Transport Planning and Design
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Middle Renwick Road, Blenheim

Proposed cycle facilities

Report prepared for

Marlborough District Council and Marlborough Roads

October 2020

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1 Introduction

ViaStrada has been engaged by Marlborough District Council and Marlborough Roads to consider options for implementing cycle facilities on Middle Renwick Road from Westwood Avenue to the Battys Road/Murphys Road roundabout (inclusive of these intersections), in the Springlands area of Blenheim, as shown in Figure 1-1.

Figure 1-1: Middle Renwick Road study area (source: www.openstreetmap.org)

There are currently on-road cycle lanes marked on the carriageway on Middle Renwick Road to the east of Battys Road and at the Westwood Ave roundabout.

Middle Renwick Road forms part of the State Highway (SH6) network managed by Waka Kotahi NZ Transport Agency providing a connecting to SH1 (Picton and Christchurch to the east) and Havelock and the west coast to the west.

1.1 ViaStrada project team

The ViaStrada staff involved on this project:

- Warren Lloyd, project leader and technical lead
- Gemma Dioni; technical and report writing assistant
- Jon Ashford; data analysis and scheme design.

1.2 Report format

The report considers strategic alignment, the existing network conditions and demands, the existing crash risk and trends within the crash data, and a review of the accuracy and relevance of data used.

- Describes the background context and data related to the existing area
- Describes the proposed options for the area when considered from a holistic approach; and
- Assess the various options and make recommendations for a preferred option.

2 Existing conditions and future demands

2.1 Current context

It is predominantly residential land use fronting Middle Renwick Road (SH6) in the study area as shown in Figure 2-1 . There are motels and a petrol station also along this route. At the western end, Middle Renwick Road, it is mainly newly developed large format retail, with additional land in this area zoned for future development. There are larger high schools to the east, in addition to local shops on the south side of Middle Renwick Road. There are likely to be residents in this area making local trips to and from the shops, schools and into central Blenheim, which is located to the southeast.

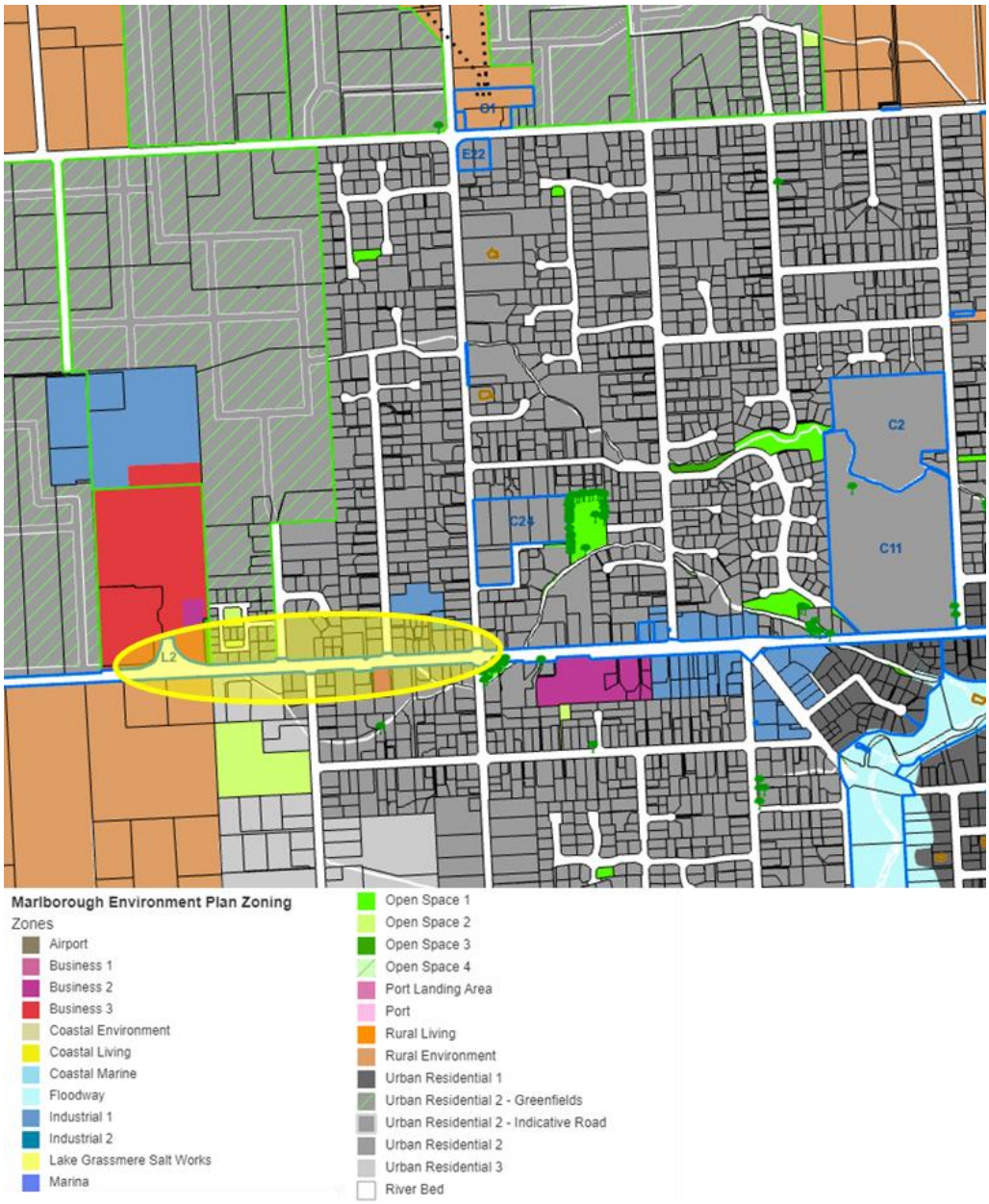


Figure 2-1: Land-use and property zoning along Middle Renwick Road (Source: Marlborough District Council)

2.2 Pedestrian facilities and demands

Walking is a healthy and affordable choice of transport. Safe, attractive and connected walking facilities will make walking an even more inviting choice. Connectivity to local shops, education, parks, and medical services within a neighbourhood means that the community has the option to travel on foot locally and reduce the need for motorised vehicles trips and reduce the need to make longer distance trips.

Figure 2-2: Pedestrian crossings on Middle Renwick Road

The local pedestrian network generally provides good access around the community, with the main road and local streets having footpaths on both sides. There are some crossing points provided relatively close to the roundabout intersections and there is one mid-block pedestrian island close to the western end. The crossings on the south and east approaches are well back from the intersection and most pedestrians are likely to cross on their desire line without the assistance of a formal crossing facility. There are no crossing facilities between Rose Street and Battys Road as shown in Figure 2-2.

2.3 Cycle facilities and demand

Figure 2-3 shows an extract from the Marlborough District Council GIS page that illustrates the cycle network in this area of Blenheim.

This shows that there are gaps in the network along Middle Renwick Road. On-road cycle lanes are provided to the east of Battys Road, and there are some on and off-road facilities at the new SH6/Westwood Avenue roundabout. There are off-road facilities through some reserves and to the southeast is the Taylor River Reserve and Shared Pathway. The off-road paths are shown as blue and yellow dashed lines in Figure 2-3.

Figure 2-3: Cycle facilities within and around Middle Renwick Road (Source: Marlborough District Council)

There is limited cycle count data available[1]. In this case the Strava heatmap can be used to highlight the more popular routes. Figure 2-4 shows that, within the area, Middle Renwick Road, and Battys Road are well used cycle routes.

Figure 2-4: Cycle usage on different streets (Source: Strava)

Adams Lane and the Taylor River Reserve shared paths are shown to be well used routes and therefore, connections to these routes should be considered.

[1] Cycle counts were completed between 14 Nov - 8 Dec 2019, and show an average daily count of 26 cyclists, with a peak of 46 cyclists in one day. The count site suggests that these are cyclists leaving Blenheim, heading towards Woodbourne and Renwick.

2.4 Public transport & School buses

For people wanting to travel by public transport to the Springlands area, there are two routes that use Middle Renwick Road.

Figure 2-5: Public transport routes using Middle Renwick Road (Source: Marlborough District Council)

Whilst on-road cyclists would be sharing the carriageway with buses, there are no bus stops in this section of Middle Renwick Road.

2.5 General traffic demand

Middle Renwick Road is part of the State Highway Network and as such is classified as a regional route (SH1 is a national route). It is a two-lane road with a flush median and parking lanes (total carriageway width varies but is approximately 13.5 m).

Figure 2-6: One Network Road Classification

There are three side roads that connect onto Middle Renwick Road, all of which are classified as access roads. Westwood Avenue at the western end is unclassified and maybe a private road servicing the new development only, until any future connections are made. At the eastern end Battys Road and Murphys Road which connect at the roundabout are classified as arterial (Battys) and primary collector (Murphys).

There is permanent traffic counter located on SH6 at the Springlands Shopping Centre. Although not directly on Middle Renwick Road, the flow profile is considered applicable. The data provided by Waka Kotahi shows that in general SH6 carries an average of 15,000 vehicles per day (VPD). There are peak volumes occurring in April with the wine harvest and a summer build up to Christmas, starting in November.

This can be seen on the day rolling average chart, provided in Appendix A.

- April around 16,000 VPD
- November to Christmas around 16,000 - 18,000 VPD

There is around 9-10% Heavy Goods Vehicles (HGV's) on this route. Data extracted from the One Network Road Classification and Mobile Roads shows that side roads such as Murphys Road and Battys Road carry around 3,000 VPD with 6% of the traffic comprising heavy goods vehicles.

In summary, Middle Renwick Road is an arterial road that carries higher volumes of traffic with a large proportion of HGV's, it is a bus route and a well-used cycle route.

2.6 Traffic speeds

The actual sign posted speed for this section of Middle Renwick Road is 50 km/h. The speed limit changes from 50 km/h to 100 km/h to the west of the Westwood Avenue.

Data extracted from NZTA's "MegaMap" risk management database (based on TomTom data) illustrates that mean operating speed on SH6 is at or above the posted speed limit sign particularly in the western section of the study area. The safe and appropriate speed is shown to be 50 km/h however, the section immediately east of Westwood Avenue is still showing the previous 100 km/h safe and appropriate speed which presumably predates the Westwood development.

Figure 2-7: Mean Operating Speed and Safe & Appropriate Speed (source: MegaMap)

Any proposals to include cycle lanes should consider addressing the higher speeds along this section of the route to ensure any active user facilities are more attractive to those traveling by bicycle or on foot.

2.7 Parking

On-street parking is restricted along Middle Renwick Road by marked no stopping lines. Parking occupancy data has been provided by Marlborough District Council to indicate the parking capacity and occupancy. There are six separate parking zones (see reference Key in Table 2-1) that were surveyed for parking occupancy, as shown in Figure 2-8.

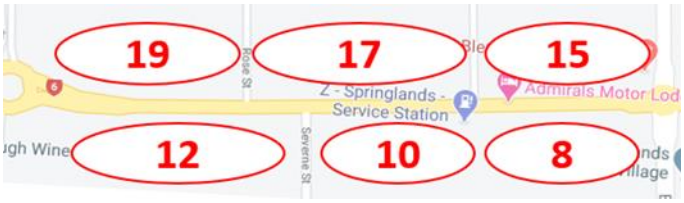


Figure 2-8: Parking survey zone locations

A weekday survey between 7:00 am to 7:00 pm (12 hours) on 24th June 2020 captured the parking demand. As shown in Table 2-1 the weekday demand is low with only 8 vehicles recorded in the 56 spaces available on the northside and 37 spaces available on the south side.

A weekend survey between 7:00 am to 7:00 pm (12 hours) on 11th July 2020 also showed that parking demands from Westwood Avenue to Battys Road roundabout are overall low with 8 vehicles also recorded in the 93 spaces available.

This survey indicates the parking capacity for at least 8 vehicles is required to accommodate the expected parking demand.

Table 2-1: Parking occupancy results

						Weekday		Weekend	
Street	**Key**	**Side**	**From**	**To**	**Capacity**	**Highest Occupancy**	**Max. % Occupied**	**Highest Occupancy**	**Max. % Occupied**
Middle Renwick Road (SH6)	15	North side	Murphys	Adams	17	5	29.4%	2	11.8%
	17		Adams	Rose	25	2	8.0%	1	8.0%
	19		Rose	Westwood	14	1	7.1%	1	7.1%
	8	South side	Battys	Opposite Adams	14	4	28.6%	3	21.4%
	10		Opposite Adams	Severne	14	2	14.3%	1	7.1%
	12		Severne	Westwood Ave	9	2	22.2%	1	11.1%

Diagrams of parking capacity and occupancy can be found in Appendix B along with the raw data used to inform Table 2-1.

Also noted and recorded during the parking survey, cars were parked on the side of the road that were for sale and there was a trailer continuously parked for advertising overseas cruises. These activities are not permitted on State Highways and providing indented parking is not considered desirable to accommodate it. This is the reason that no indented carparking will be provided towards Westwood Avenue. Photos of vehicles for sale and advertising trailers can be seen in Appendix B, refer B.7.

2.8 Existing street trees

There are cherry trees (Prunus sp. And Prunus Kanzan) planted along the sides of Middle Renwick Road, see Figure 2-9. These trees provide aesthetic relief along the route, where there is no street front tree planting in the residential or reserve properties.

Figure 2-9: Cherry trees along Middle Renwick Road

3 Crash data and risk

3.1 Risk Ratings

MegaMap provides several different comparative risk assessments of road sections throughout New Zealand, based on crash data, traffic volumes, road features, and other attributes.

Figure 3-1: Collective Risk (Source: MegaMap)

Collective Risk is a measure of the total estimated DSI casualty equivalents per km for a road segment. It is effectively a measure of the number of deaths and serious injuries per km that can be expected on a road segment over the next five years. MegaMap does not identify any section on the

corridor in the study area that have a "high" collective risk in terms of safety as shown in Figure 3-1. The section that has the highest risk (medium) is from Severne Street to the Westwood Avenue roundabout and beyond.

Figure 3-2: Personal risk (Source: MegaMap)

Personal Risk is a measure of the risk of an individual dying or being seriously injured on a road corridor. It is calculated by dividing Collective Risk by traffic volume exposure. The whole section of Middle Renwick Road is identified with a Low-Medium personal risk, see Figure 3-2.

Another MegaMap risk assessment tool is the Infrastructure Risk Rating (IRR) which includes, land use, road stereotype, alignment, AADT, Intersection density, lane and shoulder width, roadside hazards and access density. The IRR adopts a (5) band risk rating and Middle Renwick Road is rated Low-Medium, see Figure 3-3

Figure 3-3: Infrastructure Risk Rating IRR (Source: MegaMap)

3.2 Crash data

All reported crashes along the Middle Renwick Road section were retrieved from NZTA's Crash Analysis System (CAS) for the five full years from 2015 to 2019 as shown in Figure 3-4. There were no pedestrian crashes recorded along the subject route.

Figure 3-4: All road user crashes

As can be seen in Figure 3-4, the Battys Murphys roundabout including approaches and departures has 16 crashes recorded. This roundabout is where all the cyclist crashes occurred, see Figure 3-5.

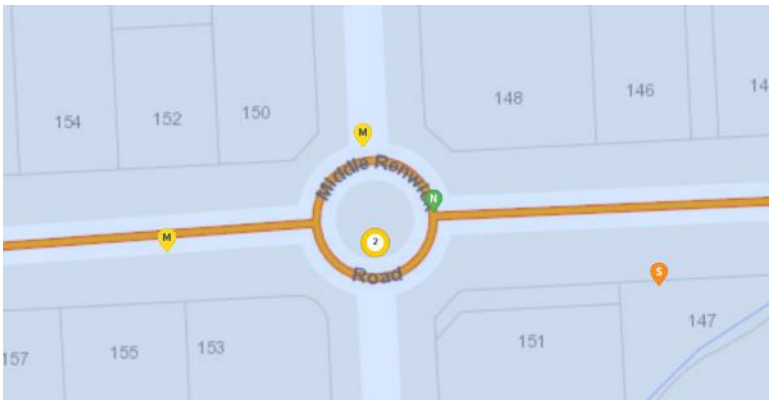


Figure 3-5: Vulnerable road user crashes (Battys/Murphys Roundabout)

Of the 16 crashes at the SH6/Battys/Murphys roundabout, 6 crashes involved vulnerable road users i.e. cyclists. For details of the roundabout crashes see C.2

These included crashes resulting in (1) serious injury, (4) minor injuries and (1) non-injury.

The serious injury crash involved a cyclist riding on the footpath on the southeast corner of the roundabout heading towards the zebra crossing with two young children riding to school. The cyclist failed to see a low sign due to sun strike and collided with underside of the sign.

Two minor injury crashes and the non-injury crash have occurred where drivers have entered the roundabout (Battys Road x 2 and Middle Renwick Road x1) and failed to give-way to cyclists travelling around the roundabout.

One crash recorded as a minor injury was a result of a cyclist failing to see a motorcycle travelling behind a car on the circulatory carriageway. The cyclist exited Murphys Road into the roundabout, subsequently the motorcyclist applied the brake to avoid the cyclist and fell off their motorcycle.

The remaining crash occurred on the west approach to the roundabout. A driver in a long queue extending back from the roundabout has indicated to turn left into a driveway and has failed to notice the cyclist on their left, travelling east towards the roundabout.

The road user crash data is provided in Appendix C.

3.3 Near miss data

Marlborough District Council has a repository for recording public reports od near miss crashes. There has only been the single near miss crash recorded which can be seen in Appendix C.4

4 Strategic Context

The strategic context of providing a buffered cycle lane facility along Middle Renwick Road fits within the policy and planning is described in Appendix D. The facility is specifically designed to accommodate to more confident rider which is appropriate for this route.

As presented in Section 7, see Figure 7-2, the provision of separated riding facilities for the interested but concerned riders is planned for other surrounding parts of the network. These future facilities can connect to the shared path of this project.

5 Target user

5.1 Enthused and confident

A review of the context of the area and the characteristics of the street, in addition to a review of the strategy, the target user for Middle Renwick Road is the enthused and confident, and the more confident riders within the interested but concerned users group, because in summary:

- The street is an arterial vehicle route with high volumes (over 12,000 VPD). It carries over 5% Heavy Goods Vehicles due to the strategic route status. This is where HGV's should be and not on the local road network.
- There are frequent driveways including high volume driveways at businesses.
- Is a well-used cycle route, likely to be used by confident cyclists.
- Is a bus route, althoughthere are no bus stops in this section.
- Has inconsistent road widths and cross-sections.
- Has limited pedestrians crossings.
- Has intersections including dual entry roundabouts that are unfavourable for journeys by bicycle

5.2 Interested but concerned

The route is not considered desirable or suitable for the interested but concerned users, because in summary;

- It would need significant infrastructure changes to the corridor to make it suitable for interested but concerned users and yet it would still have the issues of road noise, driveway risks etc, that can make riding unpleasant and include higher risks.
- It's not the sort of road environment interested but concerned users typically want to ride along.

Although the target user of the route is expected to stay on-road using the buffered cycle lanes, there are shorter links along the route where interested but concerned riders may want to ride. For example the future link between Severne Street and Westwood Avenue. There is also a possible future link betyween Springlands School / Murphys Road and Severne Street on a shared off-road path along Middle Renwick Road.

Based on the target user analysis the preferred treatment along Middle Renwick Road is on-road buffered cycle lanes with shorter sections of off-road shared path provided to complete links for the interested but concerned riders.

6 Stakeholder Engagement

Microsoft Teams meetings were held between Warren Lloyd (ViaStrada) and Braden Prideaux (Marlborough District Council) on 5 and 20 May for project scope discussion, project updates and parking survey briefing.

Microsoft Teams meetings was held between the ViaStrada project team, Braden Prideaux, and Andy High of Waka Kotahi NZ Transport Agency on 12 June to discuss project issues including:

- cross sections,
- preferred option rationale (safety Vs efficiency Vs parking)
- MCA criteria
- treatments of key intersections

Marlborough District Council and Waka Kotahi staff have provided feedback on the three options included in this report, see Section 9. To date, Waka Kotahi support option 2 that retains the flush median and some indented parking where there is identified demand.

Public consultation should be considered in the future to ensure residents and the wider community have an opportunity to have their say on the proposed cycle lanes.

7 Project outcomes

Considering all the background data above, and in considering good design principles for design cycle facilities, the following principles are recommended:

- Provide for existing users but with a focus on encouraging **new** users too (more confident riders within the Interested but Concerned group). Among this group would be residents and workers, people who are young and old, and may include those with assisted (e-)bicycles.
- Traffic **speed and volume** management are just as crucial as providing specific cycle facilities to improve the attractiveness and reduce stress when riding
- Address connections to side streets that may provide access to shopping facilities, schools and parks.

Five core design principles provide a blueprint for good outcomes for bicycle journeys and, in a broader sense, the concept of placemaking for neighbourhoods.

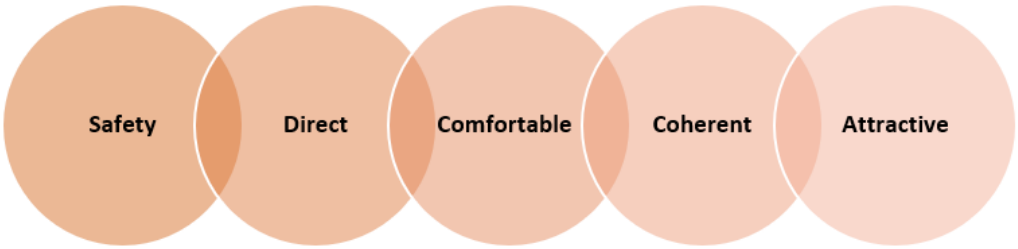


Figure 7-1: Core design principles

Consistency in treatments and application help to create a network for people to move around by bicycle that is easy to understand and for users to navigate their way.

Whilst the study area focuses on the section of Middle Renwick Road from Westwood Avenue to Battys Road/Murphys Road roundabout, it is important to consider the wider network of routes and facilities for overall network legibility. Whilst the cycle facility here is for a certain target user, some

sections of the overall corridor may not work for the Interested but Concerned user and so parallel shared path routes may be more suitable for this rider.

Figure 7-2 shows an overall approach for links for different users of the network. As a neighbourhood facility the retail offering at Westwood Avenue should be accessible for all residents in proximity so additional measures may be required to allow less confident riders the option to ride to the supermarket.

Figure 7-2: MDC Cycle Strategy with further possible routes for less confident riders

Note that the possible interested but concerned cycle routes shown along Middle Renwick Road in Figure 7-2 relate to off-road shared path options and does not include any on-road options, due to high traffic volume and speed.

Because of the traffic environment, buffered cycle lanes are proposed for the more confident on-road cyclists, with short sections of off-road shared path provided for less confident / experienced cyclists.

8 Buffered cycle lanes

The general design approach incorporates the thinking used to inform the proposed draft Waka Kotahi technical note for publication on buffered cycle lanes. ViaStrada has used their experience and expertise to collaborate in the development of the technical note and bring this knowledge to the Middle Renwick Road project. For the latest thinking on buffered cycle lanes, see Appendix E.3.1.

Using the existing data, traffic information, and the principles identified in Section 5 it is proposed that buffered cycle lanes be introduced along Middle Renwick Road for confident on-road cyclists.

Buffered cycle lanes comprise a conventional on-road cycle lane with a marked buffer between the cycle lane and moving traffic lane and/or parking lane. The use of the buffer can encourage people riding a bicycle to travel outside the door opening zone but can also increase the perception of safety by having something between the rider and the traffic lane. They also make it easier for drivers to pass cyclists at a safer distance.

The dimensions in Table 8-1 inform the possible combinations of elements for the different cross-section widths. In terms of overall design, there is potential to increase road user risk if all absolute minimums are provided on the cross-section.

Middle Renwick Road measures approximately 13.5 m from kerb to kerb and currently comprises parking lanes, traffic lanes and a flush median.

Table 8-1: Basic parameters for cross-section design

Key	Element	Desirable	Absolute min
	Parallel parking	2.0	2.0
	Cycle lane – kerbside	1.6	1.4
	Cycle lane – next to parallel parking	1.8	1.7
	Buffered cycle lane (excl. buffer)	1.9	1.7
	Cycle lane buffer	0.7	0.3
	General traffic lane	3.2	2.9
	Flush median (exc intersections)	2.0	2.0

9 Option development

Based on the existing conditions, crash history, strategic context, and the target user cyclist, three options have been developed for consideration. In all options it is proposed to incorporate a shared path from the Westwood Avenue roundabout to Severne Street to facilitate access to a local street that some riders may feel more confident to use than travelling along Middle Renwick Road.

The options considered by the project team are included in Appendix F.

9.1.1 Option 1

Option 1 provides buffered bike lanes within the existing kerb to kerb width and retains the flush median. It is not possible to accommodate on-street parking also with these cross-section elements.

This option will be relatively low cost as it requires minor removal of existing road markings and many of the new markings can align with the existing.

9.1.2 Option 2

Option 2 provides buffered bike lanes within the existing kerb to kerb width and retains the flush median. The flush median is propsoed to be reduced in width from Option 1 and some on-street car parking can be provided with indented parking bays with some localised widening.

This option will be the highest cost as it requires kerb and channel works associated with the indented parking and removal of much of the existing road markings as not many of the new markings align with the existing.

One of the consequences of option 2 is that providing indented parking results in having to remove some of the existing street trees.

9.1.3 Option 3

Option 3 provides buffered bike lanes within the existing kerb to kerb width but it is proposed to remove the flush median to accommodate on-street car parking within the existing kerb to kerb width. This results in parking be provided, without the cost of constructing indented parking bays.

This option will be relatively low cost as it requires removal of existing road markings and some of the new markings align with the existing.

10 Multi-criteria analysis

The Multi-criteria analysis looks at all the different considerations for each different option, including

- design context
- community and stakeholder interest
- project costs and programme risk

As discussed in Section 7 considering good design principles for designing cycle facilities, design context considers safety, comfort, directness, coherence and attractiveness.

The summary tables are provided below with the overall MCA table provided in Appendix G. The MCA was undertaken for two locations within Section 1, to reflect the different environment and context. These are shown below. Location 1A extends from the Westwood Avenue roundabout to Severne Street and 1B extends from Rose Street to the Battys/Murphys roundabout.

Figure 10-1: Locations for MCA

Table 10-1: Design Context

	Design Context (55%)				
	Safety	Comfort	Directness	Coherence & Connectivity	Attractiveness and Social Safety
	* Safety along route for users * Relative conflict with other road users: pedestrians; residents; traffic * Higher volume driveways/turning vehicles	* users experience *perceptions of risk; *impacts from other traffic noise; CO_2 *cycleway width, level of protection, obstacles, gradient	* Time and distance to travel * Easy to recognise route * Limited changing of facility types * Few complicated manoeuvres	* Good match to: ***local schools ***shops ***parks ***other public spaces/buildings	* Cycling experience and amenity. * Lighting levels
Location 1a & 1b					
Option 1	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Option 2	✓	✓✓	✓✓✓	✓✓✓	✓✓✓
Option 3	✓	✓	✓✓✓	✓✓✓	✓✓✓

Community and stakeholder interests appraise factors that look at the effects on those directly affected, or overall effects on the transport network.

Table 10-2: Community and stakeholder Interest

	Community & Stakeholder Interest (30%)		
	Business/ Schools	**Residents**	**Network Effects**
	* Effects on access * Changes to on-street parking and loading	* Access to properties * Changes to on-street parking	* Effect of changes to arterial corridor? * Public transport routes affected? * Effect on operational & maintenance costs? (waste collection etc)
Location 1a			
Option 1	✓✓✓	✓✓✓	✓✓✓
Option 2	✓✓✓	✓✓✓	✓✓✓
Option 3	✓✓✓	✓✓✓	XX
Location 1b			
Option 1	-	X	✓✓✓
Option 2	-	✓	✓✓✓
Option 3	-	✓✓	XX

Option 3 scored poorly in the network effects as it proposes the removal of the flush median. The flush median allows vehicles to wait clear of through traffic om the State Highway so if it was removed, through traffic would need to wait behind turning vehicles. If drivers choose not to wait

behind a turning vehicle, they may use the cycle lane space to pass and could come into conflict with people riding in the facility and therefore affect safety of users. This is also the case where a drier may stop suddenly to make a turn and a following driver may not have time to react resulting in a rear end collision.

Lastly, project costs and programme risks look at the different costs and issues that could delay the implementation of the scheme. Collectively these factors assist the project team in determining a preferred option to discuss with the community.

Table 10-3: Project Cost and Programme Risk

	Project Costs and Programme Risks 25%	
	Cost Risks	**Programme Risks**
	Increased costs due to: * Physical works (K&C) *Property purchase *Complicated facilities (Budget Risk)	Programme delays due to: *Land/property acquisition *Legal processes - consents (Timing Risk)
Location 1a & 1b		
Option 1	✓✓✓	✓✓✓
Option 2	X	✓
Option 3	✓✓✓	✓✓✓

The preferred option includes the buffered cycle lanes, the shared path link between Westwood Avenue and Severne Street, some indented car parking to accommodate the demand that were identified in the on-street parking survey.

11 Preferred Option

It is proposed to implement buffered bicycle lanes, a continuous 2.5 – 2.8 m wide flush median (width varies to achieve consistent traffic lane widths and tie into existing right turn bays) and some indented parking along Middle Renwick Road from Westwood Avenue to the Battys Road/Murphys Road roundabout. This completes a gap in the on-road cycle network and improves the road environment for people travelling on-road by bicycle.

There are also two short sections of off-road shared path proposed for the interested but concerned riders that may not want to ride on Middle Renwick Road.

The proposed layout plan is included in Section 11.3 and plans of the revised option 2 following RCA feedback can be viewed in Appendix H.

11.1 Parking

There are 12 parking spaces proposed along the north side and 13 parking spaces proposed along the south side of Middle Renwick Road. The provision of 25 spaces along this section of Middle Renwick road exceeds the measured parking demand of 8 cars parked during the weekday and weekend surveys undertaken by Marlborough District Council earlier in 2020.

Table 11-1: Parking provision

Street	Zone	Side	From	To	Capacity	Weekday Highest Occupancy	Weekend Highest Occupancy	Parking provision
Middle Renwick Road (SH6)	15	North side	Murphys	Adams	17	5	2	7
	17		Adams	Rose	25	2	1	5
	19		Rose	Westwood	14	1*	1*	0
	8	South side	Battys	Opposite Adams	14	4	3	6
	10		Opposite Adams	Severne	14	2	1	7
	12		Severne	Westwood Ave	9	2^	1^	0

* Trailer parked all day advertising travel
^ Cars parked all day that were advertised 'for sale'

The removal of parking from Middle Renwick Road will remove the lane marking ambiguity for all road users. As seen in Figure 11-1, an on-road cyclist departing from the Westwood Ave roundabout, in the cycle lane is confronted by parked vehicles, in the green coloured and marked cycle lane. However, there are no more cycle symbols marked along this lane and some people feel comfortable parking here, although many park here for business, see appendix B.7.

Figure 11-1: Parking in cycle lane or cycling in parking lane

11.2 Street trees to be removed

This option does require the removal of 5 street trees and care has been taken to maximise parking provision while minimising tree removal. Indented parking has been provided where trees have been identified with an average 'environmental condition'[2]. The parking is to be provided in blocks where more cars can fit into a space provided.

Table 11-2: Summary of indented parking and street trees

Indented parking	No of parks	No of trees	Species	Tree Condition	Environmental Condition
North side	5	2	Prunus sp.	All Good	All Average
South side	7	3	Prunus Kanzan	1 Good, 2 Average	All Average

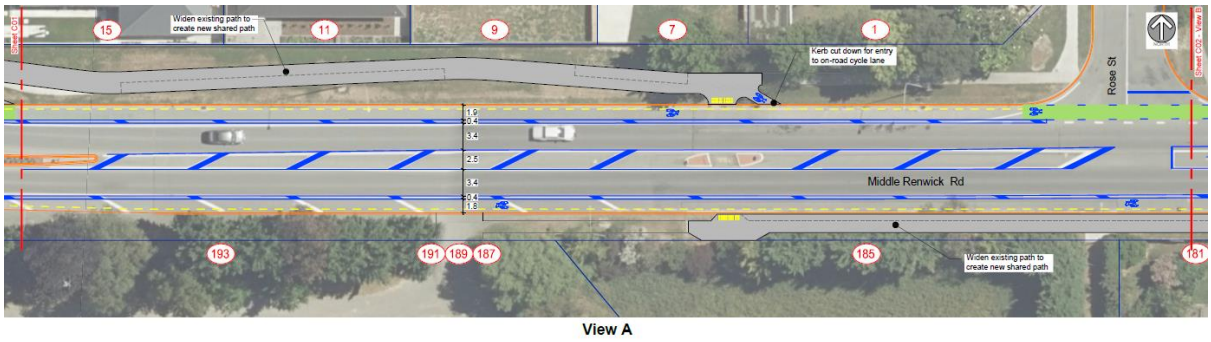
Figure 11-2 shows the three cherry trees along the south side of Middle Renwick Road that would be removed with option 2. These three trees are dwarfed by the trees in the adjacent property and their removal will have minimal impact on the street scape.

Figure 11-2: Cherry trees along south side of Middle Renwick Road

[2] Information provided by Marlborough District Council

11.3 Proposed layout

Figure 11-3: Westwood Avenue roundabout



View A

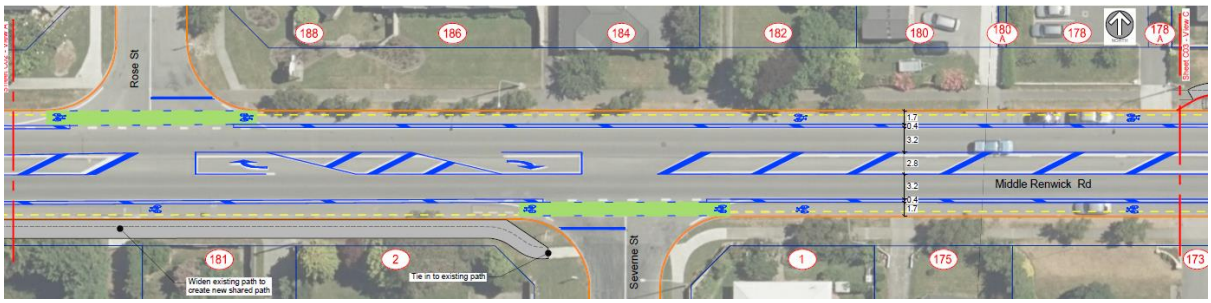
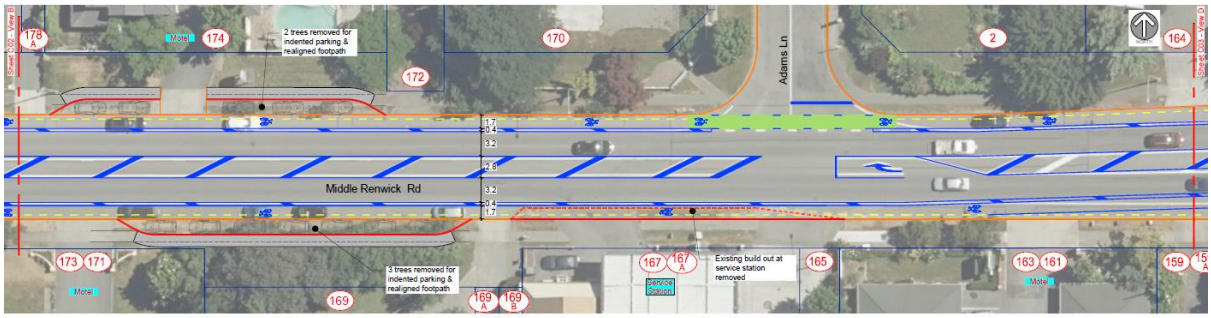


Figure 11-4: Mid-block section from Westwood Avenue



View C

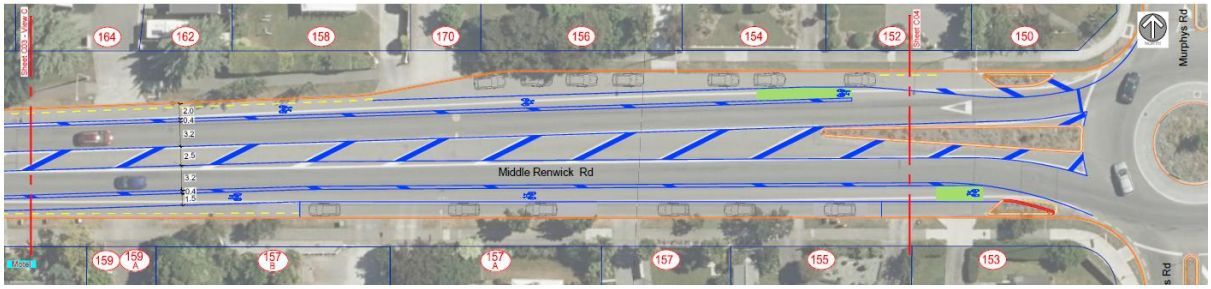


Figure 11-5: Mid-block section to Battys Murphys roundabout

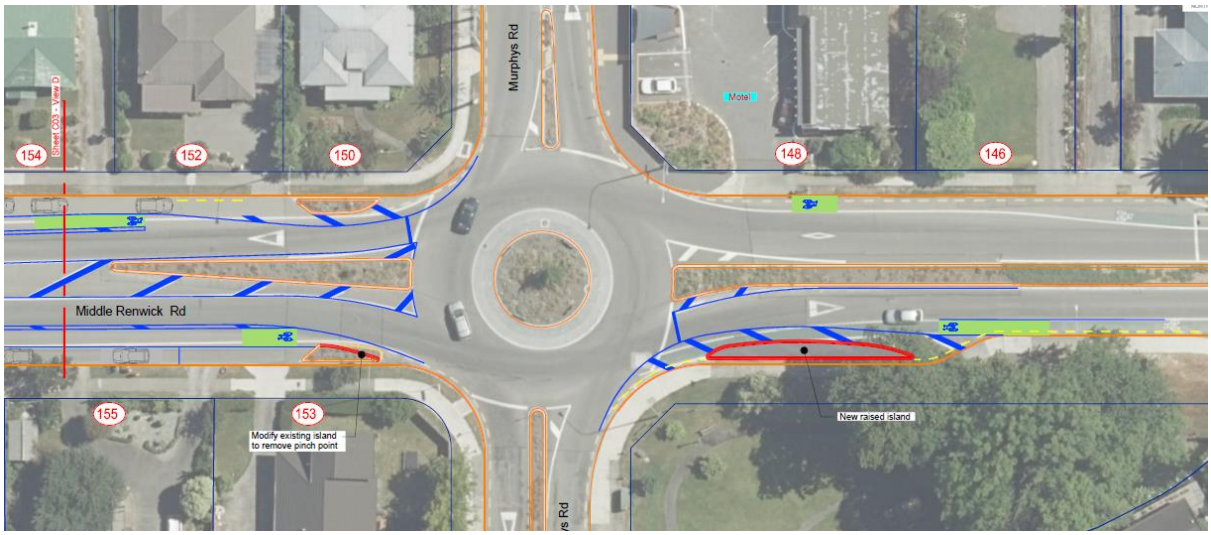


Figure 11-6: Battys Murphys roundabout

11.4 Proposed cross-sections

The proposed cross-sections are shown below.

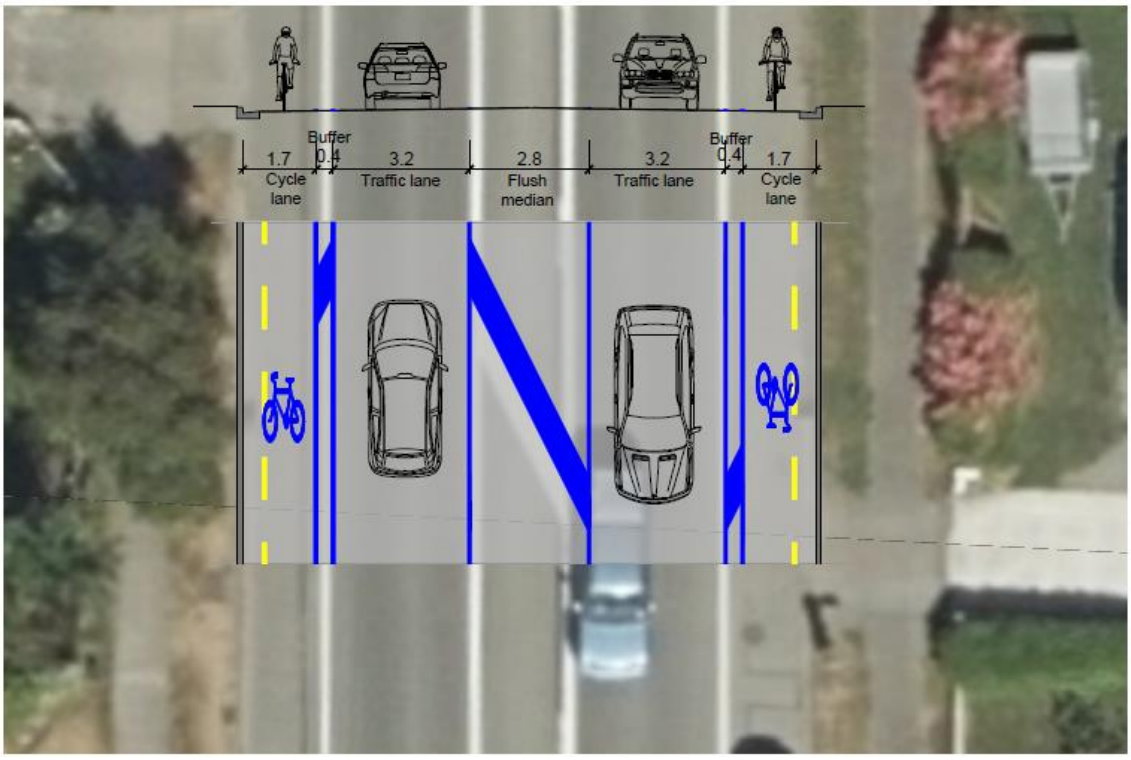


Figure 11-7: Proposed cross-section for where there is no on-street parking

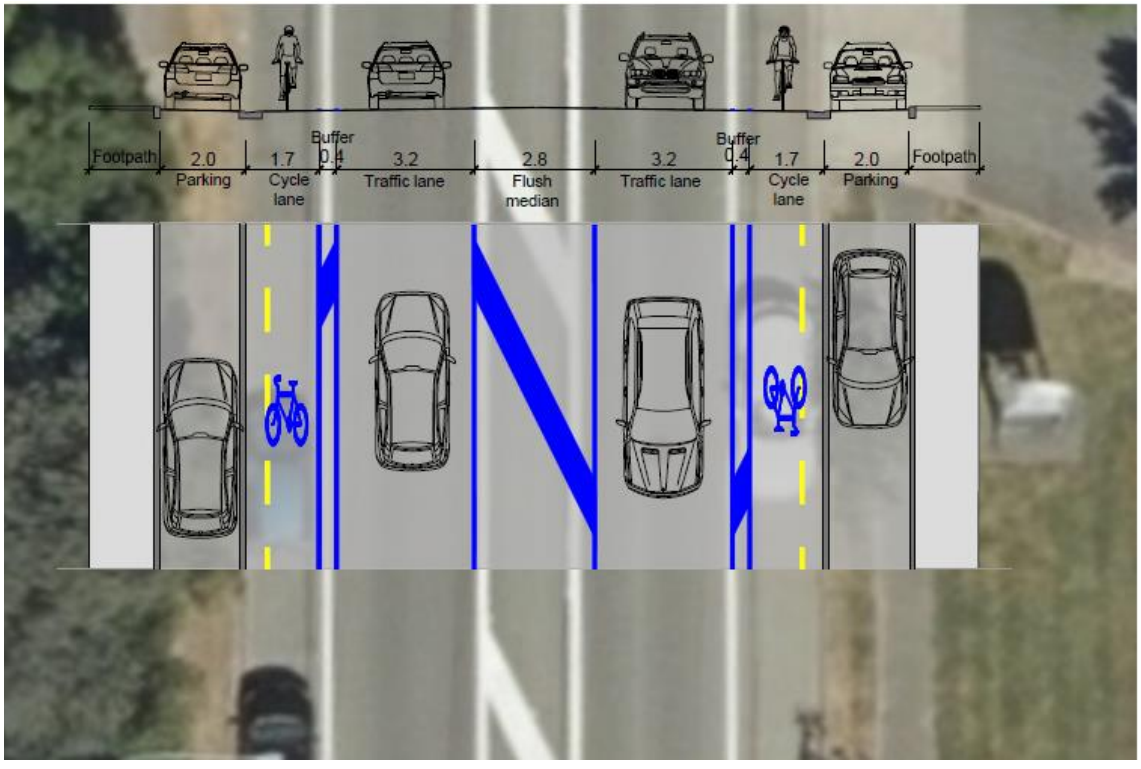


Figure 11-8: Proposed cross-section for where there is indented parking

11.5 Next Steps

11.5.1 Safety audits

It is best practice to have scheme proposals assessed through a Safety Audit. This should occur prior to public consultation.

11.5.2 Public consultation

It is recommended that the plans be provided to the community for public consultation.

12 Services and rough order costs

Details about services are provided in Appendix I. The have been services identified that will require surface modification, these are included in ancillary costs and identified on the plans. The rough order cost (ROC) contingency is 25% or $80,000 for unexpected discovery.

The overall cost to deliver the project is estimated to be under $460,000 as shown in Table 12-1. This amount does not include professional fees for project management, contract administration and supervision, as some of these services may be provided in-house.

Table 12-1: Summary of costs

VIASTRADA TRANSPORT PLANNING AND DESIGN

NZ TRANSPORT AGENCY — Marlborough Roads

Middle Renwick Road Cycle facilities Scheme Design ROC Estimate

Project: ***1124-10***
Date: ***1/08/2020***
Prepared: ***JA***
Reviewed: ***WL***

Construction costs

Item			Amount
Preliminary & General		$	10,000
Shared path & cycle path (All 75mm conc)		$	58,773
Kerb		$	23,060
Road		$	17,500
Parking indents inc footpath		$	63,750
Road Marking		$	77,100
Traffic Signs		$	7,400
Landscape		$	12,425
Ancillary Costs		$	9,900
Traffic management		$	38,100
Construction Cost	**Total**	**$**	***318,100***
Contingency	25%	**$**	***79,600***
Construction Estimate		**$**	***397,700***

Other fees

Item			
General project management (3%)		$	9,600
Professional fees (safety audit)		$	8,000
Contract administration & supervision (14%)		$	44,600
Total		**$**	***62,200***
TOTAL PROJECT ESTIMATE		**$**	***459,900***

The more detailed breakdown of the ROC is included in Appendix J.

13 Additional project considerations

In developing options for this section of road, there are further improvements that could be made to improve connectivity an accessibility that are outside of the scope but could contribute to improved access and mobility options around the neighbourhood. These are included in Appendix L.

14 Appendices

The following information in these appendices support and validates the buffered cycle lane option along this section of Middle Renwick Road.

Appendix A **Traffic Volumes from Waka Kotahi**

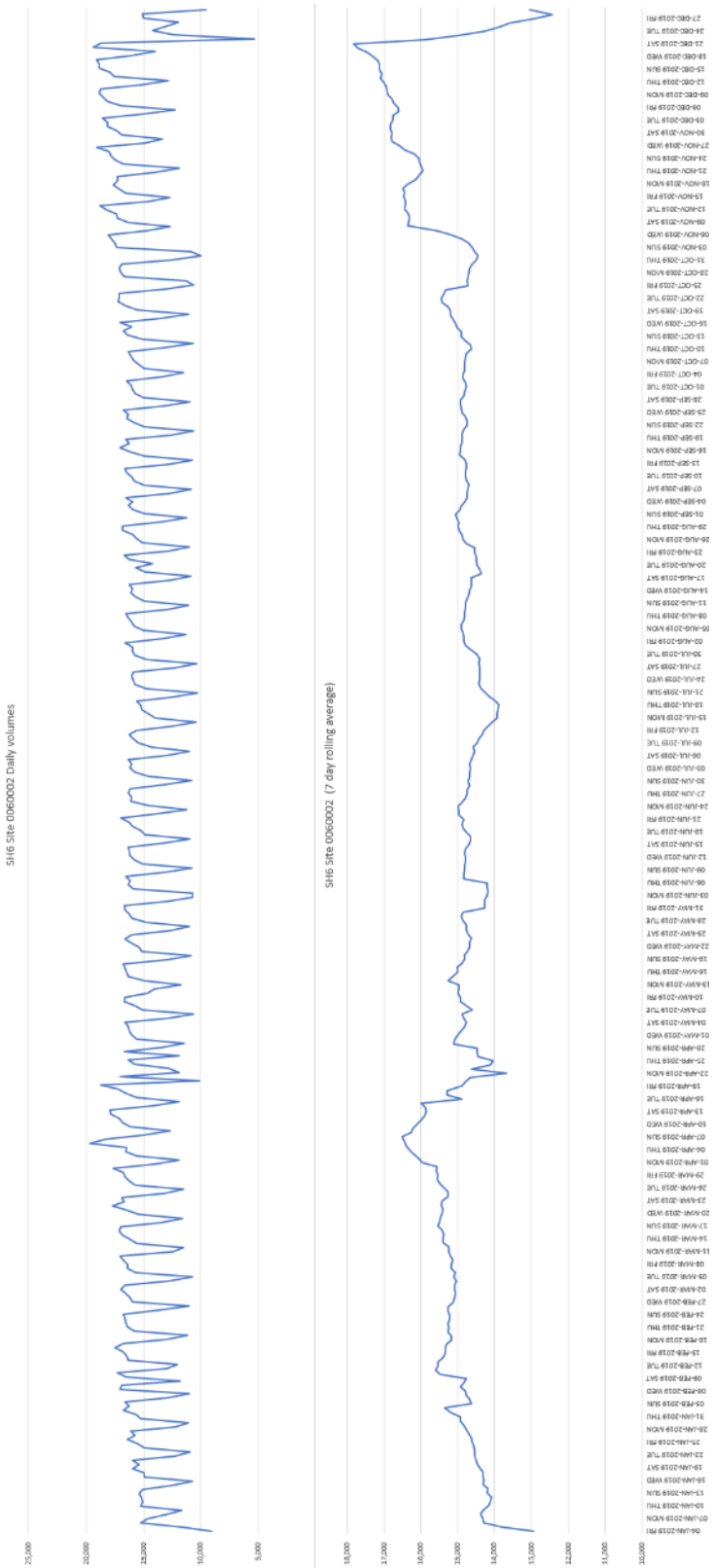


Figure 14-1: Middle Renwick Road Daily and 7 day rolling average traffic volumes

Appendix B **Parking**

The parking results from the Councils parking survey for the Middle Renwick Road study are is broken into 3 Zones for presentation in this appendix.

B.1 Weekday parking - Zone 1

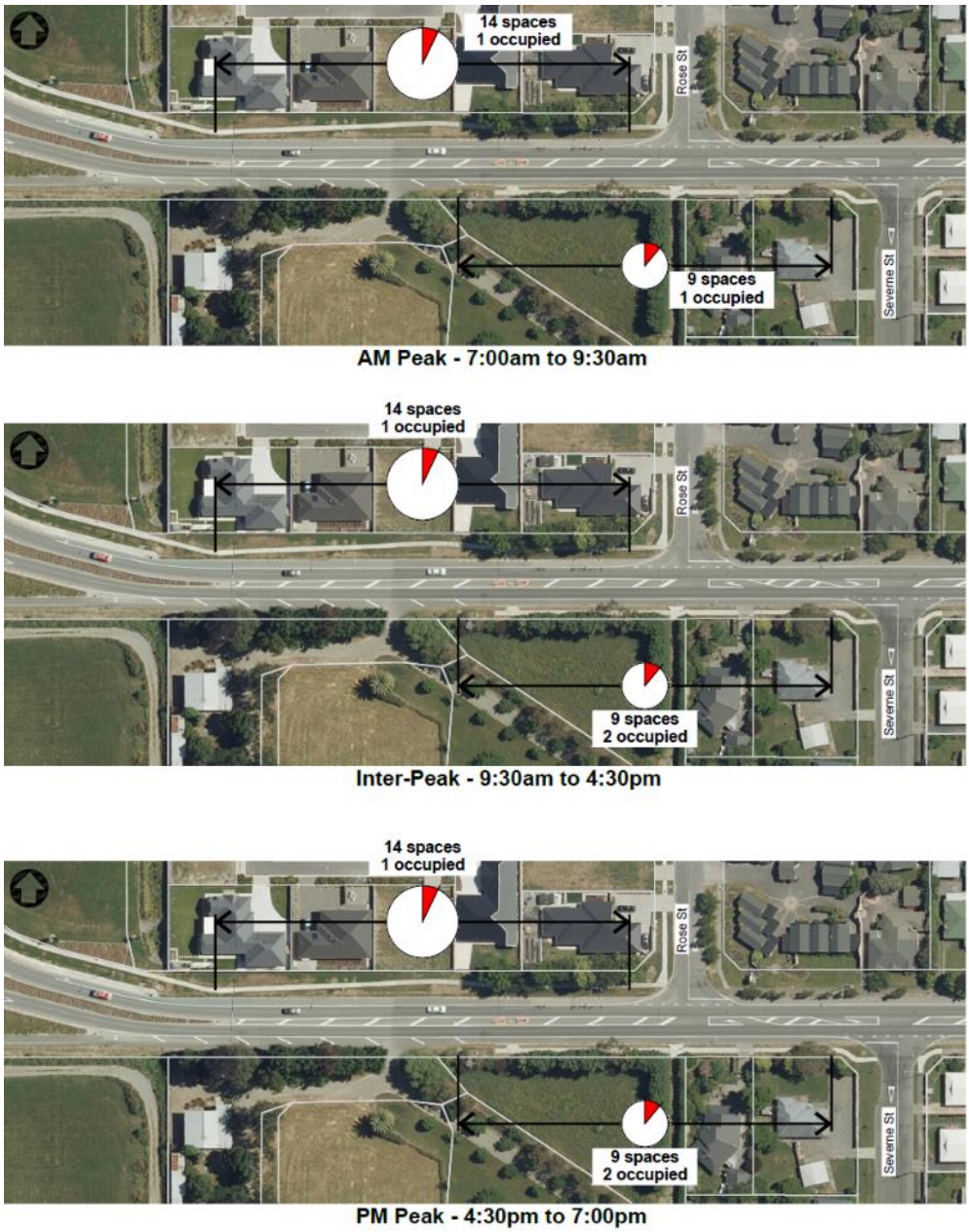
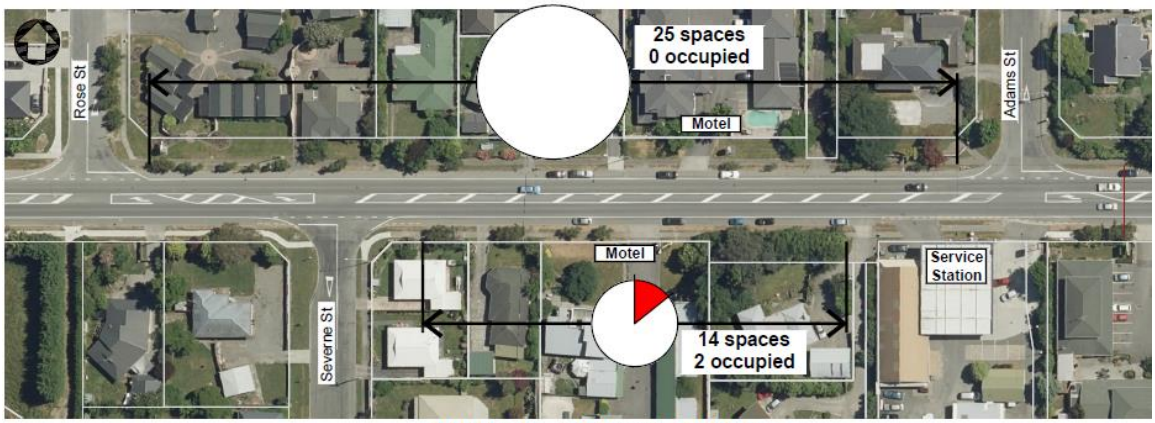


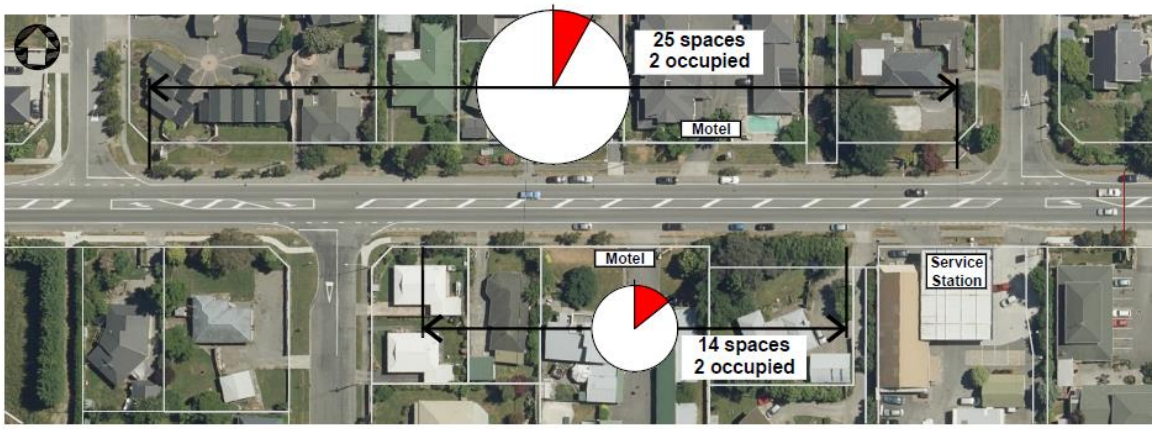
Figure 14-2: Section 1 Parking occupancy

The survey for Zone 1 at the western end of the study area showed that there was no change throughout the survey in terms of demand, with only two of the 23 spaces being used throughout the day. It is noted that this higher than the occupancy shown on the LINZ aerial photograph below (taken summer 2017/18 at an unknown time of day) with no cars parked in the 23 spaces available.

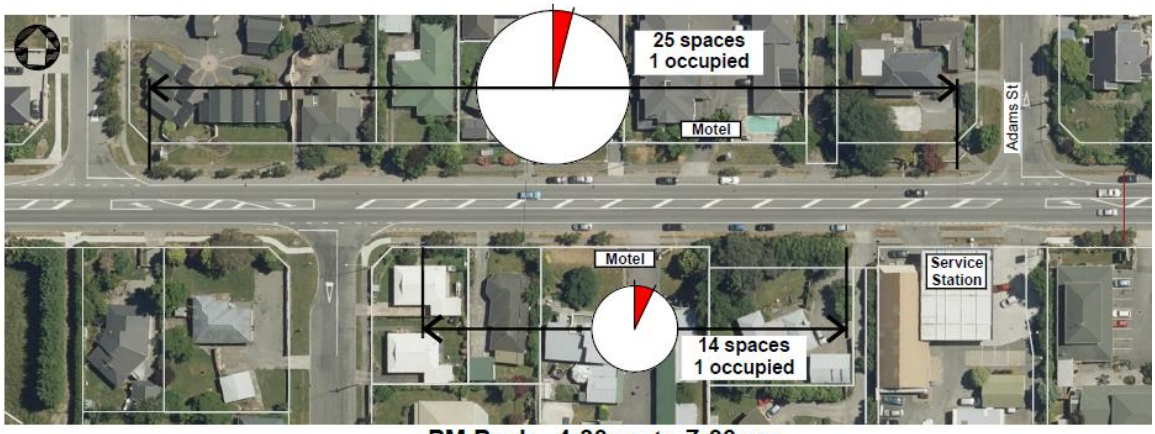
B.2 Weekday parking - Zone 2



AM Peak - 7:00am to 9:30am



Inter-Peak - 9:30am to 4:30pm

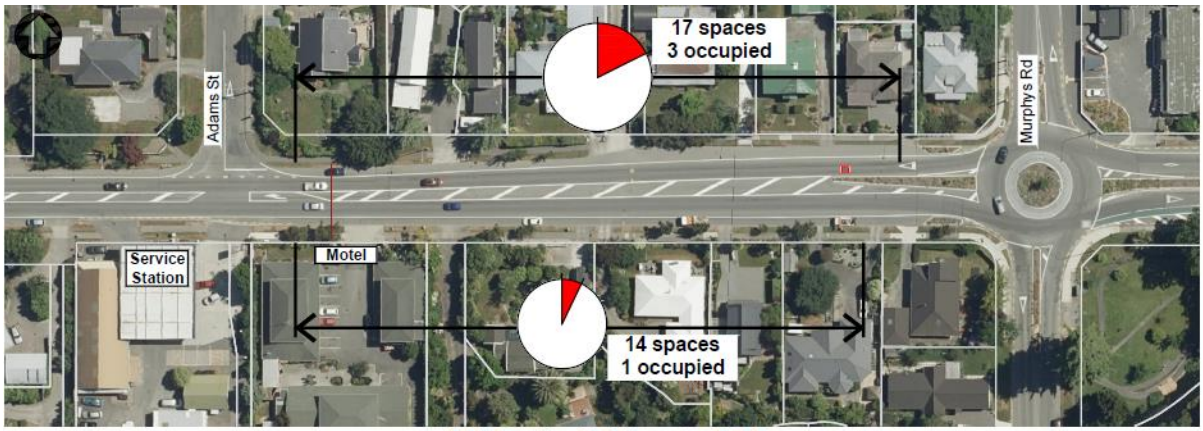


PM Peak - 4:30pm to 7:00pm

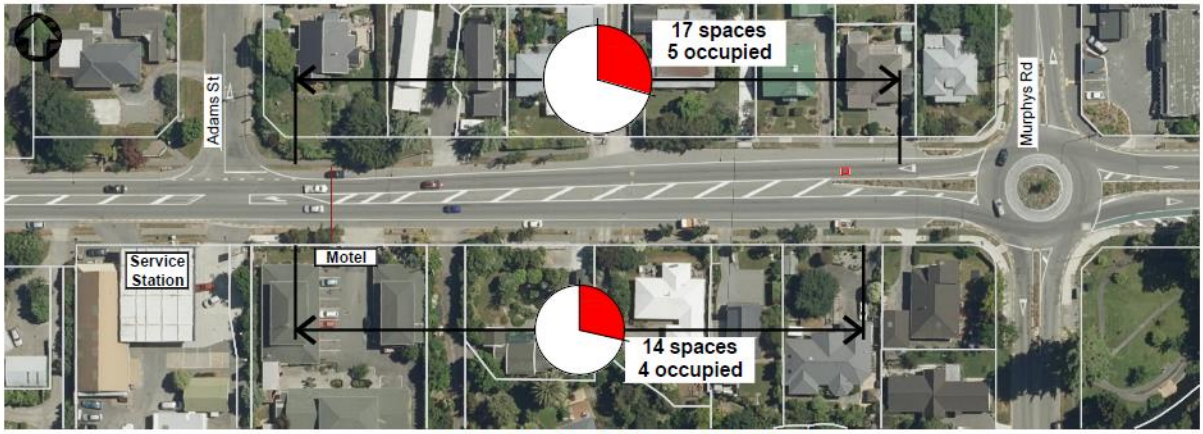
Figure 14-3: Section 2 Parking occupancy

The survey for Zone 2 to the east of Rose Street showed that the greatest demand for parking in this location was during the interpeak when 4 of the 39 spaces were being used. It is noted that this is lower than the occupancy shown on the LINZ aerial photograph below (taken summer 2017/18 at an unknown time of day) with 10 cars parked in the 39 spaces available.

B.3 Weekday parking Zone 3



AM Peak - 7:00am to 9:30am



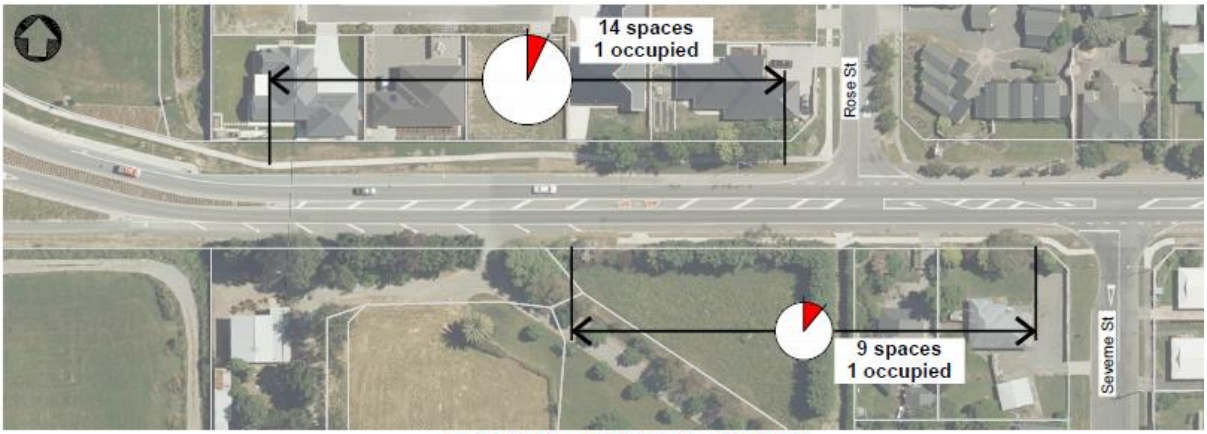
Inter-Peak - 9:30am to 4:30pm

PM Peak - 4:30pm to 7:00pm

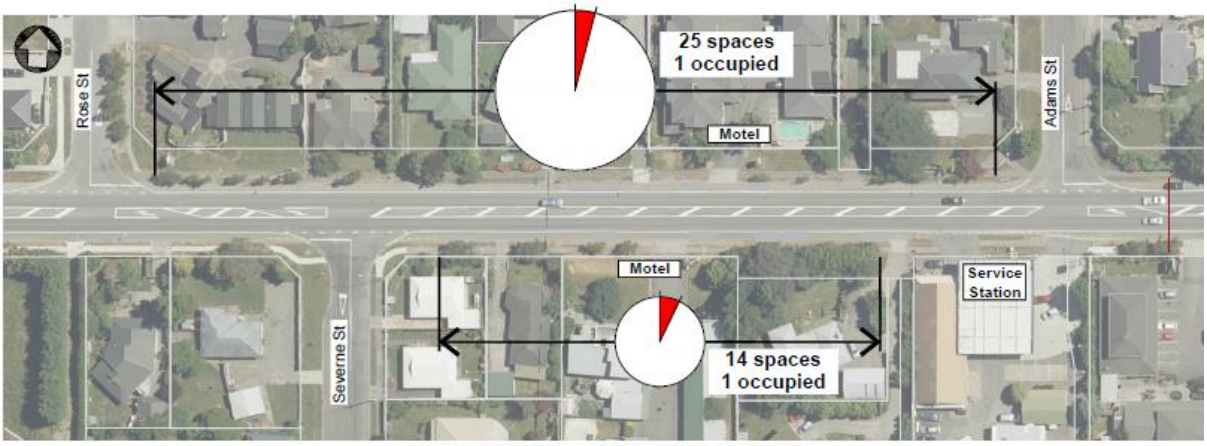
Figure 14-4: Section 3 Parking occupancy

The survey for Zone 3 at the eastern end of the study area showed that the greatest demand for parking in this location was also during the interpeak when 9 of the 31 spaces were being used. It is noted that this higher than the occupancy shown on the LINZ aerial photograph below (taken summer 2017/18 at an unknown time of day) with 4 cars parked in the 31 spaces available.

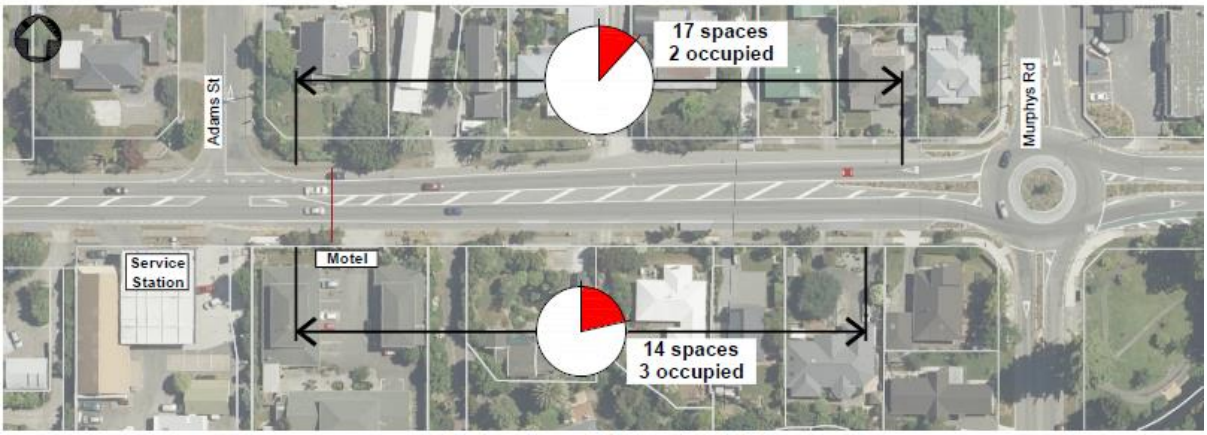
B.4 Weekend parking All Zones



Saturday - 7:00am to 6:30pm



Saturday - 7:00am to 6:30pm



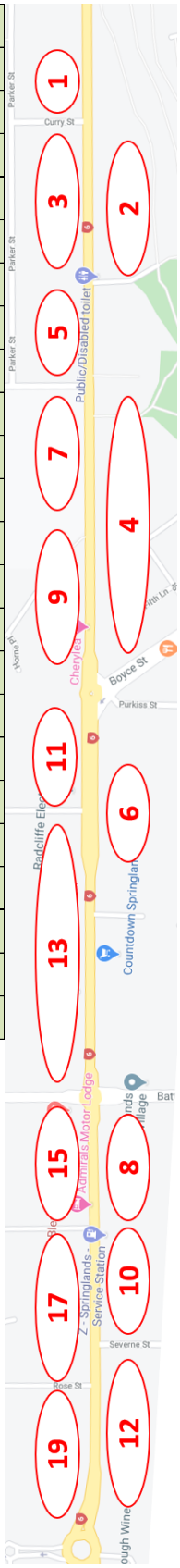
Saturday - 7:00am to 6:30pm

14-5: All Sections - Parking occupancy

B.5 Weekday parking raw data

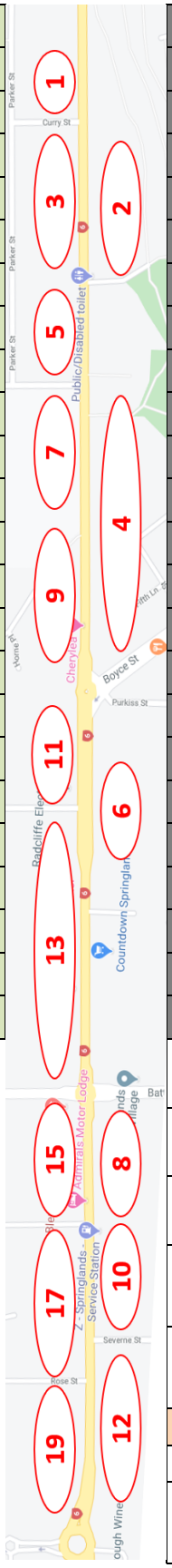
Street	KEY		From	To	Capacity	Highest Occupancy	Max. % Occupied	7.00	7.30	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	12.00	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30
MRR (SH6)	15	North side	Murphys	Adams	17	5	29.4%	3	3	3	3	3	3	5	5	4	4	4	4	4	4	3	4	4	4	3	2	0	1	2	2
MRR (SH6)	17		Adams	Rose	25	2	8.0%	0	0	0	0	0	1	0	0	2	1	2	0	0	0	0	0	0	0	0	0	0	1	1	1
MRR (SH6)	19		Rose	Westwood	14	1	7.1%	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	T	T	T	T
								12	10	17	14	30	17	21	18	25	25	28	20	19	19	18	18	23	15	10	10	9	13	13	11

Street	KEY		From	To	Capacity	Highest Occupancy	Max. % Occupied	7.00	7.30	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	12.00	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30
MRR (SH6)	8	South side	Bathys	Opposite Adams	14	4	28.6%	0	1	0	0	1	1	1	2	2	3	2	2	4	3	3	1	1	1	1	1	0	1	1	1
MRR (SH6)	10		Opposite Adams	Severne	14	2	14.3%	0	0	0	0	2	2	1	1	2	2	2	0	0	0	0	1	1	1	1	1	0	0	0	0
MRR (SH6)	12		Severne	Westwood Ave	9	2	22.2%	0	0	0	0	1	1	1	2	2	2	2	1	1	1	1	1	0	1	1	2	0	1	0	0
								7	8	7	9	15	13	24	26	29	25	22	19	27	25	24	23	33	11	14	15	9	11	8	8



B.6 Weekend parking raw data

Street	Key	From	To	Capacity	Highest Occupancy	Max. % Occupied	7.00	7.30	8.00	8.30	9.00	9.30	10.00	10.30	11.00	11.30	12.00	12.30	1.00	1.30	2.00	2.30	3.00	3.30	4.00	4.30	5.00	5.30	6.00	6.30
North side																														
MRR (SH6)	15	Murphys	Adams	17	2	11.8%	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	2	2	2	1	1	1	1	1
MRR (SH6)	17	Adams	Rose	25	1	8.0%	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	0	1	1	0	0	0	0	0
MRR (SH6)	19	Rose	Westwood	14	1	7.1%	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1
							11	11	7	13	13	15	15	14	13	15	13	12	13	12	10	11	13	12	11	10	10	12	12	11
South side																														
MRR (SH6)	8	Battys	Opposite Adams	14	3	21.4%	0	0	0	0	0	1	1	3	2	1	1	1	1	1	0	2	0	0	0	0	0	0	3	2
MRR (SH6)	10	Opposite Adams	Severne	14	1	7.1%	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MRR (SH6)	12	Severne	Westwood Ave	9	1	11.1%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
							8	7	7	7	8	10	10	12	9	8	7	5	6	6	6	7	9	5	5	5	5	5	8	8



B.7 Photos of illegal parking and advertising activity

Figure 14-6: Trailer continuously parked in this location

One of the key safety concerns is that the trailer parked in this location forces Blenheim bound cyclists into live traffic lane. The fact that the advertiser is trying to divert the driver's attention away from the driving task to read their sign is also a road user safety concern.

Figure 14-7: Vehicles for sale along Middle Renwick Road

Again, the advertiser is trying to divert passing driver's attention away from the driving task to notice their vehicle for sale is a road user safety concern.

Appendix C **CAS crash data**

C.1 Vulnerable user crashes

Table 14-1: CAS vulnerable road user crash data

Crash Road	Distance	Direction	Side Road	ID	Date	Day	Time	Description of events	Crash factors	Surface	Natural Light	Weather	Fatal	Ser	Minor
006-0000		I	BATTYS	201958520	27/01/2019	Sun	11:00	Car/Wagon1 DIRN on 006-0000 hit Cyclist2 (Age 0) crossing at right angle from right	CAR/WAGON1, failed to give way at priority traffic control	Dry	Bright sun	Fine	0	0	0
006-0000		I	MURPHYS	201956539	20/05/2019	Mon	16:10	Motorcycle1 EDB on MIDDLE RENWICK ROAD, SPRINGLANDS, MARLBOROUGH lost control turning right but did not leave the road	CYCLE2, did not check/notice another party from other dirn, failed to give way at priority traffic control MOTORCYCLE1, sudden action	Dry	Bright sun	Fine	0	0	1
BATTYS		I	SH 6	201713232	23/04/2017	Sun	17:26	Car/Wagon1 NDB on Battys road hit Cyclist2 (Age 26) crossing at right angle from right	CAR/WAGON1, failed to give way at priority traffic control	Dry	Twilight	Fine	0	0	1
BATTYS		I	SH 6	201819009	27/10/2018	Sat	12:46	Car/Wagon1 NDB on Murphys Rd hit Cyclist2 (Age 46) crossing at right angle from right	CAR/WAGON1, alcohol test below limit, did not check/notice another party from other dirn, failed to give way at priority traffic control	Dry	Overcast	Fine	0	0	1
SH 6	60	E	BATTYS	201812918	20/03/2018	Tue	8:40	Cycle1 EDB on Middle Renwick Road hit obstruction, Cycle1 hit non specific traffic sign	CYCLE1, driver dazzled, failed to notice signs, wrong way in one way street, motorway or roundabou, ENV: visibility limited by traffic sign, dazzling sun	Dry	Bright sun	Null	0	1	0
SH 6	40	W	MURPHYS	201513376	8/05/2015	Fri	17:00	Cycle1 EDB on SH 6 sideswiped by SUV2 EDB on SH 6 turning left	CYCLE1, overtaking on left without due care, ENV: entering or leaving private house / farm	Dry	Twilight	Fine	0	0	1

Note; that this data is for the whole route, but all of the cycle crashes occurred at or on the approaches and or departures of the Battys / Murphys roundabout.

C.2 Battys / Murphys roundabout all road users' crashes

Table 14-2: CAS all road user crash data (Battys / Murphys roundabout)

CODED CRASH ID	Crash road	Distance	Direction	Side road	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Fatal	Severe	Minor
1193327	006-0000		I	BATTYS	201958520	27/01/2019	Sun	11:00	Car/Wagon1 DIRN on 006-0000 hit Cyclist2 (Age 0) crossing at right angle from right	CAR/WAGON1, failed to give way at priority traffic control	Dry	Bright sun	Fine	0	0	0
1187504	006-0000		I	BATTYS	201897999	27/08/2018	Mon	7:50	Unknown1 DIRN on 006-0000 hit Car/Wagon2 crossing at right angle from right	UNKNOWN1, failed to give way at priority traffic control	Dry	Bright sun	Fine	0	0	0
1187684	006-0000		I	MURPHYS	201956539	20/05/2019	Mon	16:10	Motorcycle1 EDB on MIDDLE RENWICK ROAD, SPRINGLANDS, MARLBOROUGH lost control turning right but did not leave the road	CYCLE2, did not check/notice another party from other dirn, failed to give way at priority traffic control MOTORCYCLE1, sudden action	Dry	Bright sun	Fine	0	0	1
1139267	BATTYS		I	SH 6	201753159	7/11/2017	Tue	11:27	Car/Wagon1 NDB on Battys road hit Car/Wagon2 crossing at right angle from right	CAR/WAGON1, did not check/notice another party from other dirn, failed to give way at priority traffic control	Dry	Bright sun	Fine	0	0	0
1153632	BATTYS		I	SH 6	201819009	27/10/2018	Sat	12:46	Car/Wagon1 NDB on Murphys Rd hit Cyclist2 (Age 46) crossing at right angle from right	CAR/WAGON1, alcohol test below limit, did not check/notice another party from other dirn, failed to give way at priority traffic control	Dry	Overcast	Fine	0	0	1
1108751	BATTYS		I	SH 6	201713232	23/04/2017	Sun	17:26	Car/Wagon1 NDB on Battys road hit Cyclist2 (Age 26) crossing at right angle from right	CAR/WAGON1, failed to give way at priority traffic control	Dry	Twilight	Fine	0	0	1
1043906	SH 6		I	BATTYS	201517983	23/11/2015	Mon	12:30	Motorcycle1 WDB on SH 6 hit obstruction, Motorcycle1 hit non specific kerb	MOTORCYCLE1, speed on straight	Dry	Bright sun	Fine	0	0	1
1079125	SH 6		I	BATTYS	201630988	20/01/2016	Wed	6:54	Car/Wagon1 WDB on SH 6 hit Car/Wagon2 merging from the left	CAR/WAGON2, failed to give way at priority traffic control, other inattentive	Dry	Twilight	Fine	0	0	0
1147585	SH 6	60	E	BATTYS	201812918	20/03/2018	Tue	8:40	Cycle1 EDB on Middle Renwick Road hit obstruction, Cycle1 hit non specific traffic sign	CYCLE1, driver dazzled, failed to notice signs, wrong way in one way street, motorway or roundabou, ENV: visibility limited by traffic sign, dazzling sun	Dry	Bright sun	Null	0	1	0
1159214	SH 6	40	E	BATTYS	201833454	15/02/2018	Thu		Car/Wagon1 WDB on SH 6 hit rear end of Van2 stop/slow for queue	CAR/WAGON1, following too closely	Dry	Bright sun	Fine	0	0	0
1165583	SH 6	40	W	BATTYS	201839857	17/05/2018	Thu	20:05	Van1 EDB on SH 6 lost control turning right, Van1 hit non specific traffic island, non specific traffic sign	VAN1, failed to notice obstruction on roadway	Dry	Dark	Fine	0	0	0
1093149	SH 6	15	W	BATTYS	201645226	12/08/2016	Fri	23:35	Car/Wagon1 WDB on Middle Renwick Road lost control; went off road to right, Car/Wagon1 hit non specific fence	CAR/WAGON1, alcohol test above limit or test refused, over the speed limit, ENV: slippery road due to rain	Wet	Dark	Light rain	0	0	0
1039541	SH 6	40	W	MURPHYS	201513376	8/05/2015	Fri	17:00	Cycle1 EDB on SH 6 sideswiped by SUV2 EDB on SH 6 turning left	CYCLE1, overtaking on left without due care, ENV: entering or leaving private house / farm	Dry	Twilight	Fine	0	0	1
1136416	SH 6		I	MURPHYS	201750254	7/09/2017	Thu	16:20	Car/Wagon1 EDB on SH 6 hit rear end of Car/Wagon2 stop/slow for cross traffic	CAR/WAGON1, emotionally upset/road rage, failed to notice car slowing, stopping/stationary	Dry	Overcast	Fine	0	0	0
1053536	SH 6		I	MURPHYS	201538092	20/05/2015	Wed	7:20	Van1 WDB on SH 6 hit Car/Wagon2 crossing at right angle from right	VAN1, failed to give way at priority traffic control	Dry	Overcast	Fine	0	0	0
1127402	SH 6	70	E	MURPHYS	201741114	13/05/2017	Sat	8:20	Car/Wagon1 EDB on SH 6 hit rear end of Van2 stop/slow for PEDESTRIAN	CAR/WAGON1, failed to notice car slowing, stopping/stationary	Dry	Overcast	Null	0	0	0
1157815	SH 6	50	W	MURPHYS	201832046	26/01/2018	Fri	11:30	Car/Wagon1 EDB on SH 6 hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, failed to notice car slowing, stopping/stationary	Dry	Bright sun	Fine	0	0	0

C.3 All road user crash data for the balance of the route

Table 14-3: CAS all road user crash data for the balance of the route

Crash road	Distance	Direction	Side road	Date	Day	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Fatal	Sev	Min
SH 6	40	W	WESTWOOD AVENUE	25/11/2016	Fri	12:24	Car/Wagon1 EDB on Middle Renwick Road hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, other inattentive, ENV: slippery road due to rain	Wet	Overcast	Light rain	Nil (Default)	Un known	0	0	0
SH 6		I	WESTWOOD AVENUE	7/04/2015	Tue	18:55	Car/Wagon1 WDB on SH 6 hit rear end of Car/Wagon2 stop/slow for cross traffic	CAR/WAGON1, misjudged intentions of another party	Wet	Dark	Light rain	Roundabout	Give way	0	0	0
SH 6		I	WESTWOOD AVENUE	15/04/2015	Wed	16:05	Truck1 EDB on SH 6 lost control but did not leave the road , Car/Wagon2 hit generic debris	TRUCK1, lost control - vehicle fault, wheel off	Dry	Bright sun	Fine	Roundabout	Give way	0	0	0
MIDDLE RENWICK ROAD		I	WESTWOOD AVENUE	11/11/2019	Mon	5:15	Car/Wagon1 DIRN on MIDDLE RENWICK ROAD overtaking Car/Wagon2	CAR/WAGON1, other postion on road CAR/WAGON2, alcohol test above limit or test refused	Wet	Twilight	Light rain	Roundabout	Give way	0	0	0
ROSE ST		I	SH 6	23/06/2018	Sat	20:30	Car/Wagon1 NDB on ROSE ST hit Car/Wagon2 doing driveway manoeuvre	CAR/WAGON2, did not check/notice another party behind CAR/WAGON1, misjudged own vehicle	Dry	Dark	Fine	T Junction	Nil	0	0	0
SH 6	25	W	SEVERNE ST	11/08/2016	Thu	17:30	SUV1 WDB on SH 6 hit Car/Wagon2 U-turning from same direction of travel	CAR/WAGON2, did not check/notice another party behind	Dry	Twilight	Fine	Nil (Default)	Un known	0	0	0
006-0000	65	W	ADAMS LANE	3/04/2019	Wed	15:00	Car/Wagon1 WDB on Middle Rewick Road hit Car/Wagon2 U-turning from same direction of travel	CAR/WAGON2, alcohol test below limit, did not check/notice another party behind CAR/WAGON1, alcohol test below limit	Dry	Overcast	Fine	Nil (Default)	Un known	0	0	0
SH 6	20	W	ADAMS LANE	28/03/2017	Tue	10:30	Car/Wagon1 WDB on Middle Renwick road Blenheim lost control; went off road to left, Car/Wagon1 hit non specific parked	CAR/WAGON1, sudden illness	Dry	Bright sun	Fine	Nil (Default)	Un known	0	0	0
SH 6	10	W	ADAMS LANE	5/03/2016	Sat	14:30	Car/Wagon1 WDB on SH 6 hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, attn diverted by console inbuilt features radio/ac, following too closely, wheelspins/wheelies/doughnuts/drifting	Dry	Bright sun	Fine	T Junction	Un known	0	0	0
SH 6		I	ADAMS LANE	15/07/2016	Fri	16:25	Car/Wagon1 EDB on SH 6 hit rear end of Car/Wagon2 stop/slow for cross traffic	CAR/WAGON1, failed to notice car slowing, stopping/stationary, following too closely	Dry	Bright sun	Fine	T Junction	Give way	0	0	0
006-0000		I	ADAMS LANE	21/08/2019	Wed	15:55	Truck1 WDB on Middle renwick road hit rear of Ute2 WDB on Middle renwick road turning right from centre line, Truck1 hit parked (unattended) vehicle	TRUCK1, alcohol test above limit or test refused, failed to notice car slowing, stopping/stationary UTE2, alcohol test below limit	Dry	Bright sun	Fine	T Junction	Give way	0	0	1
MIDDLE RENWICK ROAD		I	ADAMS LANE	27/09/2019	Fri	8:40	Car/Wagon1 EDB on MIDDLE RENWICK ROAD hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, failed to notice car slowing, stopping/stationary, other attention diverted	Dry	Bright sun	Fine	T Junction	Nil	0	0	0
SH 6	50	W	ADAMS LANE	15/06/2016	Wed	17:00	Car/Wagon1 EDB on SH 6 hit rear end of Car/Wagon2 stop/slow for queue	CAR/WAGON1, following too closely	Dry	Twilight	Fine	Nil (Default)	Un known	0	0	0

C.4 Near miss crashes

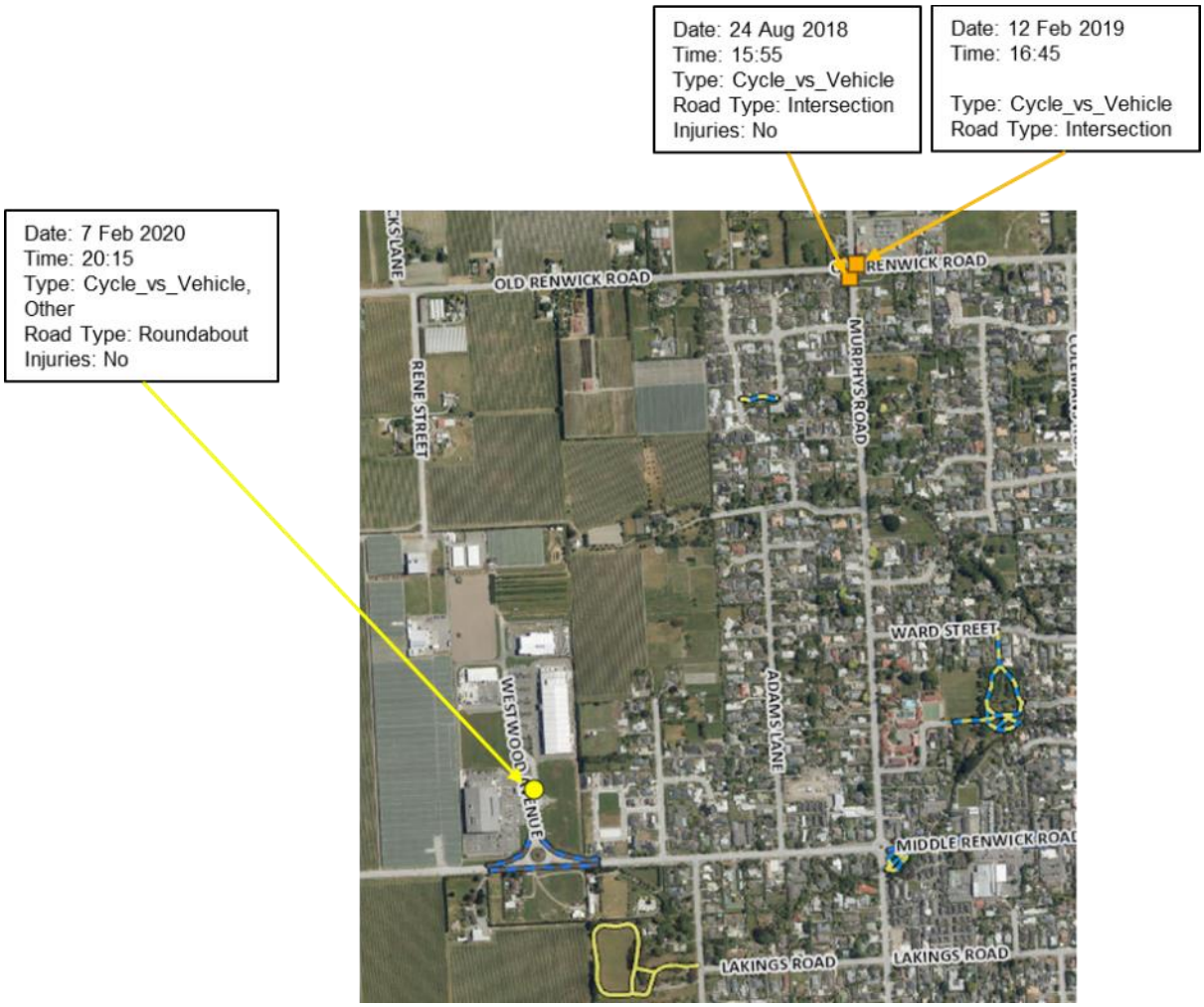


Figure 14-8: Near miss crashes reported to MDC

Appendix D **Strategic context**

The following strategies and plans provide the long-term direction for transport in the Marlborough District and will assist in developing a connected central network for people to move around by bicycle.

The current strategic direction at national, regional, and local levels have consistent themes of improving travel choice and improving safety.

D.1 Government Policy Statement on Land Transport 2018–28

The Government Policy Statement (GPS) on Land Transport[3] outlines the Government's strategy to guide land transport investment over the next 10 years and provides guidance to decision-makers where the Government will focus resources. Under the Land Transport Management Act 2003, the GPS influences decisions on how money from the National Land Transport Fund will be invested across activity classes, such as state highways and public transport. It also guides the Waka Kotahi NZ Transport Agency and local government on the type of activities that should be included in Regional Land Transport Plans and the National Land Transport Programme (NLTP).

Figure 14-9: Strategic direction of the GPS 2018

The 2018 GPS set a clear strategic direction with priorities focused on safety (i.e. a safe system free of death and serious injury) and access (i.e. enabling transport choice, providing access to economic/social opportunities, and resilient networks; refer to Figure 14-9). The resulting draft

[3] https://www.transport.govt.nz/multi-modal/keystrategiesandplans/gpsonlandtransportfunding/

national 2020–30 Road Safety Strategy "Road to Zero" also reinforces the focus on road safety, and recent changes to funding allocations in the NLTP have also invested a lot more in local government road safety programmes.

D.2 Road to Zero: A New Road Safety Strategy for NZ (2019)

The strategy sets out the vision and guiding principles for designing the road network and making road safety decisions. It sets out the five areas of focus, and a framework for accountability. The strategy is to be implemented through a series of separate action plans. The overall vision set out in the strategy states:

"a New Zealand where no one is killed or seriously injured in road crashes. This means that no death or serious injury while travelling on our roads is acceptable."

Figure 14-10: Strategic direction of the Road to Zero

Underpinning this vision are seven guiding principles:

- promote good choices but plan for mistakes
- We design for human vulnerability
- We strengthen all parts of the road transport system
- We have a shared responsibility for improving road safety

- Our actions are grounded in evidence and evaluated
- Our road safety actions support health, wellbeing and liveable places
- We make safety a critical decision-making priority.

A target of a 40 percent reduction in deaths and serious injuries by 2030 has been set. This is to be achieved through action in five key areas:

- Infrastructure improvements and speed management
- Vehicle safety
- Work-related road safety
- Road user choices
- System management.

D.3 Regional Land Transport Plan 2015–2021

The Marlborough Regional Land Transport Plan 2015 - 2021 is a critical document for the Marlborough District as it underpins all of the District's road network and transportation planning and investment priorities.

The 2018 update to the plan recognises that:

"Whilst private vehicles remain the most popular choice for journeys to work across the main urban centres, in the 2013 census Nelson/Richmond urban centre recorded the highest number of commuter cyclists (journeys to work) of any centre in New Zealand (18%). ***The cycle networks across the Top of the South in the urban areas does not provide a connected network which is a barrier to less confident users. This is reflected in the annual customer surveys of both Nelson and Tasman that feature high levels of dis-satisfaction in the urban cycle networks.*** *The transport system will need to respond to the changing demographic, e.g. road environments that accommodate increasing reaction times, safe pedestrian facilities including for mobility scooters and convenient public transport and total mobility services.*

The plan also identifies the key issues, problems and opportunities facing the State Highway network through Marlborough are

- Safety is compromised by transport infrastructure deficiencies and poor user behaviours
- **High level of motorcyclists and cyclists involved in fatal and serious injury crashes**.
- Lack of attention/observation is a contributing factor to fatal and serious crashes.
- Appropriate speed and targeting low KiwiRAP rated roads would reduce DSI's.

D.4 Marlborough District Council Walking and Cycling Strategy 2019-29

The overall vision in the strategy is that *Marlborough people and visitors walk and cycle safely for travel, health and enjoyment.*

The following objectives are set out in the strategy:

- Encourage and support people in Marlborough to choose walking and cycling.
- Develop a safe, convenient and connected travel network for walking and cycling.
- Ensure that all relevant strategies, policies, plans and practices for Marlborough support walking and cycling.

The barriers to people interested in using active travel modes include:

- Incomplete cycle network and lack of facilities for pedestrians and cyclists.
- Increased presence of heavy vehicles putting pedestrians and cyclists at greater risk.
- High vehicle speeds in some places.

- Unfavourable road and intersection layout.

There is a real need to make changes to the network to improve safety and perceived safety for interested but concerned users (60%).

Figure 14-11: Four types of cyclist

The interested but concerned users are people that would like to try cycling as a mode of transport but have concerns around safety and connectivity and would like higher quality infrastructure to improve the perception of safety an increase the comfort of riding on street.

Figure 14-12: Targets set out in the Walking and Cycling Strategy

Appendix E **Buffered Cycle lanes**

The following is taken from the proposed draft Waka Kotahi technical note for publication on buffered cycle lanes.

E.1Introduction

This technical note has been developed to assist in the design of buffered cycle lanes. As detailed throughout the *Cycling Network Guidance* (CNG), the decision to implement buffered cycle lanes depends on many factors (both high-level and site-specific), one of which is carriageway width.

Understanding the street function and context will determine what other cross-section elements are required or desired and the space available for these elements in addition to cycle facilities.

At certain available widths, it may either not be feasible to provide buffered cycle lanes, or there may be so much space that another form of provision becomes possible. As such, the provision of buffered cycle lanes should be assessed alongside other facility options.

An important distinction is that a buffer adjacent to a traffic lane is *in addition to* the width of a cycle lane. A buffer adjacent to parking is placed *within* the width of a cycle lane.

E.2Buffered cycle lane design

Buffered cycle lanes comprise a conventional on-road cycle lane with a marked buffer between the cycle lane and moving traffic lane and/or parking lane. The use of the buffer can encourage people riding a bicycle to travel outside the door opening zone but can also increase the perception of safety by having something between the rider and the traffic lane. They also make it easier for drivers to pass cyclists at a safer distance.

Many of the concept design considerations around buffered cycle lanes are developed from existing guidance in the CNG on on-road cycle lanes. However, there is scope for further research into the design of this facility type, and the areas for further work are identified through the text below.

E.2.1 Parking side buffer configuration

Drivers will use the parking space markings as a guide (i.e. rather than the kerb) – therefore, parking spaces should be kept narrow, so that good parking discipline is encouraged, allowing people on bikes to avoid opening car doors.

A well-defined line is required at the side adjacent to the parking, so that drivers do not consider any buffer between parking and cycle lane as an extension of the parking zone.

The door zone of parked vehicles is an *actual* safety concern for people on bikes.

The current default is to not mark a painted buffer between the parking lane and cycle lane. To encourage cyclists to keep away from the door opening zone, it is recommended that the cycle lane symbol and green surfacing are marked closer to the general traffic lane (Figure 14-13). Note that the preferred shade of green surfacing is Apple Green G26.

The following section of this technical note assumes that the markings will be provided *within* the stated width of the cycle lane and an offset is provided.

There is need for more research to identify how much influence such an offset has on the position of the rider in the lane.

Some RCAs mark buffers between the parking and cycle lane. This will only keep people on bikes safe from the door zone if good parking discipline is achieved.

Some studies suggest that marking parking buffers result in poorer parking discipline. There is scope for further research into this, including consideration of different buffer marking styles that could reduce this issue.

The Figures below show the recommended layout for a buffered cycle lane next to parking.

Figure 14-13: Cycle symbol offset from parking, buffer against traffic lane, Nelson. Photo: E Teekman

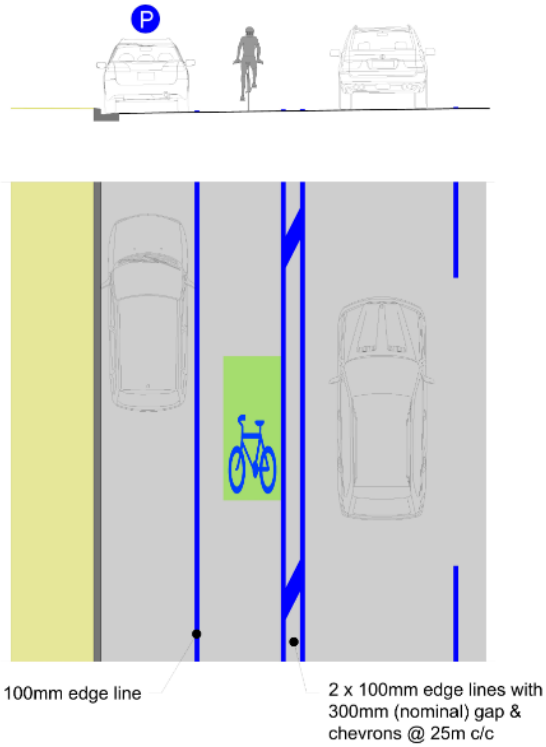


Figure 14-14: Road markings for parking and cycle lane buffer

E.2.2 Traffic adjacent buffer configuration

People on bikes often have a *perceived* safety issue of conflict with moving traffic.

The current default is to mark a buffer between the cycle lane and the general traffic lane (i.e. a traffic-adjacent buffer) to address this perception (e.g. Figure 14-16).

Buffer styles that could be marked between the cycle lane and traffic lane should be parallel lines with diagonal stripes aligned according to the direction of motor vehicle drivers.

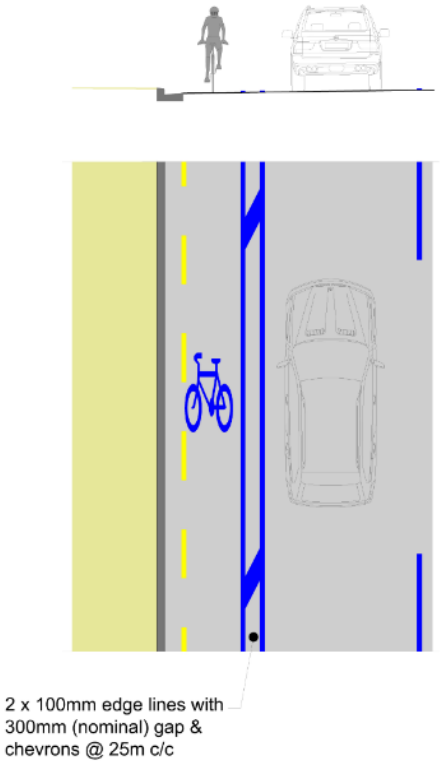


Figure 14-15: Road markings with buffer between cycle lane and traffic lane

E.3Design parameters

The following graphic (Figure 14-16) outlines various scenarios depending on the priorities for provision and elements that are introduced (established) as available carriageway width increases.

(Table 14-4) outlines the basic parameters used to develop the design and gives instructions and examples for how to use these charts.

It is important to note that the figure does not represent a layout plan for a roadway; they are provided to inform the possible combinations of elements at a given cross-section width.

E.3.1 Buffered cycle lanes, establishing parking

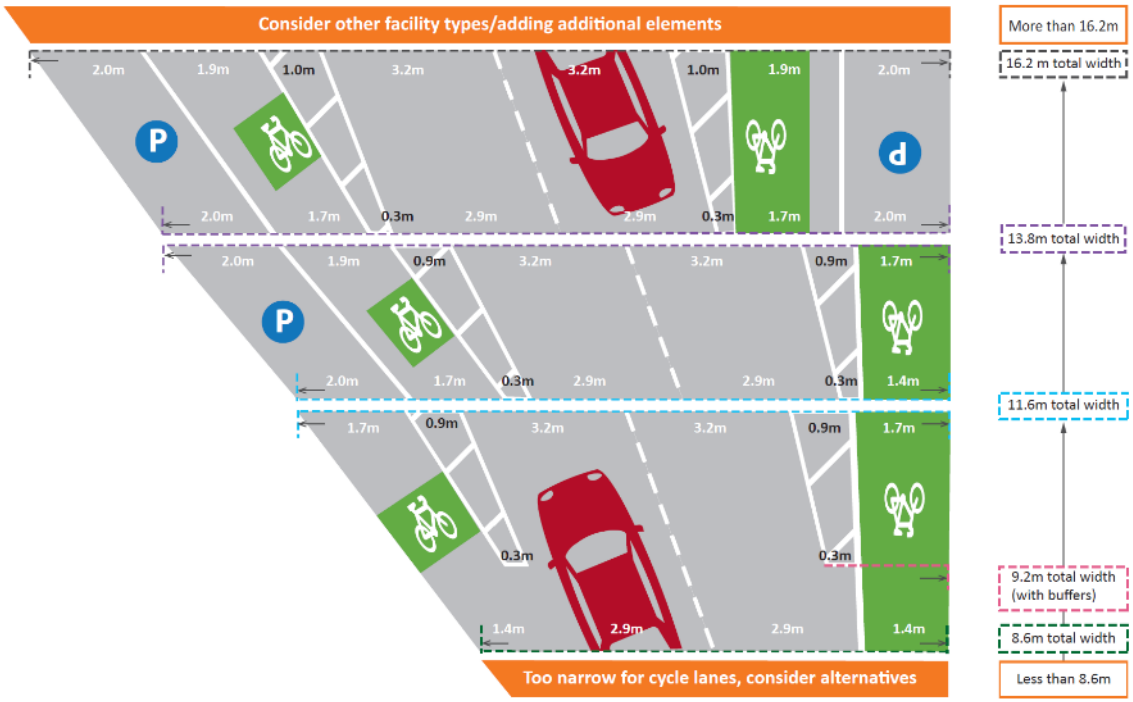


Figure 14-16: Design: standard cycle lanes – buffered cycle lanes – establishing parking

The design charts are based on the following basic parameters; these should be considered if modifying the configurations obtained from the design charts:

Table 14-4: basic parameters for cross-section elements for buffered bike lane design

Key	Element	Desirable min	Acceptable min	Practical max
	Parallel parking	2.0	2.0	2.5
	Cycle lane – next to parallel parking	1.8	1.7	2.0
	Cycle lane buffer – traffic side	1.0	0.3	1.0
	General traffic lane	3.2	2.9	4.5
	Cycle lane buffer – traffic side	1.0	0.3	1.0
	Cycle lane – kerbside	1.6	1.4	1.8
	Flush median	2.5	0.5	4.0

Notes:

The values for the basic parameters are taken from the CNG and its various sources.

The acceptable minima are used as the starting point for all combinations, with widths working up to the desirable minima, or the point at which the next combination is deemed acceptable.

The acceptable minima stated should be used as a guide only, and with caution; they may vary depending on the local authority, or site-specific context. A design option that contains all acceptable minimum elements is likely to result in increased safety risks and should be avoided.

The practical maxima are guidelines only and are rarely achieved in reality (thus not shown on the charts), as the additional width can normally be better allocated elsewhere.

E.3.2 Instructions for use

The resulting cross-section depends on the elements of the cross-section that are desired and the available width in the existing roadway.

E.3.3 Calculate element widths

The width of each element on the carriageway is calculated from the difference between successive cumulative widths.

E.3.4 Re-distribute width if necessary

In cases where the acceptable minima (see Table 14-4) have been achieved for multiple elements, there is scope to redistribute width among the elements, according to site-specific objectives and constraints.

For example, in locations with speed limit greater than 50 km/h, or a high proportion of heavy vehicles, it may be preferred to increase the width of general traffic lanes before increasing the width of the cycle facilities. Conversely, in locations with high cycling and e-scooter demand, it may be preferable to increase the width of the cycle facility before increasing other elements above their acceptable minima.

E.3.5 Tips for finding space

If there is insufficient space for the desired configuration, it will be necessary to either:

Re-examine the priorities in terms of which elements to provide and choose different elements.

Consider gaining space from somewhere else (e.g. relocating the kerb lines).

In some cases, the cross-section width will vary along a corridor. It *may* be acceptable to reduce widths of certain elements for short sections of road – the CNG should be consulted if this affects the cycle facilities. Usually, it will be necessary to transition to a different configuration. Where possible, it makes sense to retain a consistent type of cycle provision along a corridor – for example, if buffered cycle lanes are desired, it is preferable to remove parking than to revert to standard cycle lanes for a section with reduced cross-section width.

A range of examples are included in the figures below.

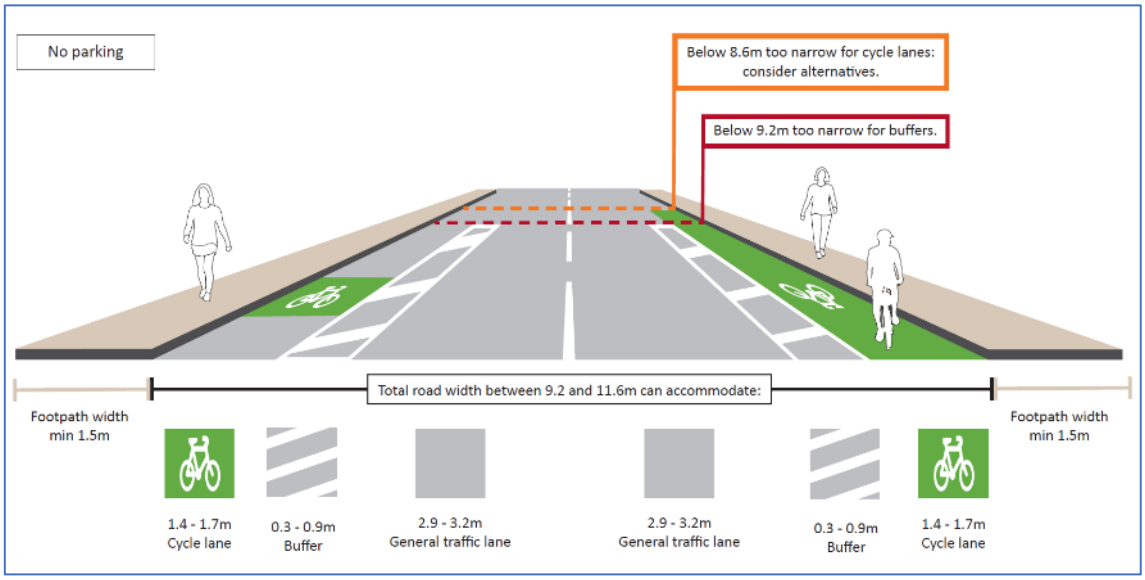


Figure 14-17: Cross-section widths for narrow carriageways

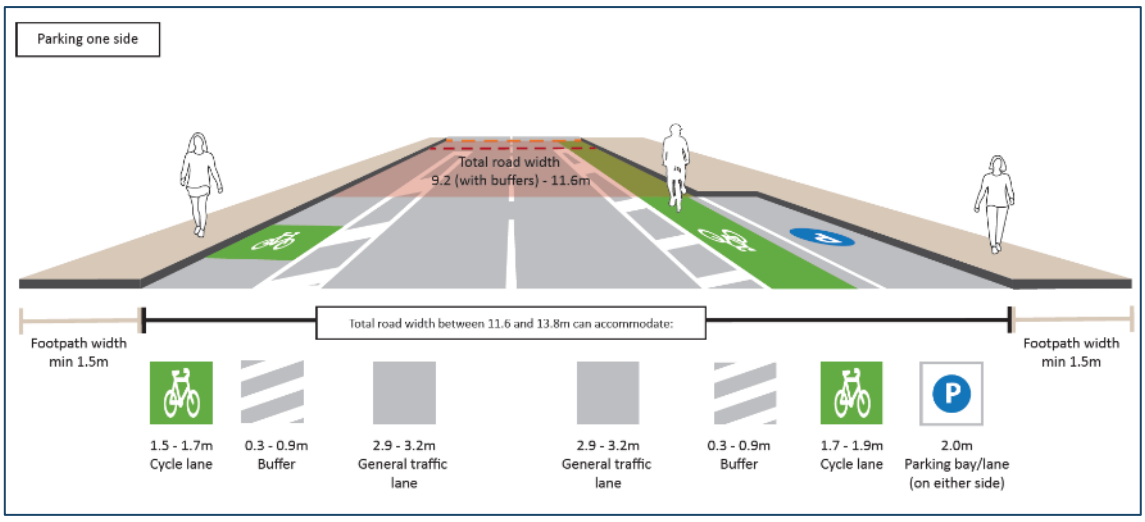


Figure 14-18: Cross-section widths that could accommodate parking one side

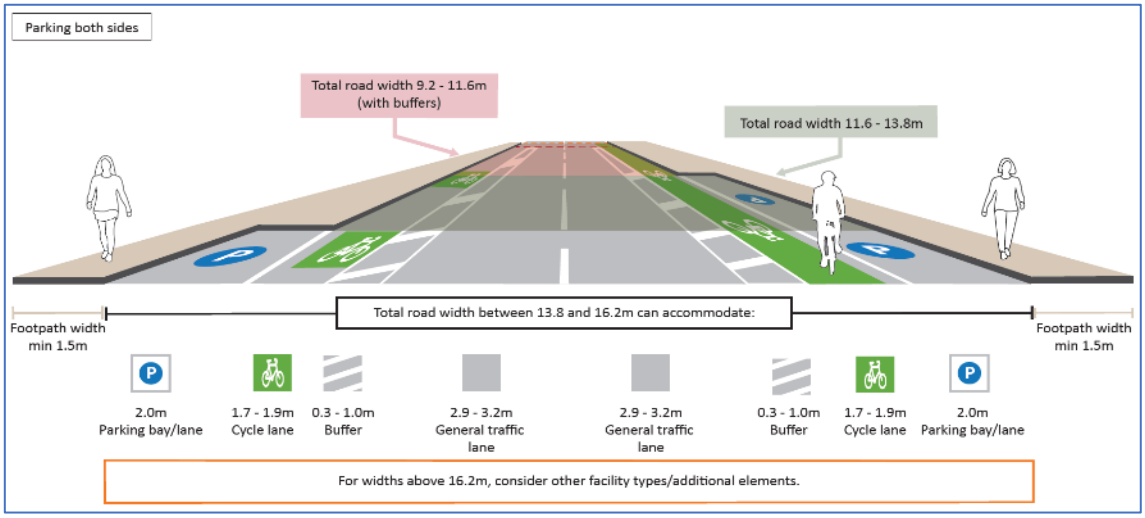


Figure 14-19: Cross-section widths that could accommodate parking on both sides

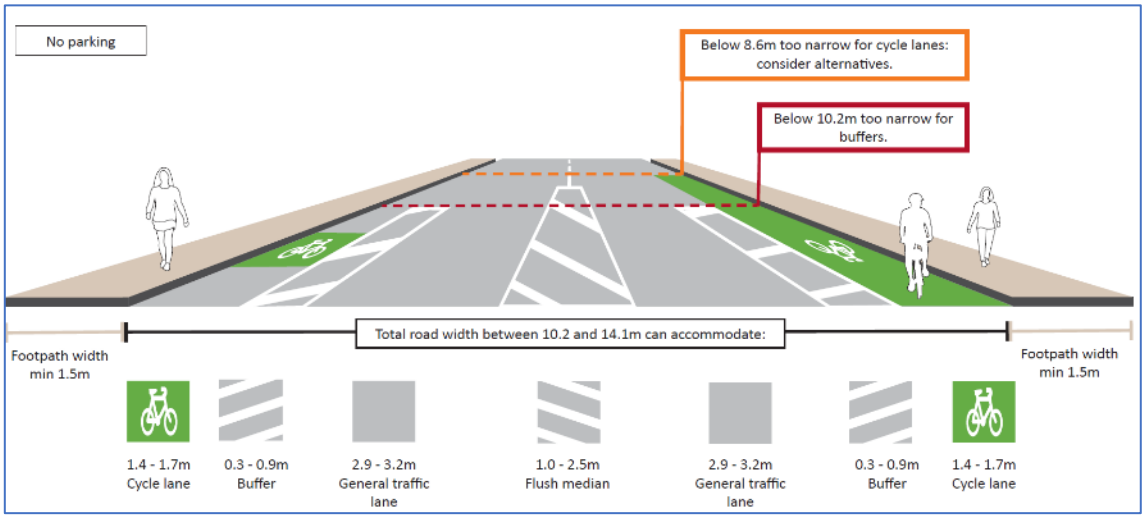


Figure 14-20: Cross-section widths that could accommodate a flush median

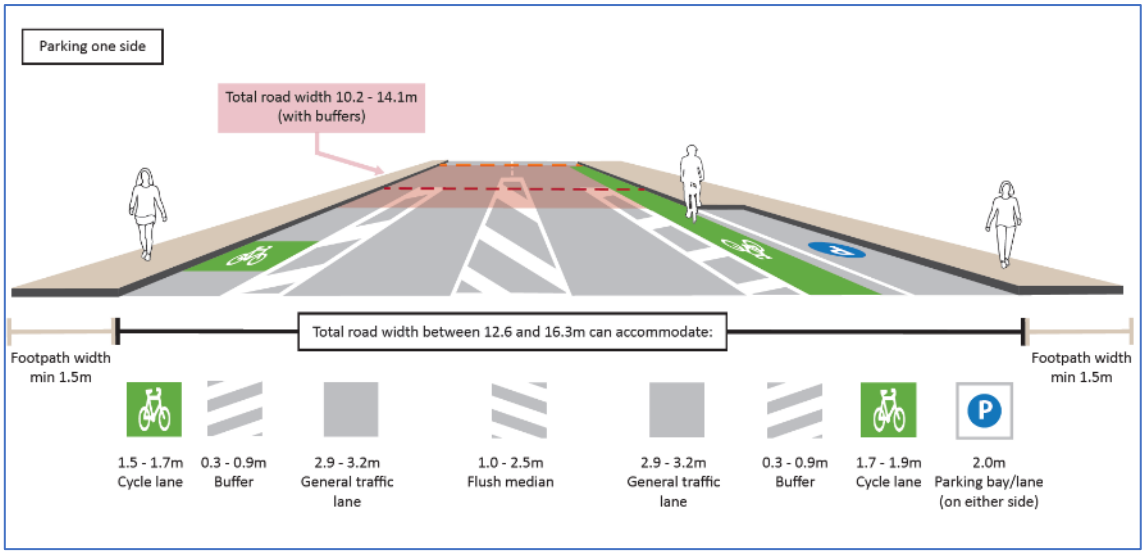


Figure 14-21: Cross-section widths that could accommodate a flush median and parking on one-side

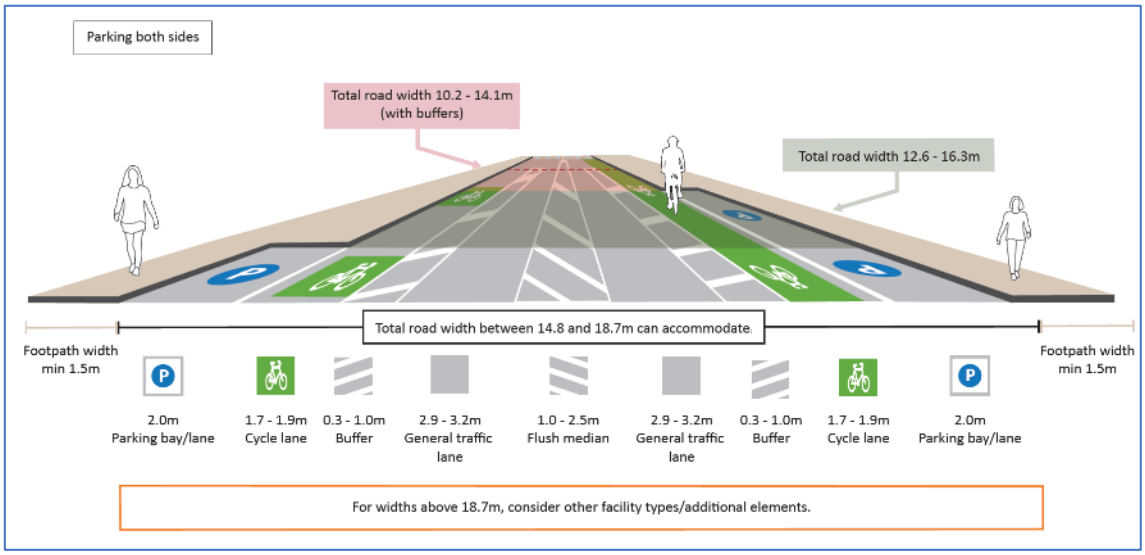


Figure 14-22: Cross-section widths that could accommodate a flush median and parking on both sides

Where the width is greater than 18.7 metres there could be a greater buffer between the cycle lane and parking, to improve comfort and safety for those getting out of parked cars, or those parking larger vehicles. The designer should consider the local conditions and context, the users of the parking bays, the speed of the road and the users of the cycleway.

Appendix F **Option Development**

Below are the original options that were first discussed with Marlborough District Council and Marlborough Roads.

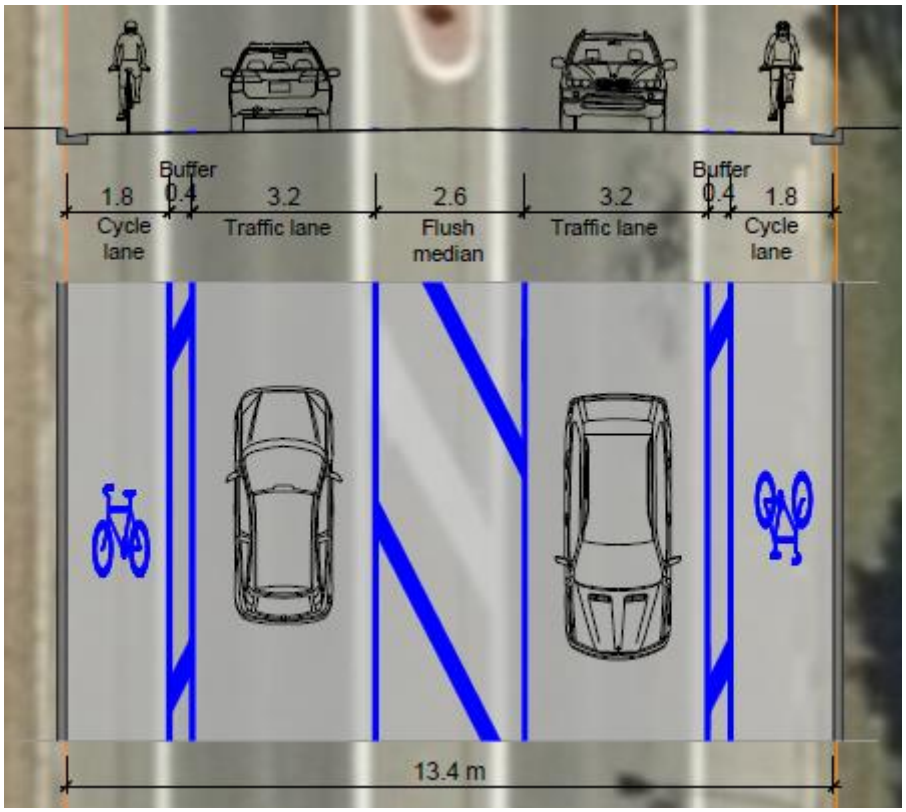


Figure 14-23: Option 1 - no parking and wide flush median

This option has the following features

- No parking on either side
- Wide flush median
- Width appropriate traffic lanes

Option 1 removes parking from both sides of Middle Renwick Road which provides the safest environment for on-road cycling, but this is very controversial with residents and businesses along the route.

The wide flush median accommodates median islands for pedestrian crossing facilities, turning movements on and off the highway and vehicle lane width appropriate right turn bays.

The traffic lanes at 3.2 m is appropriate for state highway traffic in a 50 km/h speed environment.

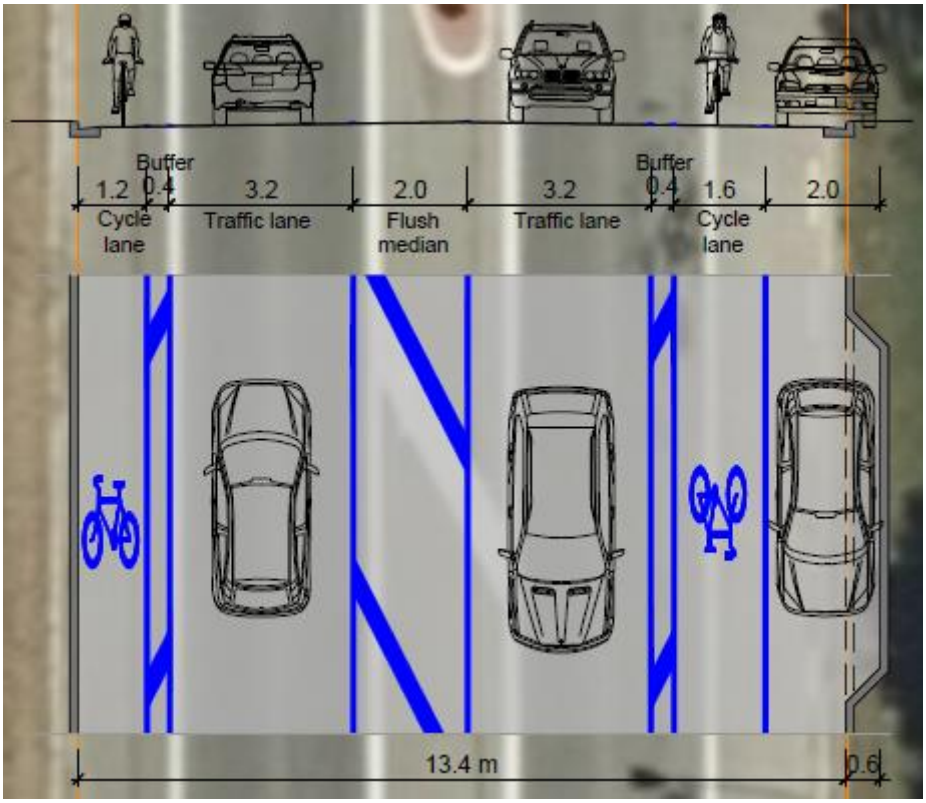


Figure 14-24: Option 2 - indented parking with flush median

This option has the following features

- Indented parking where demand was identified
- Flush median
- Width appropriate traffic lanes

Option 2 retains some of the parking on Middle Renwick Road which should find favour with residents and businesses along the route and should be less controversial.

The indented parking bays have been identified from parking surveys undertaken during the week and weekend, see Section 2.7 and Appendix B. The sites have been chosen to maximise the length of the bay to accommodate parked cars while minimising the need to remove existing street trees.

This does not provide the safest environment for on-road cycling, but the buffered cycle lanes add an element of extra safety for people riding past parked vehicles.

The flush median accommodates median islands for pedestrian crossing facilities, turning movements on and off the highway.

The traffic lanes at 3.2 m is appropriate for state highway traffic in a 50 km/h speed environment.

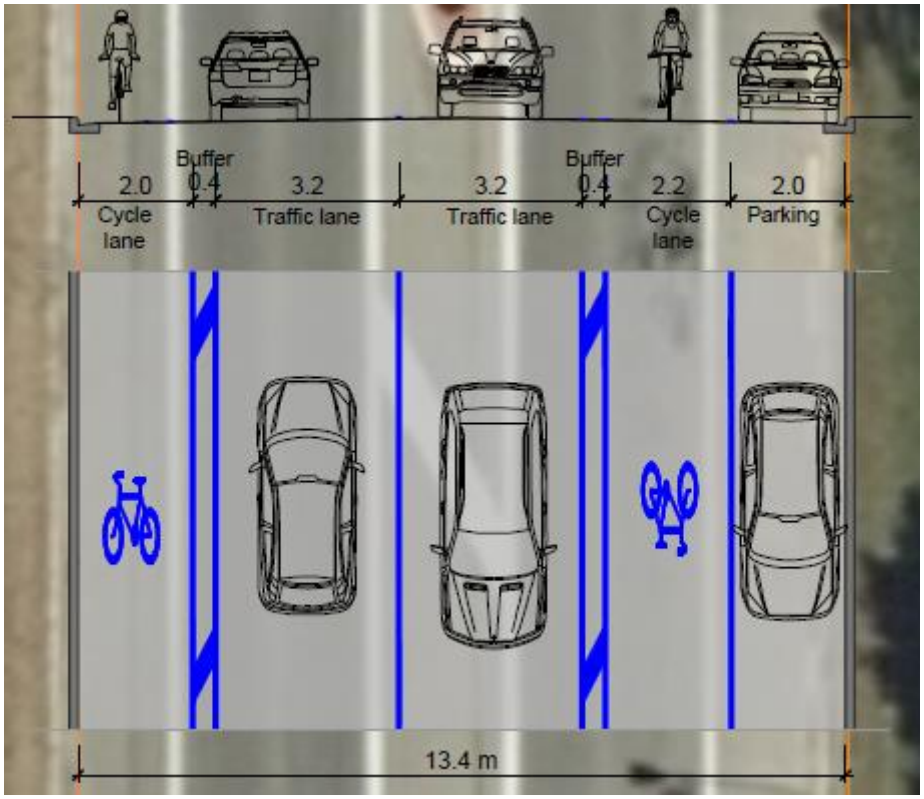


Figure 14-25: Option 3 - no flush median and 50% parking retained

This option has the following features

- parking retained on the south side
- No flush median
- Width appropriate traffic lanes

Option 3 retains the parking on the southside of Middle Renwick Road which should find favour with residents and businesses along the route and therefore should be less controversial.

The use of the existing carriageway to accommodate parked means there is no requirement to remove existing street trees.

This does not provide the safest environment for on-road cycling, but the buffered cycle lanes does add an element of extra safety for people riding past parked vehicles.

The removal of the flush median is a safety and efficiency concern as it means there is no way to accommodate median islands for pedestrian crossing facilities without losing parking for the require intervisibility sight distance.

The removal of the flush median is also a safety and efficiency concern as there is no way to accommodate turning movements on and off the highway. Without the flush median, these manoeuvres will impact state highway traffic.

The traffic lanes at 3.2 m is appropriate for state highway traffic in a 50 km/h speed environment.

Appendix G **Multi Criteria Analysis**

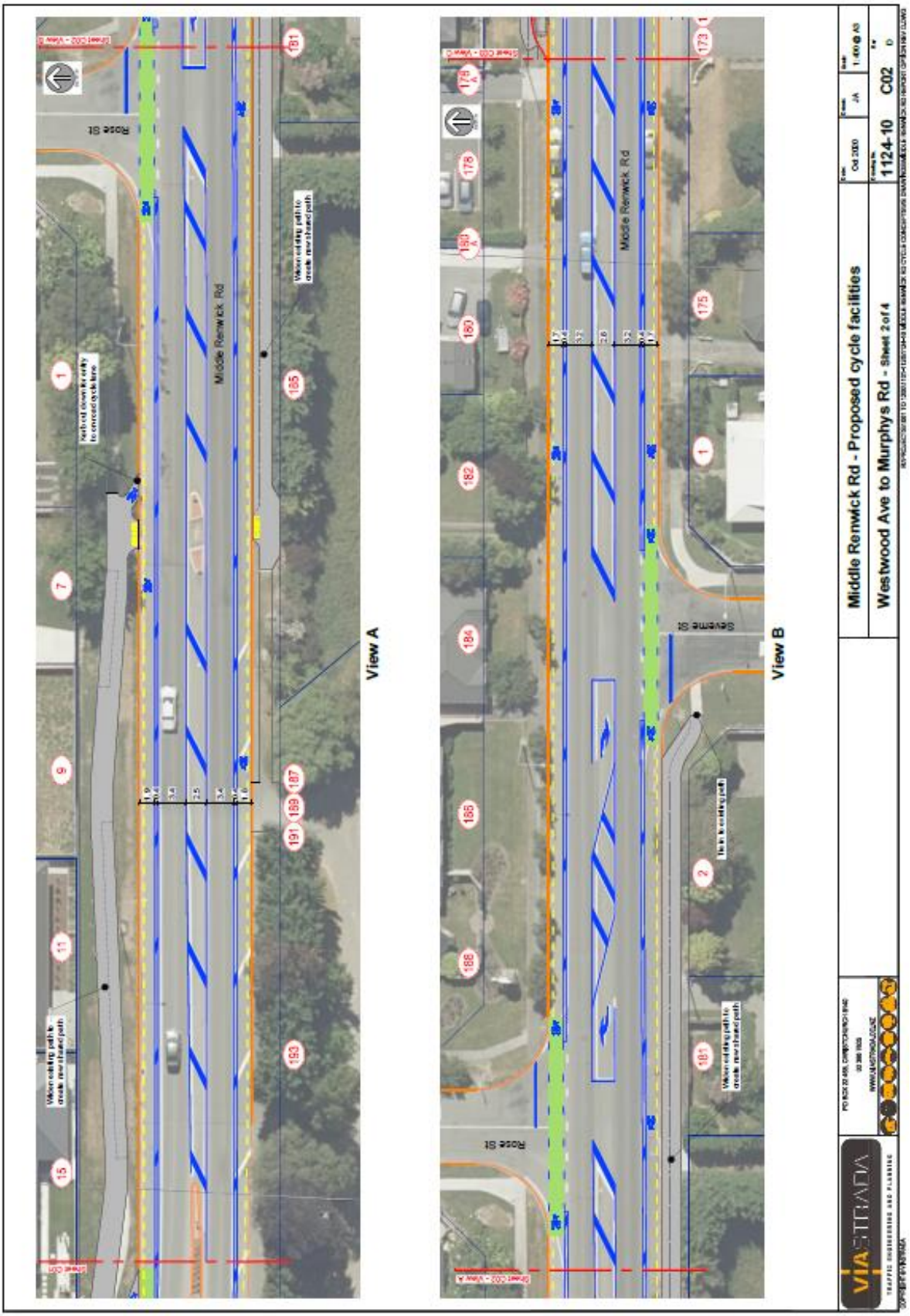
Table 14-5: MCA Location 1A

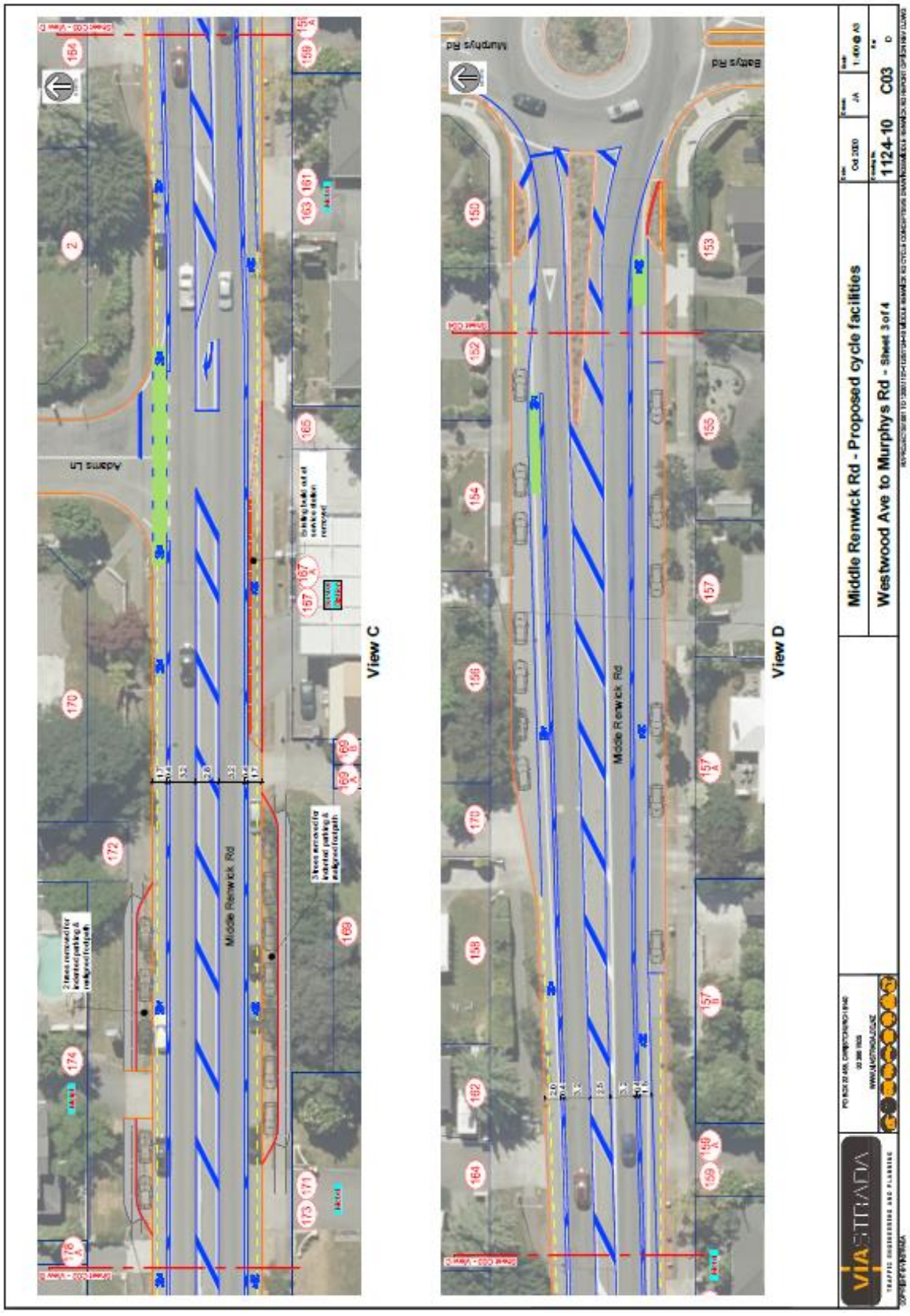
	Design Context 55%					Community/Stakeholder Interests 30%			Project Costs and Programme Risks 25%	
	Safety	Comfort	Directness	Coherence & Connectivity	Attractiveness and Social Safety	Business/ Schools	Residents	Network Effects	Cost Risks	Programme Risks
Location 1a	* Safety along route for users * Relative conflict with other road users: pedestrians; residents; traffic * Higher volume driveways/turning vehicles	* Comfort of users experience *perceptions of risk; *impacts from other traffic noise; CO_2 *cycleway width, level of protection, obstacles, gradient	* Time and distance to travel * Easy to recognise route * Limited changing of facility types * Few complicated manoeuvres	* Good match to: ***local schools ***shops ***parks ***other public spaces/buildings	* Cycling experience and amenity. * Lighting levels	* Effects on access * Changes to on-street parking and loading	* Access to properties * Changes to on-street parking	* Effect of changes to arterial corridor? * Public transport routes affected? * Effect on operational & maintenance costs? (waste collection etc)	Increased costs due to: * Physical works (K&C) *Property purchase *Complicated facilities (Budget Risk)	Programme delays due to: *Land/property acquisition *Legal processes - consents (Timing Risk)
Option 1	Buffered on-road cycle lane No on-street parking so reduced risk of dooring Off-road shared path for interested but concerned users	Good cycle lane width with additional buffer from the traffic Flat corridor	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. Minimal change to parking as long sections of no stopping in place.	No changes to access. Minimal change to parking as long sections of no stopping in place.	No change. Flush median retains capacity of route. No bus stops affected. No changes to costs.	No physical works required for on-road lanes	No risks.
	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓
Option 2	Buffered on-road cycle lane On-street parking present so increased risk of dooring Off-road shared path for interested but concerned users	Good cycle lane width with additional buffer from the traffic Flat corridor Increased stress due to presence of parked cars	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. Minimal change to parking as long sections of no stopping in place.	No changes to access. Minimal change to parking as long sections of no stopping in place.	No change. Flush median retains capacity of route. No bus stops affected. No changes to costs.	Physical works reqd to accommodate parking	No risks. Consent requirements for tree removal for kerb works?
	✓	✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	X	✓
Option 3	Buffered on-road cycle lane On-street parking present so increased risk of dooring Off-road shared path for interested but concerned users Drivers may use cycle lane to overtake vehicles waiting to turn.	Good cycle lane width with additional buffer from the traffic Flat corridor Increased stress due to presence of parked cars and vehicles turning, maybe under more pressure with holding up traffic	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. Minimal change to parking as long sections of no stopping in place.	No changes to access. Minimal change to parking as long sections of no stopping in place.	Removal of flush median will create delays from vehicles waiting behind turning vehicles (could affect safety). No bus stops affected. No changes to costs.	No physical works required for on-road lanes	No risks.
	✓	✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	XX	✓✓✓	✓✓✓

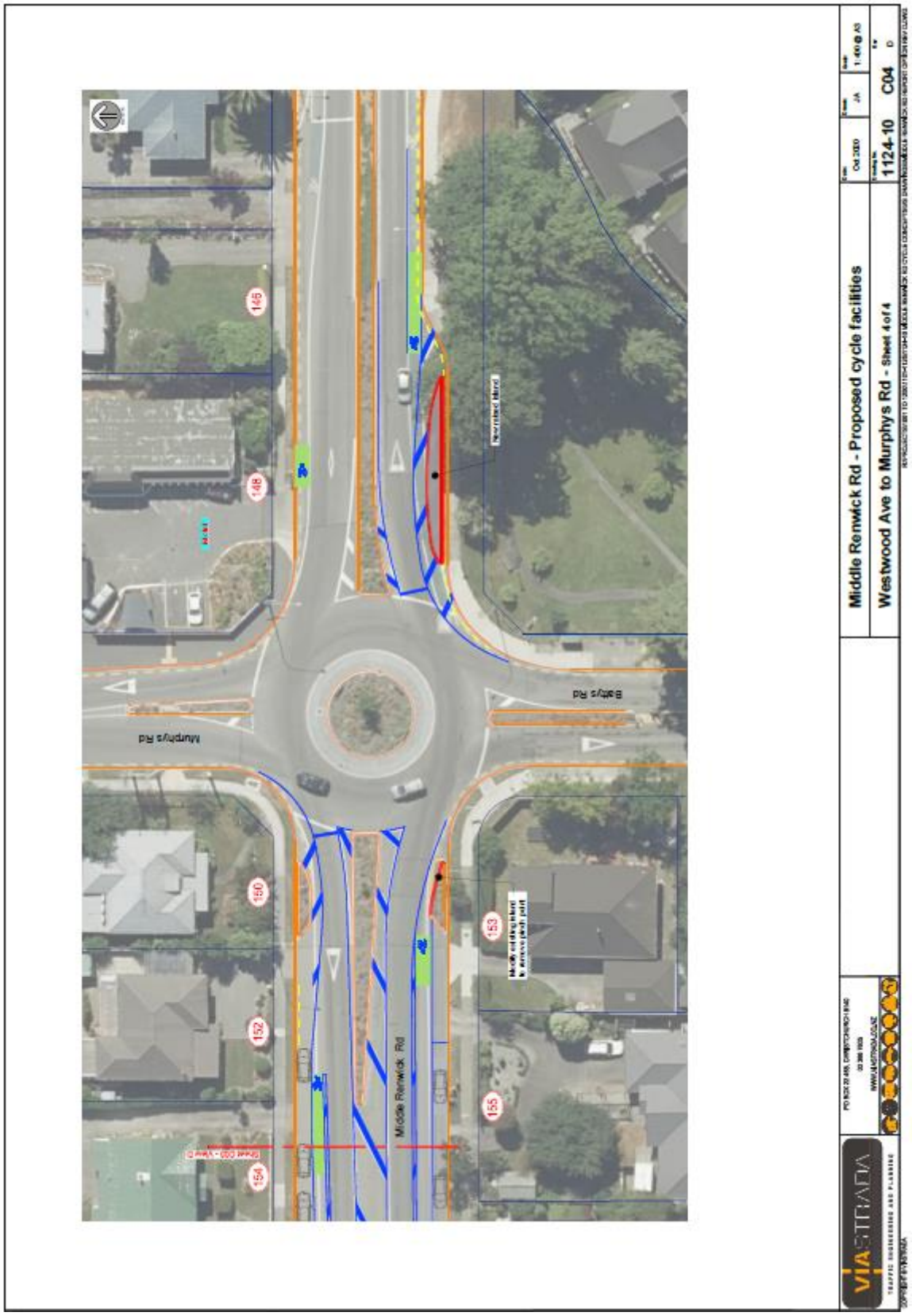
Table 14-6: MCA Location 1B

	Design Context 55%					Community/Stakeholder Interests 30%			Project Costs and Programme Risks 25%	
	Safety	Comfort	Directness	Coherence & Connectivity	Attractiveness and Social Safety	Business/ Schools	Residents	Network Effects	Cost Risks	Programme Risks
Location 1b	* Safety along route for users * Relative conflict with other road users: pedestrians; residents; traffic * Higher volume driveways/turning vehicles	* Comfort of users experience *perceptions of risk; *impacts from other traffic noise; CO_2 *cycleway width, level of protection, obstacles, gradient	* Time and distance to travel * Easy to recognise route * Limited changing of facility types * Few complicated manoeuvres	* Good match to: ***local schools ***shops ***parks ***other public spaces/buildings	* Cycling experience and amenity. * Lighting levels	* Effects on access * Changes to on-street parking and loading	* Access to properties * Changes to on-street parking	* Effect of changes to arterial corridor? * Public transport routes affected? * Effect on operational & maintenance costs? (waste collection etc)	Increased costs due to: * Physical works (K&C) *Property purchase *Complicated facilities (Budget Risk)	Programme delays due to: *Land/property acquisition *Legal processes - consents (Timing Risk)
Option 1	Buffered on-road cycle lane No on-street parking so reduced risk of dooring Off-road shared path for interested but concerned users	Good cycle lane width with additional buffer from the traffic Flat corridor	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. No on-street parking provided. Currently no on-street parking provided for Z station and all motels have off-street parking	No changes to access. Change to parking provision for residents	No change. Flush median retains capacity of route. No bus stops affected. No changes to costs.	Physical works are for cost of widening the footpath to create a shared path.	No risks.
	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓✓	-	X	✓✓✓	✓✓✓	✓✓✓
Option 2	Buffered on-road cycle lane On-street parking present so increased risk of dooring Off-road shared path for interested but concerned users	Good cycle lane width with additional buffer from the traffic Flat corridor Increased stress due to presence of parked cars	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. No on-street parking provided. Currently no on-street parking provided for Z station and all motels have off-street parking	No changes to access. Some parking provided for residents through indented bays.	No change. Flush median retains capacity of route. No bus stops affected. No changes to costs.	Physical works reqd to accommodate parking	No risks. Consent requirements for tree removal for kerb works?
	✓	✓✓	✓✓✓	✓✓✓	✓✓✓	-	✓	✓✓✓	X	✓
Option 3	Buffered on-road cycle lane On-street parking present so increased risk of dooring Off-road shared path for interested but concerned users Drivers may use cycle lane to overtake vehicles waiting to turn.	Good cycle lane width with additional buffer from the traffic Flat corridor Increased stress due to presence of parked cars and vehicles turning, maybe under more pressure with holding up traffic	Straight line Minor side road intersection to be highlighted as a conflict point Easily identifiable route	Connects residents to local shops	On-road lanes with buffer. Visible to road users. Wide enough to cycle with friend.	No changes to access. No on-street parking provided. Currently no on-street parking provided for Z station and all motels have off-street parking	No changes to access. Minimal to no change to parking provision for residents	Removal of flush median will create delays from vehicles waiting behind turning vehicles. No bus stops affected. No changes to costs.	No physical works required for on-road lanes	No risks.
	✓	✓	✓✓✓	✓✓✓	✓✓✓	-	✓✓	X	✓✓✓	✓✓✓

Appendix H **Preferred Option 2 Plans**


View A
View B
Middle Renwick Rd
Rose St
Severne St
Middle Renwick Rd - Proposed cycle facilities
Westwood Ave to Murphys Rd - Sheet 2 of 4
1124-10
C02


View C
View D
Middle Renwick Rd
Adams Ln
Murphys Rd
Batty's Rd
Middle Renwick Rd - Proposed cycle facilities
Westwood Ave to Murphys Rd - Sheet 3 of 4
1124-10
C03


Middle Renwick Rd - Proposed cycle facilities
Westwood Ave to Murphys Rd - Sheet 4 of 4
1124-10
C04
Murphys Rd
Middle Renwick Rd
145
148
150
152
153
154
155

Appendix I **Services**

The following three waters service information was provided on 3 July

Services layers are schematic only and actual positions and level should be confirmed from Council's hard copy records.

Data is provided in terms of New Zealand Geodetic Datum 2000 (version 20180701).

Date of supply: **3rd July 2020**

Supplied data: ArcGIS Shapefiles of SH 6 between Westwood Avenue and Battys Road

- Stormwater_Inlet_03072020
- Stormwater_Main_Pipe_03072020
- Stormwater_Manhole_03072020
- Stormwater_Node_03072020
- Stormwater_Service_Lines_03072020
- Wastewater_Main_Pipe_03072020
- Wastewater_Manhole_03072020
- Wastewater_Service_Lines_03072020
- Water_Backflow_Preventer_03072020
- Water_Hydrant_03072020
- Water_Main_Pipe_03072020
- Water_Service_Lines_03072020
- Water_Valve_03072020

Please note that there is a wastewater pipeline which runs along SH6 which is not included in the data provided as it is not a Council owned asset. Please contact John White (JOHN.WHITE@nzdf.mil.nz) in the first instance for further details on this asset.

The project is predominantly road markings which includes the removal of existing and or redundant markings, implementation of the buffered cycle lanes, flush median, no stopping lines etc. There is very limited physical works apart from some footpath widening, kerb cut downs and short sections of indented parking. For the Rough Order Cost Estimate inclusion of adjustments to public utility services are included as a contingency amount only where we have identified the need.

Appendix J **Rough Order Cost Estimate**

Project: 1124-10
Date: 1/Aug/20
Prepared: JA
Reviewed: WL

Middle Renwick Road
Cycle facilities
Scheme Design ROC Estimate

Item	Description	Quantity	Unit	Rates	Amount
A	**Preliminary & General**				
1	Establishment, site clearance, setting out, consents & compliance	1	LS	$ 10,000	$ 10,000
					$ 10,000
B	**Shared path & cycle path (All 75mm conc)**				
1	Excavate to sub base (200mm)	555	m^2	$ 25	$ 13,875
2	New footpath (inc basecourses)	555	m^2	$ 65	$ 36,075
3	New residential crossing (E/O)	21	m^2	$ 55	$ 1,155
4	Sawcut	16	m	$ 8	$ 128
5	Tactile pavers	84	ea	$ 45	$ 3,780
6	Battons and timber edge	235	m	$ 16	$ 3,760
					$ 58,773
C	**Kerb**				
1	Remove old kerb to waste	92	m	$ 45	$ 4,140
2	New kerb & channel (inc basecourse)	76	m	$ 120	$ 9,120
3	New kerb (inc basecourse)	56	m	$ 95	$ 5,320
4	New commercial crossing	28	m	$ 160	$ 4,480
					$ 23,060
D	**Road**				
1	Existing pavement	50mm AC			
2	New pavement	50mm AC			
3	Bituminous removal (50mm)	160	m^2	$ 5	$ 800
4	Excavate to sub base (250mm)	160	m^2	$ 25	$ 4,000
5	Saw cut	150	m	$ 8	$ 1,200
6	New pavement (inc basecourses)	115	m^2	$ 100	$ 11,500
					$ 17,500
E	**Parking indents inc footpath**				
1	Parking indent & footpath (inc. kerbs, seal & basecourses)	85	m	$ 750	$ 63,750
					$ 63,750
F	**Road Marking**				
1	100 mm lines (white or yellow)	4600	m	5	$ 23,000
2	300 Limit lines - White or Yellow	32	m	15	$ 480
3	600 mm white (diagonal bars)	230	m^2	25	$ 5,750
4	Ped & cycle symbols	35	ea	80	$ 2,800
5	Arrows	3	ea	90	$ 270
6	GW triange & STOP text-	2	ea	100	$ 200
7	RRPMs & KTMs	100	ea	20	$ 2,000
8	Green surface (long life)	220	m^2	80	$ 17,600
9	Removal of road marking	250	m^2	100	$ 25,000
					$ 77,100

Project: 1124-10
Date: 1/Aug/20
Prepared: JA
Reviewed: WL

Middle Renwick Road

Cycle facilities

Scheme Design ROC Estimate

Item	Description	Quantity	Unit	Rates	Amount
G	**Traffic Signs**				
1	Regulatory signs (shared path)	12	ea	500	$ 6,000
2	Relocate sign including new post	4	ea	350	$ 1,400
					$ 7,400
H	**Landscape**				
1	Repair of existing berm	245	m^2	15	$ 3,675
2	Top soil	50	m^2	15	$ 750
3	Planting	50	m^2	60	$ 3,000
4	Trees - Removal	5	ea	1000	$ 5,000
					$ 12,425
J	**Ancillary Costs**				
1	Adjust surface boxes - Large	3	ea	2500	$ 7,500
2	Adjust surface boxes - Small	6	ea	400	$ 2,400
					$ 9,900
K	**Traffic management**				
1	Traffic management	30	Days	1250	$ 37,500
2	Notice boards	2	LS	300	$ 600
					$ 38,100
L	**Total Construction costs**				
		Subtotal			**$ 318,008**
		Rounded			$318,100
M	**Contingency**				
1	Contingency	25%			**$ 79,600**
				ROC Estimate (Excluding GST)	$397,700
N	**Fees**				
1	General project management (3%)	1	ea	$9,600	$9,600
2	Professional fees (safety audit)	1	ea	$8,000	$8,000
3	Contract administration & supervision (14%)	1	ea	$44,600	$44,600
				Total Project Estimate	$459,900

Appendix K **Additional Project Considerations**

PAK'n SAVE / Kmart access for people travelling on foot and by bike

When looking at access opportunities for residents in the local community, it appears that when travelling from the east to the shops, people walking are expected to walk north to the zebra crossing on Westwood Avenue and then travel south on the footpath, cross over the petrol filling station access and then use another section of footpath before crossing without priority to the entrance of the supermarket as highlighted by the dashed yellow line in the figure below.

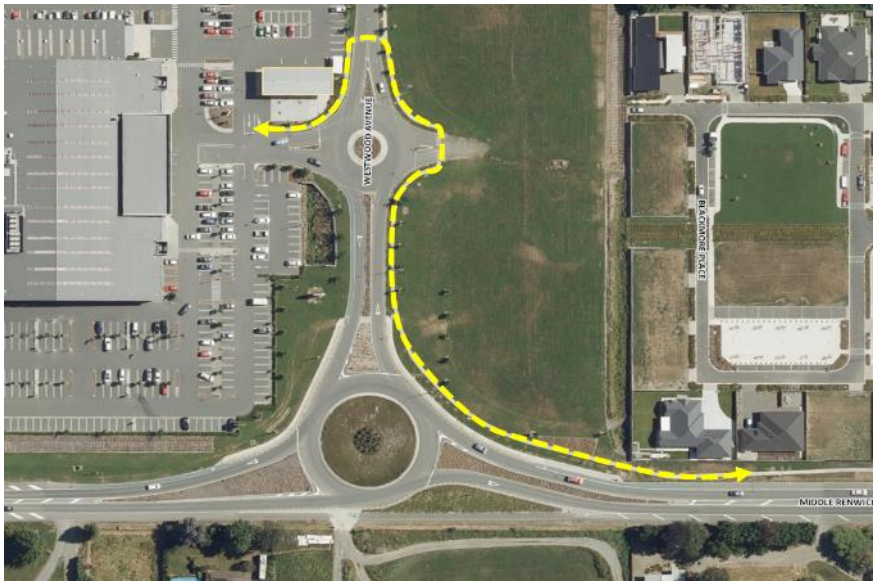


Figure 14-26: Convoluted path for pedestrians (source: https://maps.marlborough.govt.nz/)

On reviewing google street view footage, it is evident that people travelling on foot and bicycle are using shortcuts to enter the shopping area.

Figure 14-27: Worn grass and gaps in hedges indicating pedestrian desire lines (source: google streetview)

It is recommended that additional pedestrian entry points are added at the development and that current cycle crossings are adapted to allow pedestrians to cross at these locations also. Surveys should be undertaken at the intersection to understand existing desire lines and numbers using the intersection, however there is likely to be latent demand as the current arrangement is less

conducive for trips to the local shopping centre by foot and by bicycle due to the current level of service and facilities.

Shared path link to Murphys Road

Interested but concerned cycle commuters, mainly students, would benefit from a wide shared path the full length of the north side of Middle Renwick Road from the median island crossing just west of Westwood Ave to the Murphys Road intersection.

Off road cycle options at roundabout

There are options to provide Interested but concerned cycle commuters and recreational cyclists with an off-road option to avoid having to negotiate the circulating lanes of the Murphys / Battys roundabout.

NE quadrant

This quadrant requires considerable kerb widening on the north approach and or encroachment into the corner property to provide a suitable shared path facility around the corner to accommodate the path uses and mitigate the existing utility streetlight pole.

NW quadrant

Consider making the kerb buildout continuous around this corner, increasing the roundabout west approach deflection, and providing more space for a shared path facility.

SE quadrant

Consider providing a continuous kerb buildout around the corner, increasing the roundabout east approach deflection, and providing more space for a shared path facility.

SW quadrant

Consider providing a continuous kerb buildout on the east approach and around the corner, increasing the roundabout south approach deflection and providing more space for a shared path facility. There is also the option to include the Marlborough District Council Reserves team to look at accommodating a suitable shared path within the Springlands Green and avoiding having it so close to the kerb.