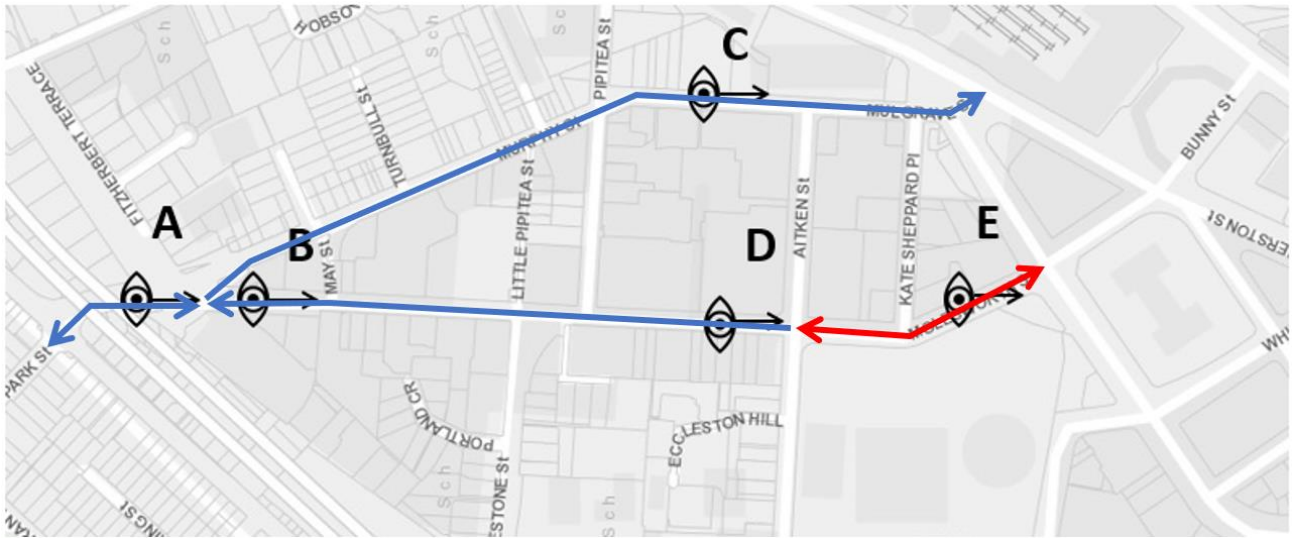

Figure 21: Option NS-2UA/3UB/3BA protected cycle lanes both directions with bidirectional facility on part of Molesworth Street

Option NS-2UA/3UB: protected cycle lanes in each direction

The typical cross sections for option NS-2UA/3UB are shown in Figure 22 to Figure 26 below

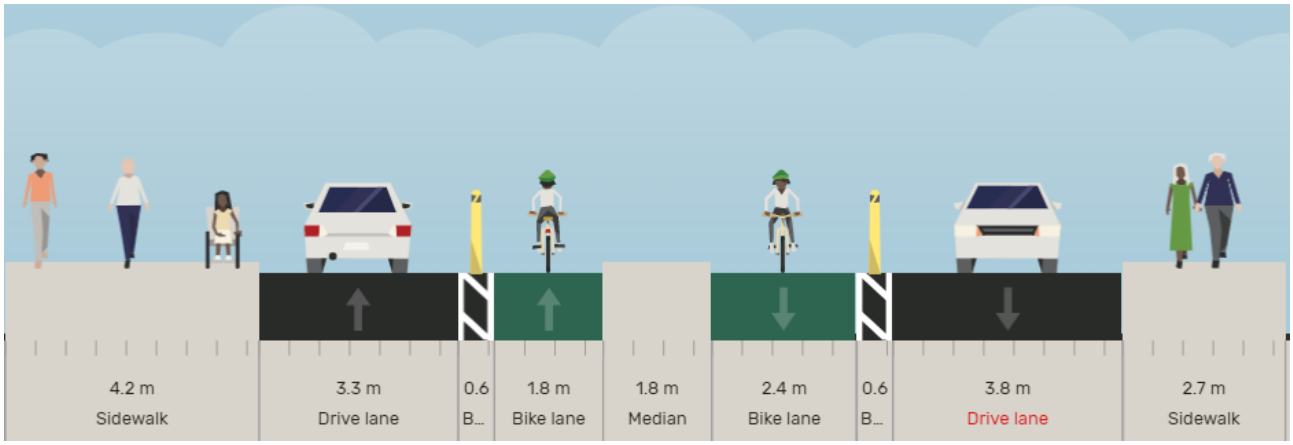

Figure 22: NS-2UA/3UB Cross section A (looking south)

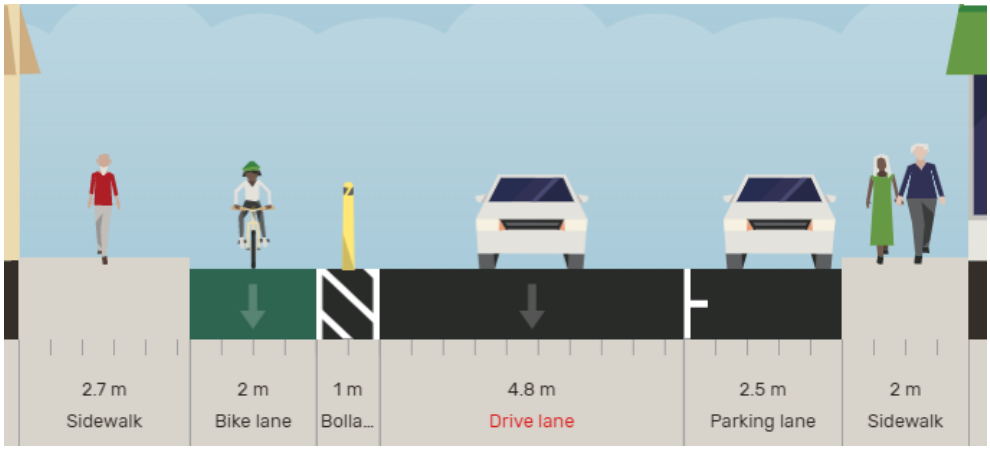

Figure 23: NS-2UA/3UB Cross section B (looking south)

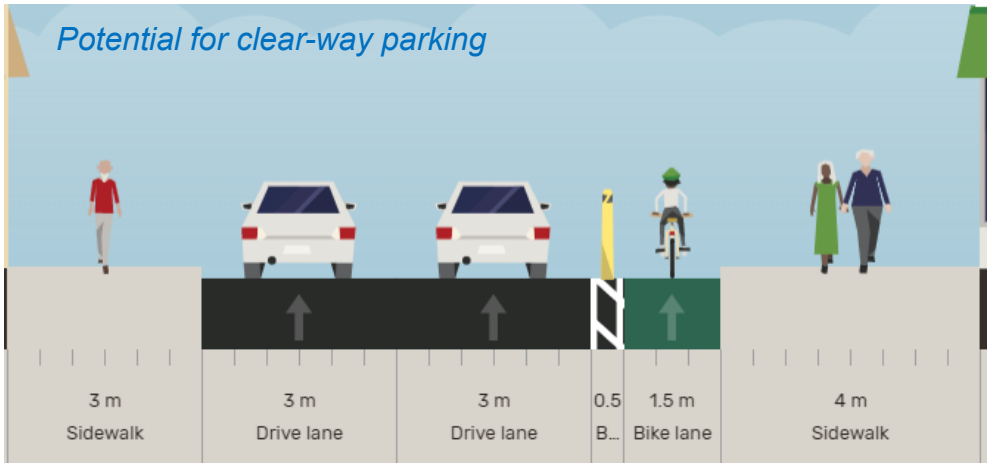

Figure 24: NS-2UA/3UB Cross section C (looking south)

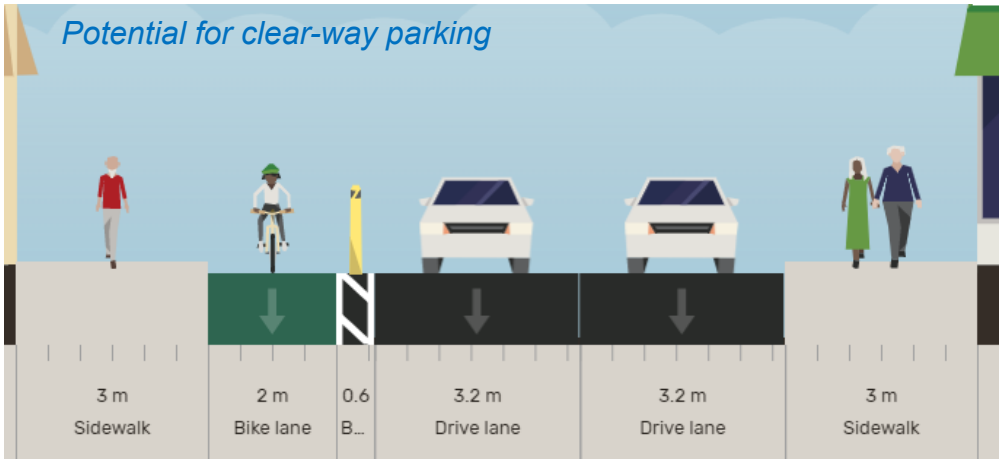

Figure 25: NS-2UA/3UB Cross section D (looking south)

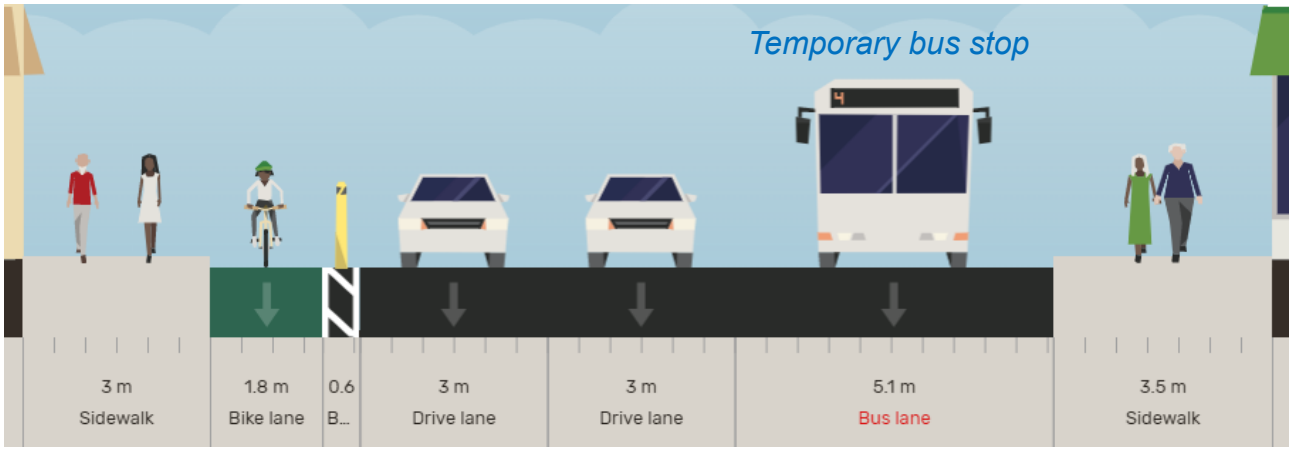

Figure 26: NS-2UA/3UB Cross section E (looking south)

Option NS-3BA: Bi-directional cycle facility on Molesworth full-length

The typical cross section for options NS-3BA are shown in Figure 27 to Figure 30.

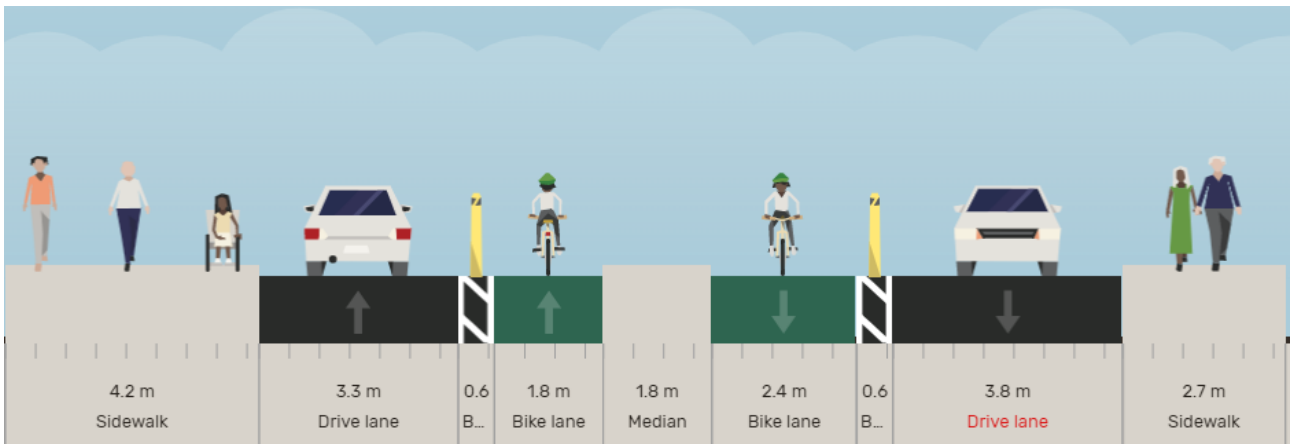

Figure 27: NS-3BA Cross section A (looking south)

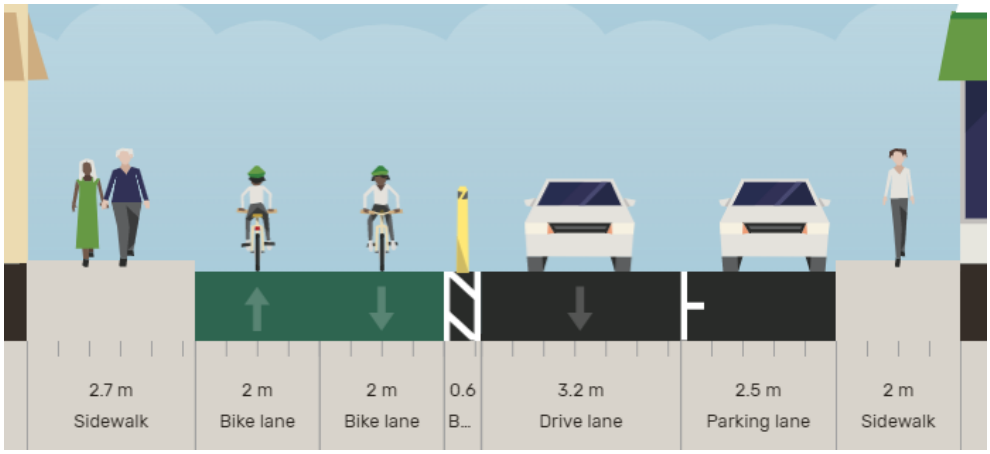

Figure 28: NS-3BA Cross section B (looking south)

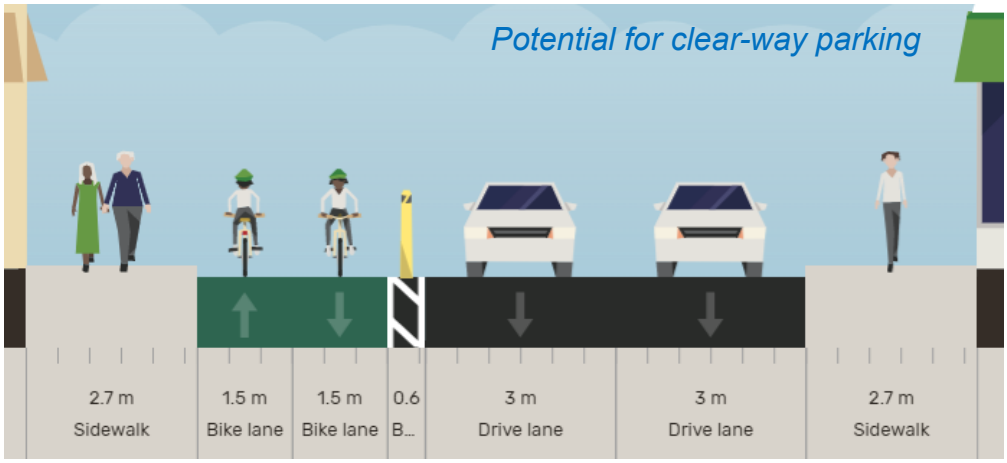

Figure 29: NS-3BA Cross section D (looking south)

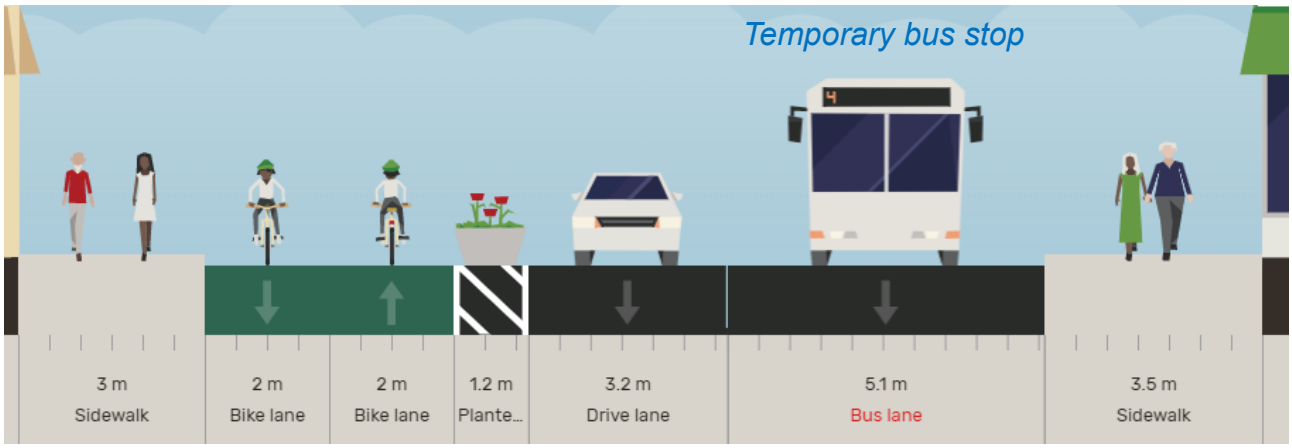

Figure 30: NS-3BA Cross section E (looking south)

Option NS-2UA/3UB/3BA: Protected cycle lanes both directions with bidirectional facility on part of Molesworth Street

The typical cross section for option NS-2UA/3UB/3BA are shown in Figure 31 to Figure 35.

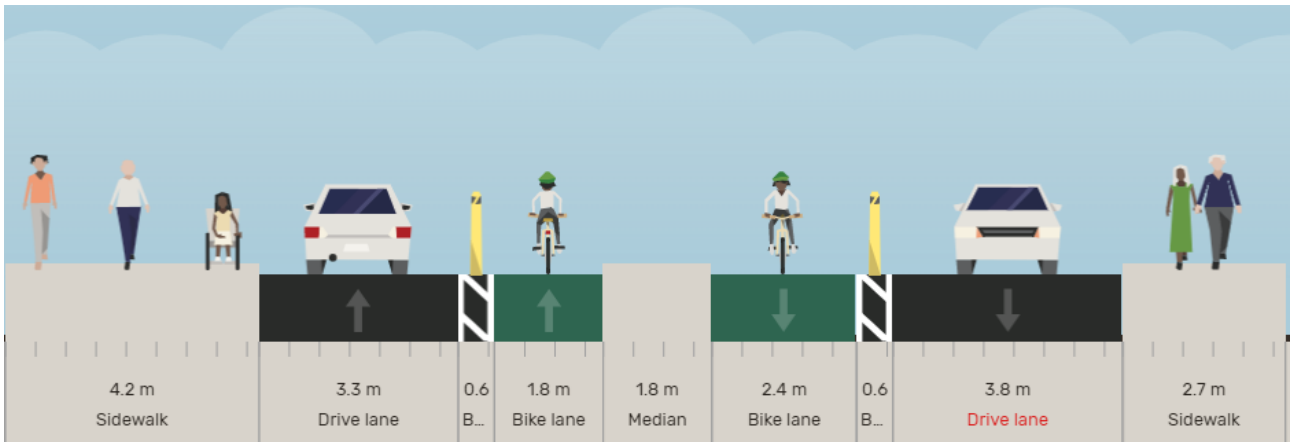

Figure 31: NS-2UA/3UB/3BA Cross section A (looking south)

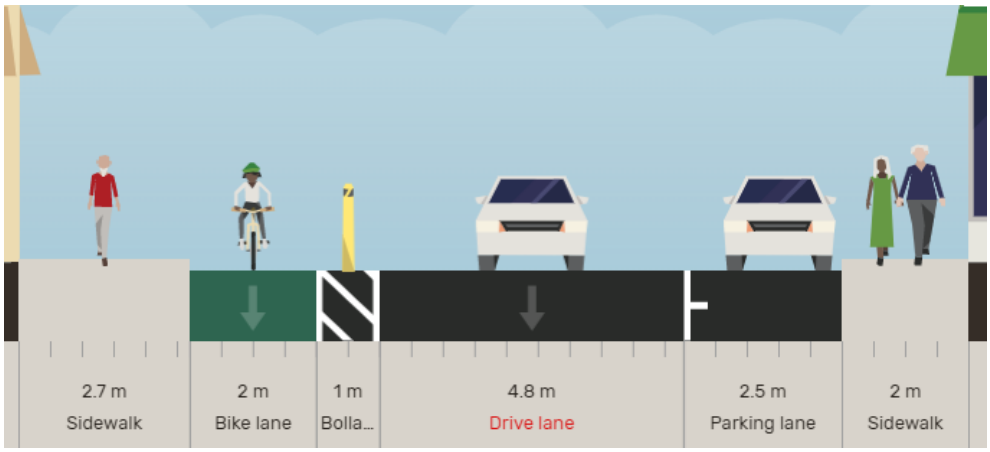

Figure 32: NS-2UA/3UB/3BA Cross section B (looking south)

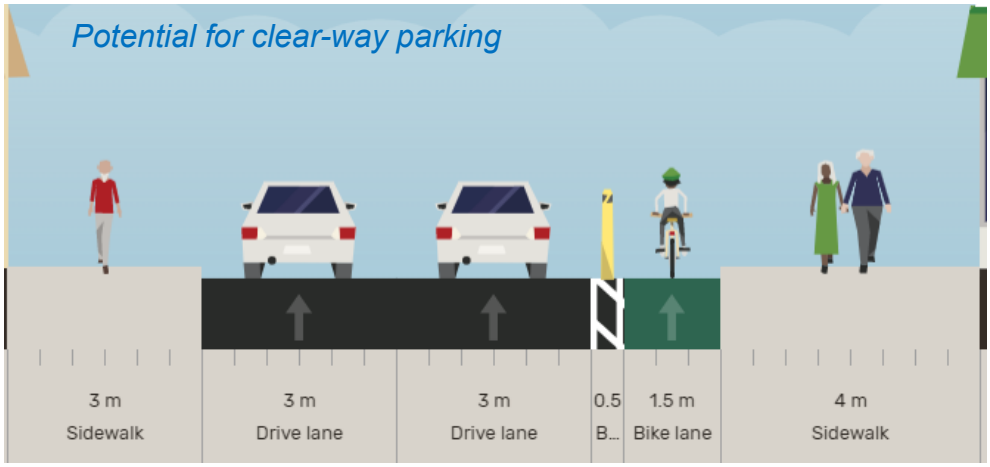

Figure 33: NS-2UA/3UB/3BA Cross section C (looking south)

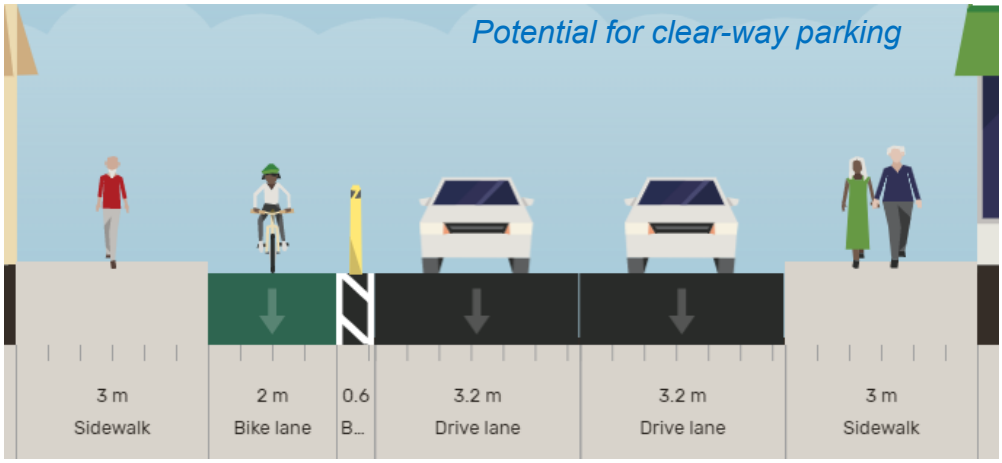

Figure 34: NS-2UA/3UB/3BA Cross section D (looking south)

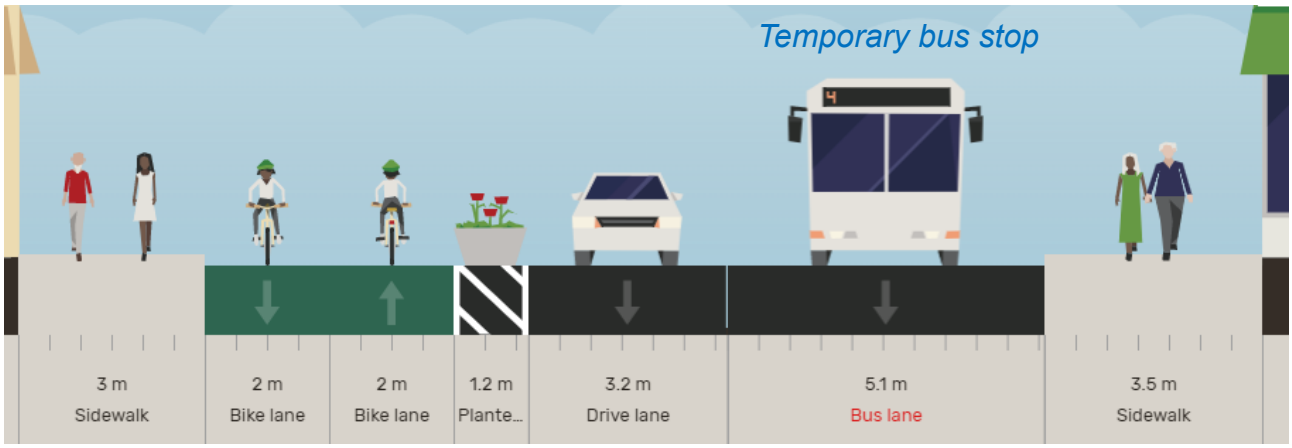

Figure 35: NS-2UA/3UB/3BA Cross section E (looking south)

Option assessment

Table 7: Multi criteria analysis summary for Section NS-2/3

	Option NS-2UA/ 3UB	Option NS-3BA	Option NS-2UA/ 3UB/ 3BA
Description	Protected cycle lanes in each direction	Bi-directional cycle facility on Molesworth full-length	Protected cycle lanes both directions with bidirectional facility on part of Molesworth Street
Weighted Score	0.8	0.4	0.8
Rank	1	3	1

Options NS-2UA/ 3UB and NS-2UA/ 3UB /3BA both received the best score during the MCA. Option NS-3BA scored 0 on improved safety for people cycling and using micro-mobility devices. This is because option NS-3BA creates a cycle-on-cycle crashes due to the downhill gradient with a 3m wide bi-directional cycleway. Option NS-3BA also has the added complexity of cyclists travelling in the opposite direction to traffic past the busy New World supermarket entrance which is also a safety risk.

Preferred option

For Molesworth/ Mulgrave the preferred option to be taken forward to concept design is option **NS-2UA/ 3UB/ 3BA** (Protected cycle lanes both directions with bidirectional facility on part of Molesworth Street). Option NS-2UA/ 3UB/ 3BA offers the following advantages over option NS-2UA/ 3UB:

- Greater cycling network connectivity with the bi-directional cycleway on lower Molesworth Street allowing cyclists to take a shorter route to Lambton Quay and The Terrace
- Insufficient traffic lane width on upper Murphy Street (3.8m) to provide a protected cycleway

A section of bi-directional cycleway on Molesworth St between Murphy St and May was considered in order to provide a connection to the Ministry of Health. However this sub-option was discounted due to the compromised legibility of changing from uni-directional to bi-directional and back to uni-directional.

Section NS-4: Bunny Street west

The current situation for Bunny Street west is shown in Figure 36.

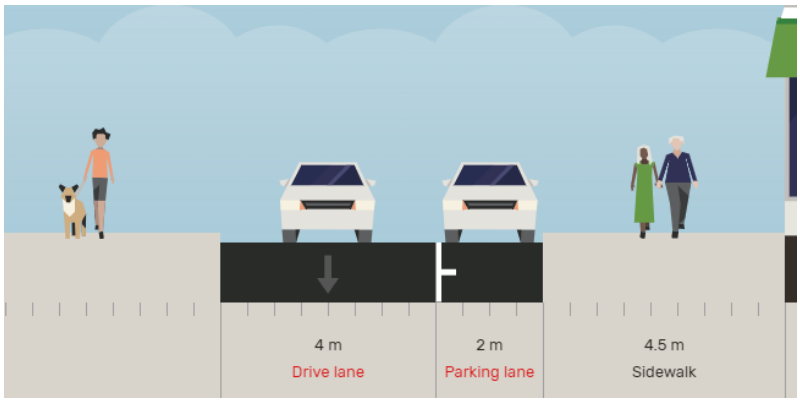

Figure 36: Section NS-4 – existing cross section

Two options were assessed in the MCA for Section NS-4. A summary of results is provided in Table 8**Error! Reference source not found.**. The options considered were:

- Retain existing shared street (same as current crossing section)
- NS-4A - shared lane westbound, narrow painted cycle lane eastbound (Figure 37)
- NS-4B - shared lane westbound, protected cycle lane eastbound (Figure 38)

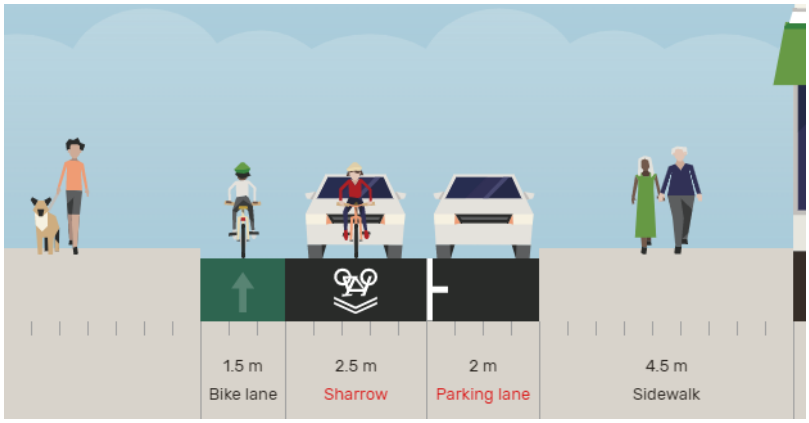

Figure 37: Option NS-4A - shared lane westbound, narrow painted cycle lane eastbound

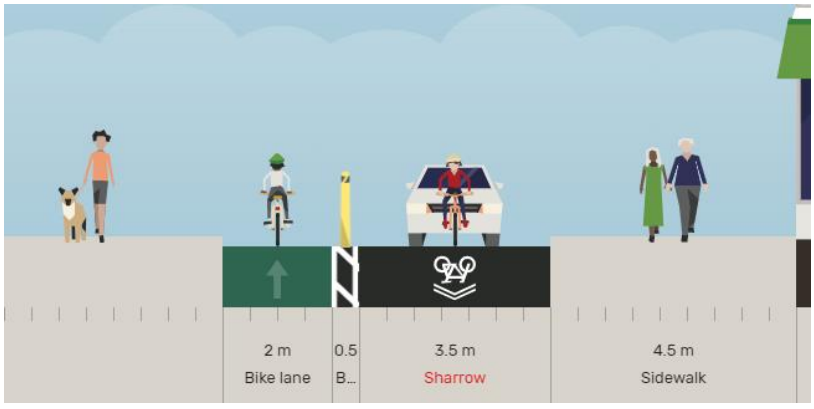

Figure 38: Option NS-4B - shared lane westbound, protected cycle lane eastbound

Table 8: Multi criteria analysis summary for Section NS-4

	Retain existing	Option NS-4A	Option NS-4B
Description	Shared street	Shared lane westbound, narrow painted cycle lane eastbound	Shared lane westbound, protected cycle lane eastbound
Weighted Score	0.4	0.3	0.4
Rank	1	2	1

Option NS-4A scored better for retain high priority parking but scored worse for improved safety for people cycling and using micro-mobility devices. The higher safety score for option NS-4B is due to the greater perceived safety from a physically protected cycleway. Retain existing scored well for alignment with other planned works in the road corridor which is the Wellington Bus Station upgrade.

Preferred option

The preferred option for Bunny Street west is to **retain the existing shared street** due to the low traffic volumes and speeds. Bunny Street west currently allows cyclists to travel in the eastbound direction with Victoria University, buses and cyclists allowed to travel in the westbound direction. In discussions with Metlink it was agreed that access for buses to Bunny Street in the westbound direction needed to be retained to allow buses to reposition via Bunny Street west. Potential improvements to the existing layout to be investigated include road art and relocating the bus layout space.

Section NS-5: Bunny Street east

The current situation for Bunny Street east is shown in Figure 39.

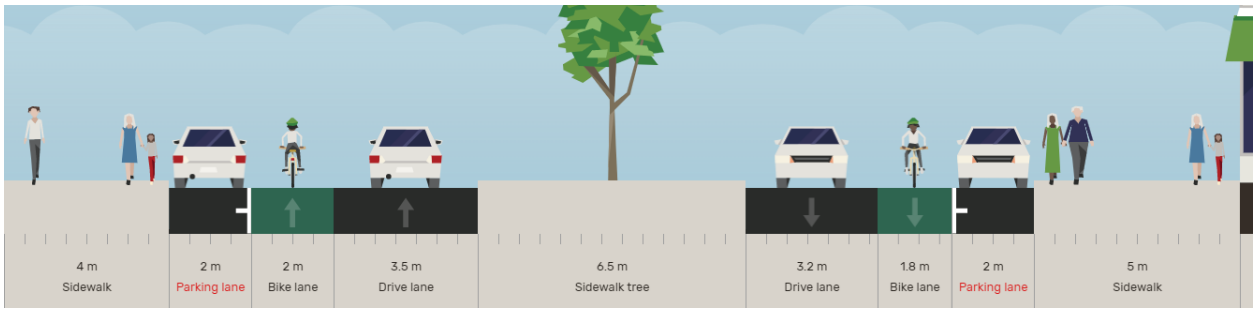

Figure 39: Section NS-5 – existing cross section

Two options were assessed in the MCA for Section NS-5. A summary of results is provided in Table 9. The options considered were:

- Retain existing bike lanes on outside of parking (same as existing cross section)
- NS-5UB – protected cycle lanes each side (Figure 40)
- NS-5B – bi-directional cycle facility north side (Figure 41)

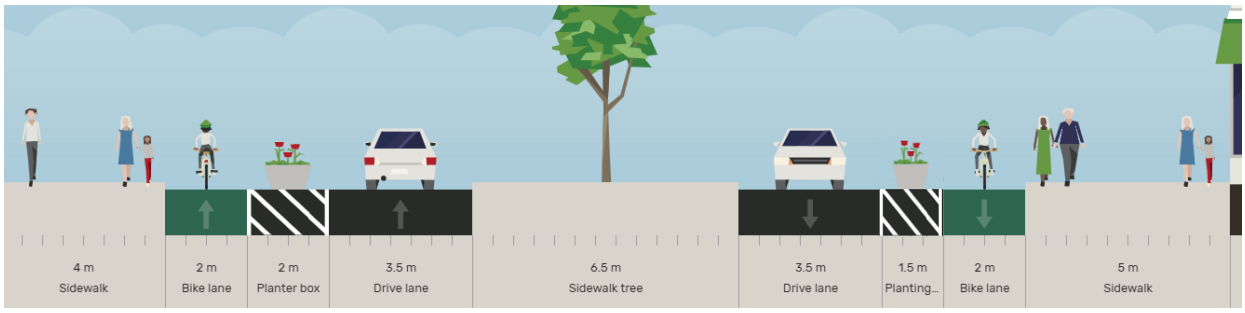

Figure 40: Option NS-5UB – protected cycle lanes each side

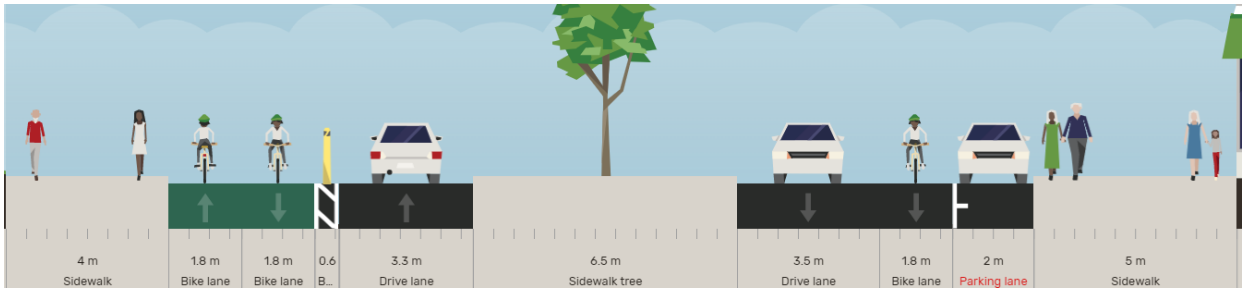

Figure 41: Option NS-5B - bi-directional cycle facility - north side

Table 9: Multi criteria analysis summary for Section NS-5

	Retain existing	Option NS-5UB	Option NS-5B
Description	Bike lanes on outside of parking	Protected cycle lanes each side	Bi-directional cycle facility north side
Weighted Score	0.4	0.4	0.5
Rank	2	2	1

Option NS-5B (bi-directional cycle facility) received the highest score overall due to providing improved cyclist/ micro-mobility user safety and better alignment with other planned works. Retaining existing would not improve cyclists/ micro-mobility user safety or convenience but would align well with Mass Rapid Transit. Option NS-5UB (protected cycle lanes each side) scored well for improved cyclist/ micro-mobility safety and convenience but scored poorly for retaining high priority parking because it would remove all parking from the street.

Preferred option

The preferred option for Bunny Street east is to **retain the existing layout** with bike lanes on the outside of parking. The reason for this is that discussions with stakeholders highlighted the importance of Bunny Street east for pedestrians crossing to and from Wellington Station. It was therefore agreed that the aspiration for Bunny Street east would be a shared street where only local access traffic would be permitted. Due to the overlaps with Let's Get Wellington Moving Mass Rapid Transit programme it was agree that implementing a shared street fitted better within the Let's Get Wellington Moving Programme.

Section NS-6: Lambton Quay

The current situation for Lambton Quay between Whitmore Street and Bunny Street is shown in Figure 42.

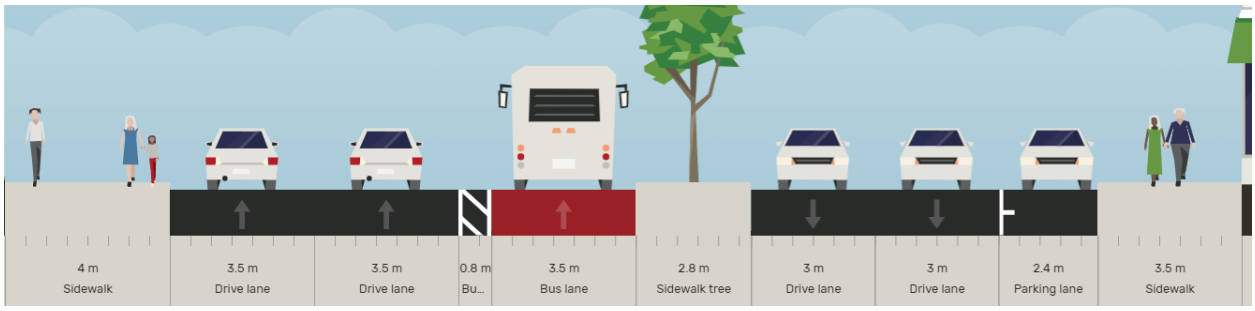

Figure 42: Section NS-6 – existing cross section

Two options were assessed in the MCA for Section NS-6. A summary of results is provided in Table 10. The options considered were:

- NS-6UB – Protected cycle lane northbound, shared lane southbound (Figure 43). Note: cyclists would enter the northbound cycle lane from the Lambton Quay/ Bowen St/ Whitmore St intersection
- NS-6BA – bi-directional cycle facility east side (Figure 44)
- NS-6BB – bi-directional cycle facility west side (Figure 45)

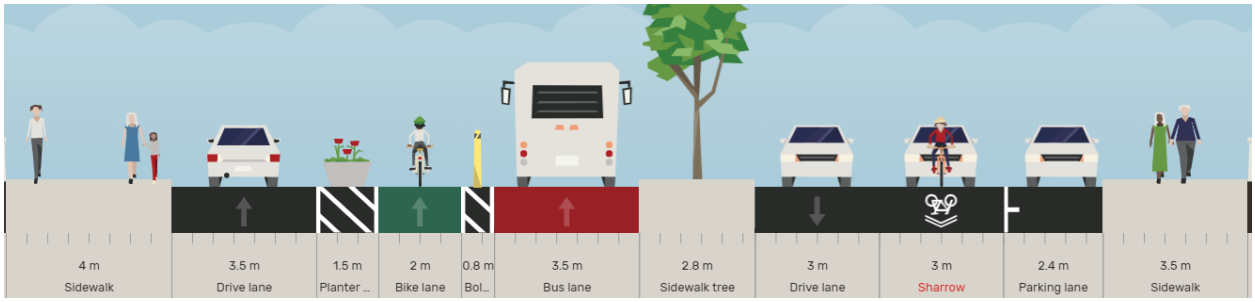

Figure 43: Option NS-6UB – Protected cycle lane northbound, shared lane southbound

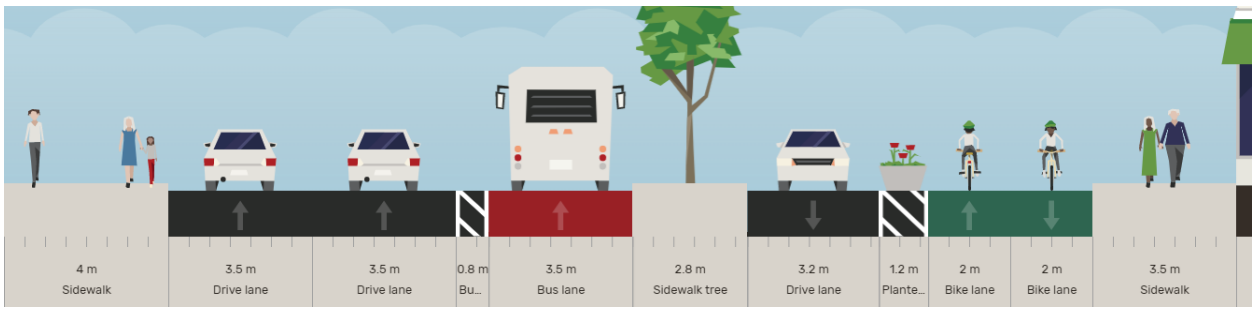

Figure 44: Option NS-6BA – bi-directional cycle facility east side

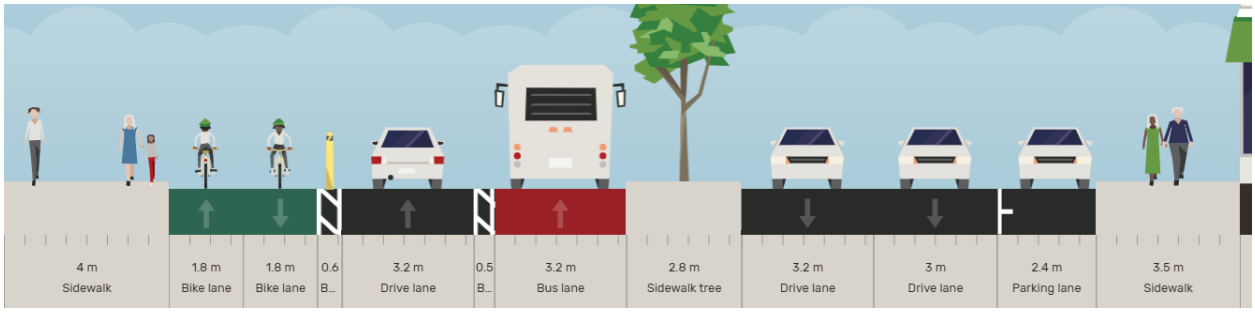

Figure 45: Option NS-6BB – bi-directional cycle facility west side

Table 10: Multi criteria analysis summary for Section NS-6

	Option NS-6UB	Option NS-6BA	Option 6BB
Description	Protected cycle lane northbound, shared lane southbound	Bi-directional cycle facility east side	Bi-directional cycle facility west side
Weighted Score	0.7	0.5	0.4
Rank	1	2	3

Option NS-6UB received the best score during the MCA. However, if the parking scores are excluded, options NS-6UB and NS-6BA rank the same. The key difference between the parking scores is that Option NS-6BA requires removal of about 70m of parking that is paid parking for most of the day but functions as a bus stop for school services in the morning peak.

Preferred option

Option NS-6BA is the preferred option because it seamlessly ties into the proposed bi-directional cycling facility on Lambton Quay south of Whitmore St. This is because it is logical for cyclists to be able to continue along Lambton Quay on a continuous bi-directional cycleway rather than needing to change facility types at Whitmore St. In discussions with the Let's Get Wellington Moving it was confirmed that construction timing of Golden Mile and Thorndon Cycleways projects could be aligned. The alignment of dates means that an interim layout for Lambton Quay north of Whitmore St is not required.

Summary of outcomes

Table 11 provides a summary of the preferred options from the MCA.

Table 11: Summary of multi criteria analysis outcomes

Section	Preferred option
EW-1 Tinakori	EW-1C – minor safety improvements only
EW-2 Hill	EW-2B – minor safety improvements
EW-3 Aitken	EW-3A – buffered cycle lane on outside of parking
EW-4 Pipitea	EW-4C – minor safety improvements
NS-2/3 Molesworth / Mulgrave	NS-2UA/3UB/3BA protected cycle lanes both directions with bidirectional facility on part of Molesworth Street
NS-4 Bunny west	Existing shared street
NS-5 Bunny east	Existing bike lanes on outside of parking
NS-6 Lambton	Option NS-6BA - bi-directional cycle facility east side

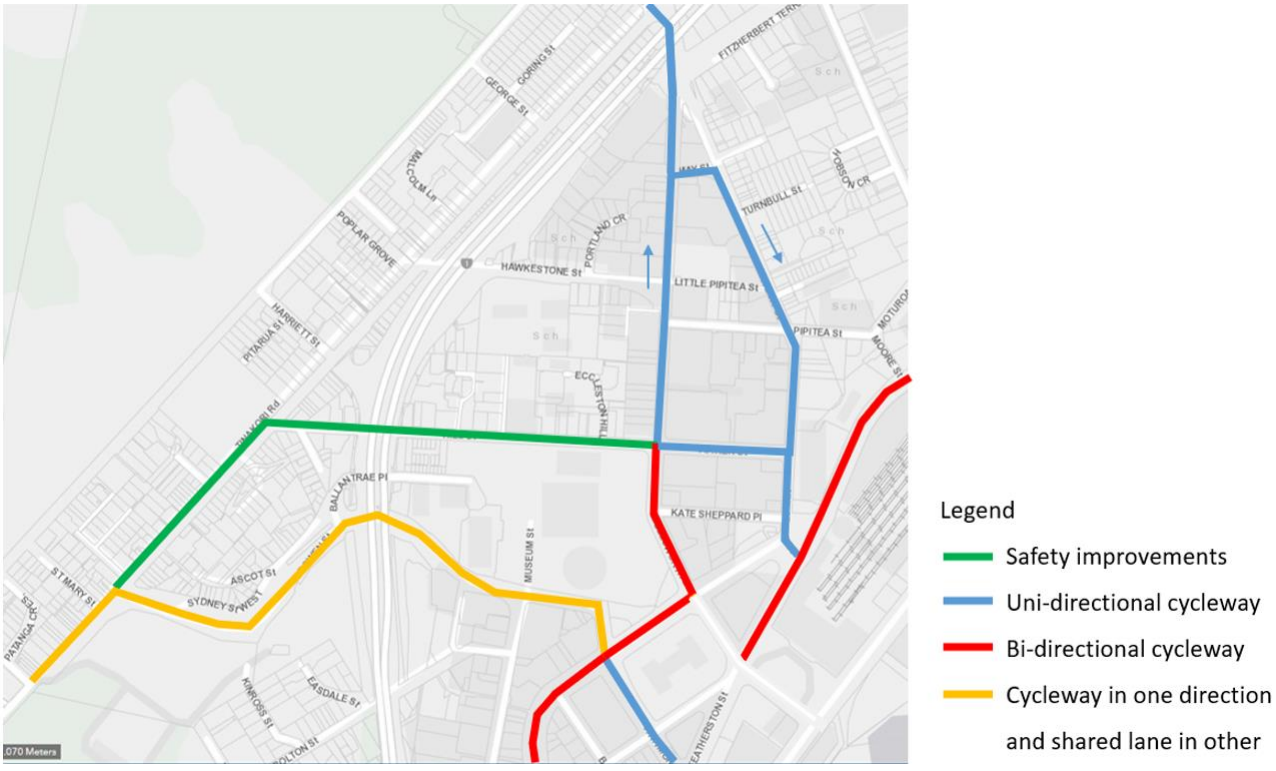

Figure 46: Cycleways network map with Golden Mile and Thorndon Quay Hutt Road projects completed

Appendix A – Long list to short list

Section	Long list option	Progressed to short list and MCA?
EW-1 Tinakori Road	EW-1 Do nothing	No – no improvement for bike users
	EW-1A – uphill protected cycle lane	Yes
	EW-1B – uni-directional protected cycle lanes	Yes
	EW-1C – minor safety improvements only	Yes
EW-2 Hill Street	EW-2 Do nothing	No – no improvement for bike users
	EW-2A – uphill protected cycle lane	Yes
	EW-2B – minor safety improvements only	Yes
EW-3 Aitken Street	EW-3 Do nothing	No – no improvement for bike users
	EW-3A – unprotected cycle lane outside parking	Yes
	EW-3B – bi-directional cycle facility on the north side	No – not consistent with movements at either end of the street – would require complex signal arrangements
	EW-3C – protected cycle lane both sides	Yes
	EW-3D – minor safety improvements only	Yes
EW-4 Pipitea Street	EW-4 Do nothing	No – no improvement for bike users
	EW-4A painted uni-directional cycle lanes	Yes
	EW-4B – protected bi-directional bike lane + convert to one-way road	Yes
	EW-4C – minor safety improvements only	Yes
NS-2/3 Molesworth, Murphy, Mulgrave Street	NS-2/3 Do nothing	No – no improvement for bike users
	NS-2UA/3UB protected cycle lanes in each direction	Yes
	NS-3BA bi-directional cycle facility on Molesworth full-length	Yes
	NS-2UA/3UB/3BA protected cycle lanes both directions with bidirectional facility on part of Molesworth Street	Yes
	Mulgrave / Murphy Street options: • NS-2UA shared bus / bike lane • NS-2B bi-directional bike facility	No – the above three options were chosen by the project team to proceed to the short-list assessment.

	Molesworth Street options: • NS-3UA – narrow protected bike lane with substandard traffic lanes and full-time parking one side • NS-3UC shared bus / bike lane • NS-3BB bi-directional bike facility with one traffic lane and full-time parking one side	
NS-4 Bunny Street west	NS-4 Do nothing	Yes
	NS-4A - shared lane westbound, narrow painted cycle lane eastbound	Yes
	NS-4B - shared lane westbound, protected cycle lane eastbound	Yes
NS-5 Bunny Street east	NS-5 Do nothing	Yes
	NS-5UA – protected cycle lanes against median	No – not consistent with movements at either end of the street – would require complex signal arrangements
	NS-5UB – protected cycle lanes each side	Yes
	NS-5UC – minor safety improvements only	Yes
NS-6 Lambton Quay	NS-6 Do nothing	No – no improvement for bike users
	NS-6UA – Protected cycle lane northbound, unprotected lane southbound	No – only very short length and encourages bikes to ride adjacent to parallel parking
	NS-6UB – Protected cycle lane northbound, shared lane southbound	Yes
	NS-6BA – bi-directional cycle facility east side	Yes
	NS-6BB – bi-directional cycle facility west side	Yes
	NS-6UB – Protected cycle lane northbound, shared lane southbound	Yes

Appendix B – Multi criteria analysis tables

- Multi criteria analysis criteria and scoring application
- Scoring scale
- Section EW1 - Tinakori Road MCA ranking
- Section EW2 - Hill Street MCA ranking
- Section EW3 - Aitken Street MCA ranking
- Section EW4 – Pipitea Street MCA ranking
- Section NS2/3 - Molesworth – Mulgrave MCA ranking
- Section NS4 - Bunny Street (west) MCA ranking
- Section NS5 - Bunny Street (east) MCA ranking
- Section NS6 - Lambton Quay MCA ranking

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https://wellington.govt.nz/parking-roads-and-transport/transport/cycling

Scoring scale

Score	Benefits/disbenefits
3	Significantly achieves
2	Moderately achieves
0	Neutral
-1	Slightly reduces
-2	Moderately reduces
-3	Significantly reduces

Design Objectives

Objectives	Consideration	Weight	Weight
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	20%	40%
	Improved convenience for people cycling and using micro-mobility devices	20%	
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	10.0%	15.0%
	Improved convenience for people walking and using mobility devices	5.0%	
3. Improve travel time of public transport	Improved travel time of PT compared with private vehicles	15%	15%
4. Provide high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	7.5%	15.0%
	Mitigate parking impact (ie, provide car share, etc)	7.5%	
5. Enable benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	5%	10%
	Ability to deliver quickly / less disruption compared to a typical project	5%	
6. Improve the place amenity in the area	Improved urban amenity	5.0%	5%
	Total weights	100%	100%

MCA criteria and scoring application

Criteria	Consideration	Facilities Measure	Comment	Example of scoring application						
				-3	-2	-1	0	1	2	3
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	Austroads Safe Systems Assessment cycling product		Reduction in SSA of 21 or more	Reduction in SSA of 11-20	Reduction in SSA of 4-10	No change	Improvement in SSA of 4-10	Improvement in SSA of 11-20	Improvement in SSA of 21 or more
	Improved convenience for people cycling and using micro-mobility devices	Austroads LOS Framework for cyclists and extent of protcted facility and how well the type of facility aligns to any existing and planned adjacent cycle infrastructure (including access to facilities)	Refer to Dutch Design Manual for Bicycle Traffic, section 4.3. Consider not only cohesion and directness, but also comfort and cxattractiveness.	Less efficient route, more difficult to pass slow cyclists, significantly slower and less comfortable.			No change			Easier, faster, more enjoyable.
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	Austroads Safe Systems Assessment pedestrian product		Reduction in SSA of 21 or more	Reduction in SSA of 10-20	Reduction in SSA of 4-10	No change	Improvement in SSA of 4-10	Improvement in SSA of 11-20	Improvement in SSA of 21 or more
	Improved convenience for people walking and using mobility devices	Assessment of available pedestrian space		Removal of existing pedestrian path, removal of pedestrian crossing facility		Bus stop bypasses impact footpath width at some locations	No change			Wider footpaths, increased pedestrian crossing priority and reduced delays at crossings
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	Traffic capacity relative to public transport. Improvements such as bus jumps at intersections, bus stop rationalisation, bus stop layout improvements, as well as changes that reduce traffic lanes and increase general traffic time. Where a cycle lane crosses through the bus stop this would likely reduce travel time as bus passengers take longer to alight and disembark.		Traffic capacity increased relative to PT			No change or equal reduction in travel time		Bus priority at intersections, reduced traffic capacity	Bus stop rationalisation, bus priority at intersections, reduced traffic capacity
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	Alignment with WCC Parking policy primary and secondary success measures. Increase or decrease in loading provisions for businesses	Need to assess impact of different type of parking using hierachy from policy. Eg. Removing mobility parking worse than commuter parking	Significant loss of high priority parking.		Loss of low-priority parking only	No change	Not used	Not used	Not used
	Mitigate parking impact (ie, provide car share, etc)	Provide alternatives.	Consider car park sharing, as well as car sharing parks, etc.	Not used	Not used	Not used	No change	Some loss of parking and ability to convert <10 parks from low-priority to high-priority parking	Some loss of parking and ability to convert >10 parks from low-priority to high-priority parking	No loss of parking and ability to convert low-priority to high-priority parking
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	Considering current and upcoming planned works recorded in open Corridor Access Requests (CARs), within the Wellington Forward Works Viewer and references by the project team.		Cycle priority will have to be removed to allow implementation of other planned works along the corridor with no ability to retain continuous cycle provision during construction			No known works along route			Changes will make it easier to implement other planned works along the corridor whilst maintaining good LOS for sustainable modes
	Ability to deliver quickly / less disruption compared to a typical project	Scale of works required, any consenting or external approval requirements, lead times for key components or contracting staff		Lengthy project duration / high level of disruption for a road-space reallocation project			Typical project duration / disruption for a road-space reallocation project			Short project duration / minimal disruption for a road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	Available space for place function enhancements such as street trees, seating, parklets, cycle parking (avoid hostile architecture) Separation of transportation modes (e.g. footpath, cycle lane, vehicle lane) Increase of biodiversity and habitat improvements for overall climate action response	Needs to be strategically assessed across entire CBD area and demographic development. "Place function enhancements" will differ from sub-urb to sub-urb, and the required space needing changes based on that	Reduction of available pedestrian space and footpaths, no use of sur-plus car-parks, increase of private vehicle use by increasing enabling structures (e.g. more car parks) and de-creasing public open spaces, increase of carbon footprint by not challenging "status quo", missed opportunities of community engagement and therefore loss of spatial quality	Identifying spatial opportunities (e.g. sur-plus car parks) but not following up on actions,	Identifying spatial opportunities (e.g. sur-plus car parks) but poorly executed spatial arrangement (e.g. min space requirement and accessibility standards) based on national and local govt regulations	No change	Find suitable spaces and improve their function/use and overall access, assess all existing functions, start creating an urban spatial network (e.g. key areas - what is missing, what is required for that space based on demographic and private/public use)	Link spatial elements, have a suite developed that identifies opportunities, Use of GNP (green network plan) and other strategic plans/policies (e.g. WSD, Wellington Design Manual)	Clear functional hierarchy of transportation modes (e.g. footpath, cycle lane, vehicle lane) and their intented use, widen footpaths/pedestrian areas to increase public open space, connect/link public spaces to create POI's, identify and use sur-plus vehicle areas to increase amenity spaces, provide exterior furniture elements for space enhancement, increase use of green elements (e.g. trees) with suitable foliage (provide shadow and cooling in summer, keep warmth during winter), assign clear functions to spaces, locate space enhancements in close proximity to public amenities (e.g. toilets, bus-stops), look at principles of the 15min city, look at principles of "livability"

Section EW1 - Tinakori Road

Criteria	Consideration	Options			Comments
		EW-1A – uphill protected cycle lane	EW-1B – uni-directional protected cycle lanes	EW-1C – minor safety improvements only	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	2	2	0	Reduced crash likelihood with protected cycle facilities
	Improved convenience for people cycling and using micro-mobility devices	1	2	0	Significant improvement in both directions for 1B and in one direction for 1A
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	1	Reduced crash likelihood with safety improvements
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-2	-3	0	Refer assumptions
	Mitigate parking impact (ie, provide car share, etc)	0	0	0	No opportunities to convert low-priority parking to high-priority parking nearby
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	1	1	0	Known works include the Botanic Gardens to Waterfront transitional cycleway project, all options are consistent, EW-1A is the most consistent in terms of form of treatment
	Ability to deliver quickly / less disruption compared to a typical project	2	2	2	Minor works for all options compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.60	0.73	0.20	
RANK		2	1	3	

Section EW2 - Hill Street

Criteria	Consideration	Options			Comments
		EW-2A – uphill protected cycle lane	EW-2B – minor safety improvements only	not used	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	1	0		Improved safety for cyclists but currently low crash risk Score for EW-2A manually increased (outside SSA process) to account for percieved safety benefit
	Improved convenience for people cycling and using micro-mobility devices	1	0		No significant improvements for convenience Score for EW-2A manually increased (outside Bike LOS process) to account for percieved attractiveness benefit
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	-1	0		Improved pedestrian safety with minor safety improvemnts but currently low crash risk Score for EW-2A manually decreased (outside SSA process) to account for percieved safety disbenefit associated with removal of some sections of build-outs at crossing locations
	Improved convenience for people walking and using mobility devices	0	0		No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0		No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-2	0		Loss of some high-priority and all low-priorty parking in option EW-2A
	Mitigate parking impact (ie, provide car share, etc)	0	2		Opportunities in some options to replace low priority (coupon parking) with higher priority parking (e.g. car-share)
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	0		No known works on this section
	Ability to deliver quickly / less disruption compared to a typical project	2	2		Minor works for all options compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0		No significant differences between options
SCORE		0.25	0.25		
RANK		1	2		

Section EW3 - Aitken Street

Criteria	Consideration	Options			Comments
		EW-3A – buffered cycle lane outside parking	EW-3C – protected cycle lane both sides	EW-3D – minor safety improvements only	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	1	2	0	Removal of angle parking + protected facilities reduces crash likelihood Score for EW-3A and EW-3C manually increased (outside SSA process) to account for percieved safety benefit
	Improved convenience for people cycling and using micro-mobility devices	1	1	0	No significant improvements for convenience Score for EW-3A and EW-3C manually increased (outside Bike LOS process) to account for percieved attractiveness benefit
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	2	Reduced crash likelihood with safety improvements
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-1	-1	-1	No loss of high or medium priorty parking, low priority (paid parking) loss in all options (more loss in option EW-3A/3C)
	Mitigate parking impact (ie, provide car share, etc)	0	0	1	Opportunities in some options to replace low priority (paid parking) with higher priority parking (e.g. car-share)
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	-1	0	Known projects on this section include the temporary relocation of bus layover parks to the west side of the road, this is not consistent with option EW-3C - however, this is a short term project (~6 months)
	Ability to deliver quickly / less disruption compared to a typical project	3	3	2	Paint and dividers only for EW-3A and EW-3C, minor works for EW-3D compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.5	0.6	0.3	
RANK		2	1	3	

Section EW4 - Pipitea Street

Criteria	Consideration	Options			Comments
		EW-4A – painted uni-directional cycle lanes	EW-4B – protected bi-directional bike lane + convert to one-way road	EW-4C – minor safety improvements only	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	0	0	0	Improved safety for cyclists but currently low crash risk
	Improved convenience for people cycling and using micro-mobility devices	1	1	0	Exclusive facilities improve convenience
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	2	Reduced crash likelihood with safety improvements
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-2	-1	0	Loss of all parking for option 4A (majority low priority paid parking but also includes two diplomatic parks), loss of half of parking for option 4B, no change assumed for 4C
	Mitigate parking impact (ie, provide car share, etc)	0	1	3	No opportunity with 4A, some opportunity with 4B and most opportunity (and no loss of parking) with 4C
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	0	0	No known works on this section
	Ability to deliver quickly / less disruption compared to a typical project	2	1	2	Minor works for options 4A and 4C compared to a typical road-space reallocation project, 4B more complex than other options due to conversion to one-way road and bi-directional facility
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.2	0.3	0.5	
RANK		3	2	1	

Section NS2/3 - Molesworth - Mulgrave

Criteria	Consideration	Options			Comments
		NS-2UA/3UB protected cycle lanes in each direction	NS-3BA bi-directional cycle facility on Molesworth full-length	NS-2UA/3UB/3BA protected cycle lanes both directions with bidirectional facility on part of Molesworth Street	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	2	0	2	Reduced crash likelihood with protected cycle facilities, option NS-3BA increased crash likelihood with bi-directional facility on grade
	Improved convenience for people cycling and using micro-mobility devices	1	1	1	Dedicated facility in both directions for all options BLOS scoring differentiates first and last option above middle option
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	0	No change for pedestrians
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	All options potential remove one lane in one or both directions which will equally disadvantage buses and other vehicles
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-1	-1	-1	All high-priority parking able to be maintained (off-peak) and significant loss of low-priority (paid) parking in all options
	Mitigate parking impact (ie, provide car share, etc)	2	2	2	Opportunities in all options to replace low priority (paid parking) with higher priority parking (e.g. car-share)
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	0	0	Known projects on this section include the temporary relocation of bus layover parks to the south side of the road (Hill Street to Lambton Quay), all options can be made to work with the proposed bus layovers
	Ability to deliver quickly / less disruption compared to a typical project	2	2	2	Minor works for all options compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.8	0.4	0.8	
RANK		1	3	1	

Section NS4 - Bunny Street (west)

Criteria	Consideration	Options			Comments
		NS-4A - shared lane westbound, narrow painted cycle lane eastbound	NS-4B - shared lane westbound, protected cycle lane eastbound	Retain existing	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	0	1	0	Improved safety for cyclists but currently low crash risk Score for NS-4B manually increased (outside SSA process) to account for percieved safety benefit
	Improved convenience for people cycling and using micro-mobility devices	1	1	0	More convenient than current route (via Kate Shepard)
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	0	No change for pedestrians
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-1	-3	1	Removal of low-priority parking (bus stop not used by in-service buses) in both options and high-priority mobility parks in option NS-4B
	Mitigate parking impact (ie, provide car share, etc)	1	1	1	Opportunity to relocate high priority parking to Stout Street or Lambton Quay or replace paid parking in those locations with car-share or similar
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	0	2	Known works include the Wellington Bus Station upgrade, LGWM Thorndon Quay and Featherston Street projects (at the east end). Retaining existing aligns the best with Wellington Bus Station works
	Ability to deliver quickly / less disruption compared to a typical project	2	2	2	Minor works for all options compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.3	0.4	0.4	
RANK		3	1	2	

Section NS5 - Bunny Street (east)

Criteria	Consideration	Options			Comments
		NS-5UB – protected cycle lanes each side	Retain existing	NS-5B – bi-directional cycle facility north side	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	1	0	1	Reduced crash likelihood with protected cycle facilities
	Improved convenience for people cycling and using micro-mobility devices	1	0	1	Improvement for 5UB by separating from manouvering vehicles
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	-1	Reduced crash likelihood with safety improvements (NS-5UC) Increased crash likelihood with bi-directional facility (NS-5B)
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No change (no bus routes in this section)
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-2	2	-1	All parking removed in option NS-5UB, including high and low priotiy parking
	Mitigate parking impact (ie, provide car share, etc)	1	1	1	Opportunity to relocate high priority parking to Featherston Street or Waterloo Quay or replace paid parking in those locations with car-share or similar
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	2	1	Known works include the LGWM Thorndon Quay, Featherston Street projects (at the west end) and Mass Rapid Transit. Retaining existing aligns best with Mass Rapid Transit
	Ability to deliver quickly / less disruption compared to a typical project	2	2	2	Minor works for all options compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.4	0.4	0.5	
RANK		2	3	1	

Section NS6 - Lambton Quay

Criteria	Consideration	Options			Comments
		NS-6UB – Protected cycle lane northbound, shared lane southbound	NS-6BA – bi-directional cycle facility east side	NS-6BB – bi-directional cycle facility west side	
1. Improve safety, accessiblity and convenience for people cycling and using micro-mobility devices	Improved safety for people cycling and using micro-mobility devices	2	2	2	Reduced crash likelihood with protected cycle facilities
	Improved convenience for people cycling and using micro-mobility devices	1	1	0	Minor improvements - refer BLOS details
2. Improve safety, accessiblity and convenience for people walking and using mobility devices	Improved safety for people walking and using mobility devices	0	0	0	No change for pedestrians
	Improved convenience for people walking and using mobility devices	0	0	0	No significant differences between options
3. Improve bus speed and reliabilty	Improved travel time of PT compared with private vehicles	0	0	0	No significant impacts with option NS-6BA, options NS-6UB and NS-6BB both remove one lane northbound which will equally disadvantage buses and other vehicles heading up Molesworth Street
4. Retain high priorty parking and mitigate parking impact	Retain high priority parking for businesses and residents where essential (e.g., mobility parking)	-1	-3	-1	Loss of high-priority parking (bus stops) in NS-6BA, loss of bus stop not used by in service bus stops (low priority) in other options
	Mitigate parking impact (ie, provide car share, etc)	0	0	0	No opportunities to convert low-priority parking to high-priority parking nearby
5. Enables benefits to be delivered quickly with minimal disruption	Alignment with other planned works in the road corridor	0	1	-1	Known works include the Botanic Gardens to Waterfront transitional cycleway project and the LGWM Golden Mile project. NS-6BA is the most consistent with the Golden Mile project and NS-6BB is the least consistent
	Ability to deliver quickly / less disruption compared to a typical project	3	2	2	Paint and dividers only for NS-6UB, minor works for NS-6BA and NS-6BB compared to a typical road-space reallocation project
6. Improve the place amenity in the area	Improved urban amenity	0	0	0	No significant differences between options
SCORE		0.7	0.5	0.4	
RANK		1	2	3	