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25 August 2017

Record No: 17159739
File Ref: D050-001-A03
Ask For: Nicole Chauval

Notice of Committee Meeting – Thursday, 31 August 2017

A meeting of the Assets & Services Committee will be held in the Council Chambers, District Council Administration Building, Seymour Street, Blenheim on Thursday, 31 August 2017 commencing at 1.30 pm.

BUSINESS

As per Agenda attached.

MARK WHEELER
CHIEF EXECUTIVE



**Meeting of the
ASSETS AND SERVICES COMMITTEE
to be held in the Council Chambers, District Administration Building, Seymour Street,
on THURSDAY, 31 August 2017 commencing at 1.30 pm.**

Committee	Clr T M Sloan (Chairperson) Clr G I T Evans Clr J L Andrews Clr B G Dawson Clr M J Fitzpatrick Clr M A Peters Mayor J C Leggett Mr R Hunter (iwi representative)
Departmental Head	Richard Coningham, (Manager, Assets & Services) and Jamie Lyall (Manager, Property & Community Facilities)
Staff	Nicole Chauval (Committee Secretary)

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8. Eltham/Beaver Cycleway Project

(also refer to separate attachment)

(Cllr Fitzpatrick) (Report prepared by Peter McDonald)

R800-005-19

Purpose

1. The purpose of this report is to request from Council endorsement of the Eltham/Beaver Cycleway Options report and approval to initiate the procurement and construction of the recommended option.
2. A copy of the Options Report is **separately attached** to this item. This includes a summary of public consultation carried out for this project, which has been considered in the final option recommendation.

3.	John Lieswyn, Viastrada will present the report. (10 minutes).
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Background

4. This project is for the installation of a cycleway to provide a cycling environment between the Taylor River Path and Maxwell Road that is suitable for pupils attending Whitney Street Primary School, Marlborough Girls College and Bohally Intermediate School.
5. This project is part of the New Zealand transport Agency Urban Cycleway Programme (UCP) and partially funded by UCP.
6. Viastrada Ltd were engaged to develop options and provide a report. Their brief also included support with the consultation and final detailed design.
7. Construction is currently programmed for early 2018.

Discussion

8. The Marlborough Regional Land Transport Strategy (2015-2021) aims to provide for the co-ordination of effective multimodal transport. Under this objective is a policy to facilitate walking and cycling:
 - a) ... Encourage and support people in Marlborough to choose walking and cycling for an active and healthy lifestyle
 - b) ... Develop a safe, convenient and attractive travel network for walking and cycling (p.40)
9. The Marlborough Long Term Plan 2015-2025 aims to provide local accessibility that is safe and sustainable, including "healthy and sustainable alternative transport modes; access and mobility for non-drivers".
10. There are three schools identified that will directly benefit from the Eltham / Beaver cycleway project Whitney Street School (primary), Marlborough Girls College and Bohally Intermediate School.
11. Eltham Road cycleway will provide direct access to Whitney Street School.
12. The north – south aspect of the Eltham / Beaver cycleway route within the Blenheim street network indicates that this is a direct and coherent route and is likely to be used by pupils and caregivers accessing Whitney Street School, Marlborough Girls College and Bohally Intermediate School.
13. The project has the following objectives:

- a) To provide a cycling environment between the Taylor River Path and Maxwell Street along Beaver and Eltham Road that is suitable for pupils attending Whitney Street Primary School.
 - b) To retain as much parking as practicable.
14. This project is funded through the Urban Cycleway Programme (UCP) for Blenheim (NZ Transport Agency, 2015), along with the extensions to the Spring Creek shared path and the Taylor River Path.
 15. The project aims to improve and formalise the existing north-south walking and cycling route between the east-west Taylor River Path (a major route included on the New Zealand Cycle Trail) and southern neighbourhoods.
 16. This (partially) separated path will offer a safer cycle route for the more than 500 students who attend Whitney Street School, Bohally Intermediate and Marlborough Girls College.
 17. It will also encourage more people to cycle to the Taylor River Reserve Path to reach the town centre and other destinations in the area.
 18. This route is expected to attract around 200 people each day.

Consultation

19. Consultation and stakeholder engagement was led by the Sport Tasman representative on the project team, with support from MDC's communications team. Key steps included:
 - a) *26 April 2017* – open council meeting to consider concept report and seek approval for public engagement; followed by media reporting
 - b) *27 April 2017* – meetings with Whitney School principal and a parent representative of the day care centre
 - c) *28 June 2017* – meetings with Whitney School principal and board of trustees
 - d) *Late June and early July* – residents affected by cycleway (invited by letter drop) and wider community (invited through MDC communications channels)
 - e) *8 July 2017* – public 'drop-in' session at Whitney School with 26 members of the public attending
 - f) *10 July to 1 August* – phone calls and written communications as follows
 - i. Three phone calls and 41 written responses were received (seven emails, 22 online response forms, six postal response forms, and six drop-in session response forms). Typical concerns included:
 1. Narrow width of general traffic lanes for options A and C
 2. Loss of parking on east side
 3. Impact on school field trees
 4. Concern from resident on the east side of Eltham Road at the corner with Maxwell Road about parking, access and safety
20. Of the 23 respondents who indicated a preference for Eltham Road options, two favoured option A, six option B, seven option C, and eight option D. The feedback has been incorporated into the design development for the Eltham Road segments.
21. The focus of the consultation was on Eltham Road, as only minor parking impacts (if any) are anticipated for the Beaver Road segments. Further engagement is recommended for Beaver Road residents when the detailed design and any changes of intersection priority are further developed.

22. There is currently ongoing engagement with Whitney Street Primary School Board of Trustees (BoT) as one of the options, which enables parking to be retained outside the school, requires use of school grounds.
23. A number of options are available with varying degrees of encroachment however, due to the timing of BoT meetings, the written confirmation allowing use of school land has not been received but is expected to be available prior to the Council meeting.

Financial

24. Viastrada Ltd was engaged in October 2016 to prepare the options report and to assist with the consultation process. Project expenditure to the 30 June 2017 was \$26,363.
25. The original project funding allocation is shown in Table 1 below, the remaining \$154,543 16/17 funding has been carried forward to give a remaining allocation of \$335,449 for 17/18.

Source	Allocation		Total
	16/17	17/18	
UCP (TIO)	\$59,400.00	\$59,400.00	\$118,800.00
NZTA (TIO)	\$61,506.00	\$61,506.00	\$123,012.00
BWM	\$60,000.00	\$60,000.00	\$120,000.00
	\$180,906.00	\$180,906.00	\$361,812.00

Table 1

26. As a result of an underspend on the UCP Spring Creek cycleway project \$137,984 of MDC UCP funding was brought forward from 16/17. Based on a third share this equates to a remaining project fund of \$413,000.00.
27. The option with the best outcome overall would require a further \$64,000.00 funding, this is available within the current 17/18 Minor Improvements budget.

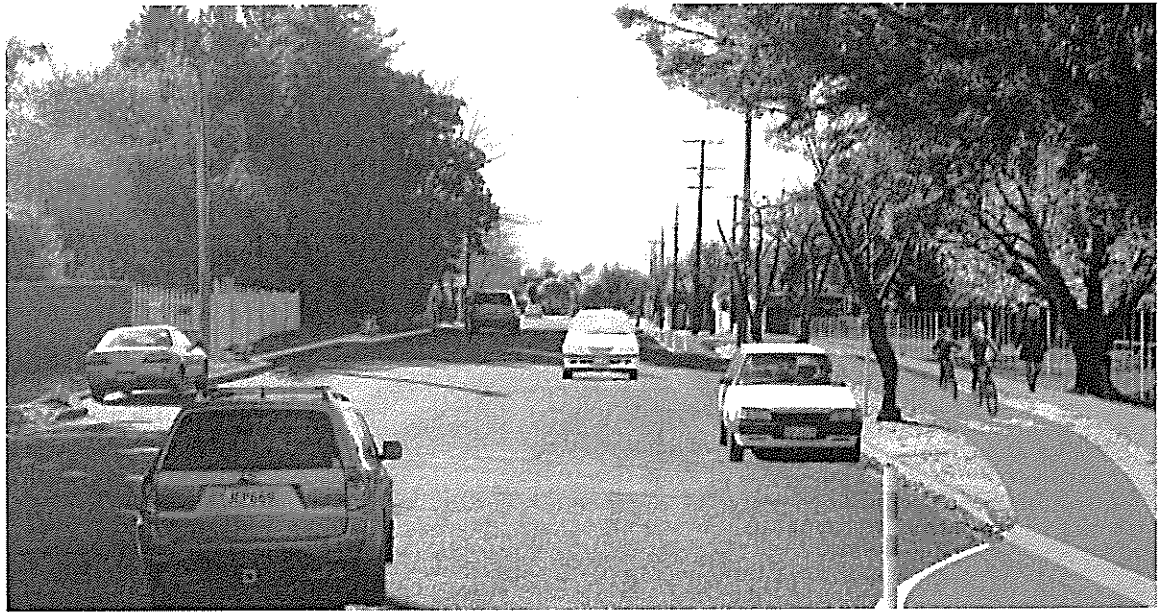
RECOMMENDED

That Council endorse Beaver - Option B and Eltham - Option E in the Option Report for the Eltham/Beaver Road Cycle Link Project and approve initiating the procurement and construction of the recommended options.



Eltham / Beaver Road Cycle link scheme report

Transport Planning and Design
Level 1, 284 Kilmore Street
www.viastrada.co.nz






Report prepared for



August 2017



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Quality Assurance Statement	
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Document Version	Date
v01 concept options report	14 Feb 2017
v02 scheme report	14 Aug 2017
v03 scheme report including client feedback and new chapter 6	16 Aug 2017



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1. Introduction

1.1. Project background and objectives

The project aims to improve and formalise the existing north-south walking and cycling route between the east-west Taylor River Path (a major route included on the New Zealand Cycle Trail) and southern neighbourhoods. As noted in the UCP programme, this (partially) separated path will offer a safer cycle route for the more than 500 students that attend Whitney Street School, Bohally Intermediate and Marlborough Girls College. It will also encourage more people to cycle to the Taylor River Reserve Path to reach the town centre and other destinations in the area. This route is expected to attract around 200 people each day.

The project has the following objectives:

- To provide a cycling environment between the Taylor River Path and Maxwell Street along Beaver and Eltham Road that is suitable for pupils attending Whitney Street Primary School.
- To retain as much parking as practicable.

This project is funded through the Urban Cycleway Programme (UCP) for Blenheim (NZ Transport Agency, 2015¹), along with the extensions to the Spring Creek shared path and the Taylor River Path.

1.2. Alignment with strategic objectives

The Marlborough Regional Land Transport Strategy (2015-2021)² aims to provide for the co-ordination of effective multimodal transport. Under this objective is a policy to facilitate walking and cycling:

- *...Encourage and support people in Marlborough to choose walking and cycling for an active and healthy lifestyle*
- *Develop a safe, convenient and attractive travel network for walking and cycling (p.40)*

The Marlborough Long Term Plan 2015-2025 aims to provide local accessibility that is safe and sustainable, including "healthy and sustainable alternative transport modes; access and mobility for non-drivers".

¹<https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/urban-cycleways/Cycling-fund-regional-factsheet-Blenheim.pdf>

²http://www.marlborough.govt.nz/Services/Parking-Roads-and-Transport/~/_media/Files/MDC/Home/Services/Parking%20Roads%20and%20Transport/FinalRLTPM arch2015_Marlborough.pdf

The Marlborough Urban Design Strategy³ proposes to “where possible, create separate shared cycle / walk paths off the mains roads that link into key areas of the town” and identifies the Eltham/Beaver Cycle Link as one such link.

2. The route

The route (shown with the thick red line in Figure 2-1) connects the Taylor River shared path at the north end to Maxwell Road at the south end.

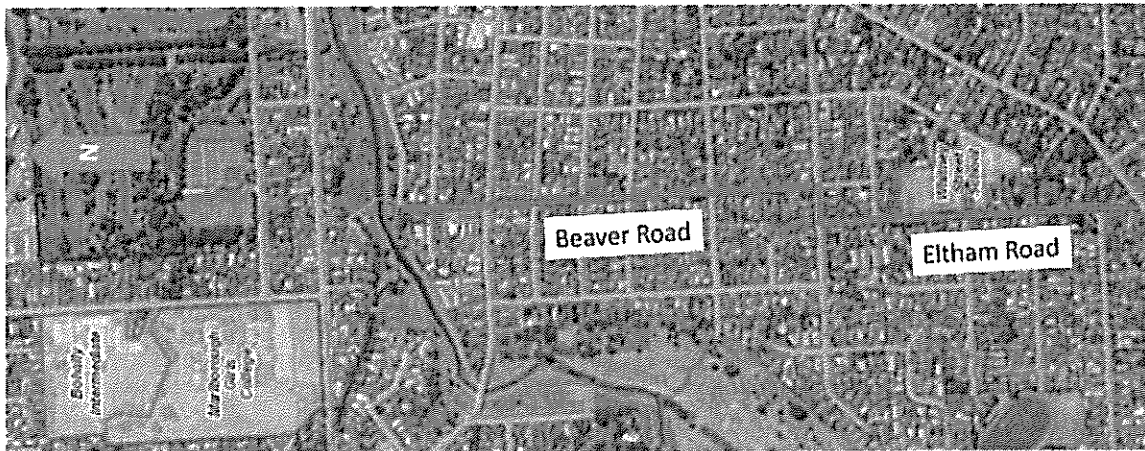


Figure 2-1: Cycle route with school locations

2.1. Land use and road hierarchy

2.1.1. Beaver Road

Beaver Road is a 940 m long local road that features 6 intersections between White Road at the northern end and Carr Street at the southern end. It is principally a residential road although there are two sizable non-residential properties along Beaver Road; the Blenheim Baptist Church, which occupies the entire west side of the road between Alfred Street and High Street and the Aorangi Motel, which occupies the entire east side of the road between High Street and Charles Street.

Table 2-1: Beaver Road carriageway width

Block	Width
White (Taylor River) to Alfred	7.4 m
Alfred to High	8.2 m
High to Charles	7.5 m
Charles to Arthur	7.5 m
Arthur to George	7.6 m

³<http://www.marlborough.govt.nz/Your-Council/Growing-Marlborough/Blenheim-Town-Centre/Summary.aspx>

Block	Width
George to Monro	9.0 m
Monro to Dillon	8.8 m
Dillon to Carr	6.9 m

Beaver Road is a relatively narrow residential road, with varying carriageway and footpath widths. The width of the road is a key determination to travel speed, parking provision and space for cycling, for this reason the widths for the sections along Beaver Road are shown (Table 2-1). There are no street trees along the entire length of Beaver Road (Figure 2-2) apart from the eastern side between Dillon Street and Carr Street where there is no footpath.

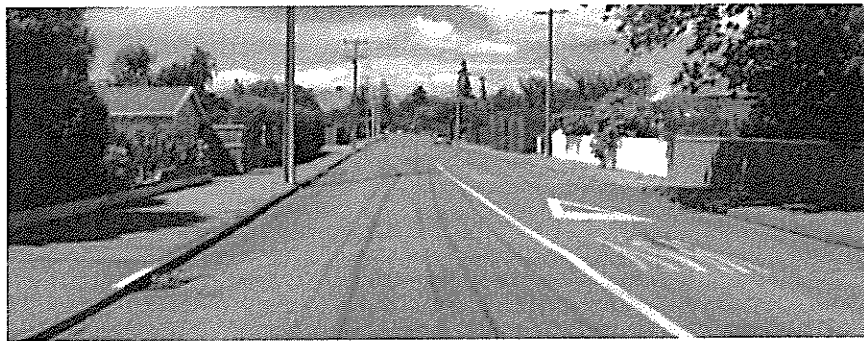


Figure 2-2: existing view of Beaver Road

2.1.2. Eltham Road

Eltham Road is a 640 m long collector road with a 10.5 m kerb to kerb width for most of its length. It starts at a T junction with Dillon Street at the northern end and finishes at a wide median divided intersection at Maxwell Road at the southern end. Carr Street intersects on the east side and Brewer Street, Stratford Street and Rogers Street intersect on the west side. It is principally a residential road although Whitney Street School and the Blenheim Playcentre childcare centre occupy a significant street frontage on the eastern side between Carr Street and Stratford Street. The Marlborough Guides regional hall is located on the west side directly north of Rogers Street.

2.1.3. Carr Street

Carr Street is a relatively short street at 240 m long, linking Eltham Road to Percy Street at Tee intersections. The section between Eltham Road and Beaver Road is 70 m long and has residential properties on both sides of the street. It is relatively narrow at just over 7.2 m wide and there is no footpath on the south side of the road.

2.1.4. Dillon Street

Dillon Street is a secondary collector and 900 m long although the section between Eltham Road and Beaver Road used for the project is 70 m long. It serves single family residential land uses. There is a wide grass berm on both sides with a narrow footpath on the south side and a wider footpath against the boundary on the north side. The street



is relatively narrow at 9.0 m; when cars are parked on both sides there is only 5.0 m available for through traffic, which reduces Dillon Street to one lane where side by side parking occurs.

West of the Eltham Road intersection, Dillon Street at transitions from the relatively narrow road to 14.0 m wide road and forms part of the Lee Street / Eltham Road primary collector route.

2.2. School use of the route

There are three schools identified that will benefit from the cycleway (Figure 2-1); Whitney Street School (primary), Marlborough Girls College and Bohally Intermediate School. Eltham Road cycleway will provide direct access to Whitney Street School. The north – south aspect of the Eltham / Beaver cycleway route within the Blenheim street network indicates that this is a direct and coherent route and is likely to be used by pupils and caregivers accessing Whitney Street School, Marlborough Girls College and Bohally Intermediate School.

The transport mode share is an important measure of how people travel to and from school. The latest 2016 mode share data for Bohally Intermediate and Whitney Street schools have been provided by MDC. Data for Marlborough Girls came from their August 2012 school travel plan.

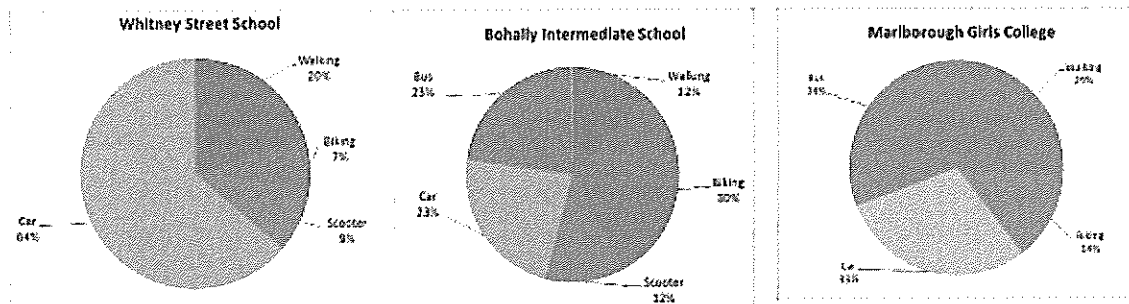


Figure 2-3: Travel mode split pie chart

The travel mode split results are summarised in Table 2-2.

Table 2-2: Travel mode split

School	Year	Walking	Biking	Scooter	Car	Bus	Total
Whitney Street	2016	20%	7%	9%	63%	0%	100%
Bohally	2016	12%	30%	12%	23%	22%	100%
Marlborough Girls	2012	29%	14%	0%	33%	34%	110%

Bohally Intermediate School has the highest biking (30%) and scooter (12%) mode share with the lowest walking (12%) and car use (23%) mode share. Whitney Street School has the lowest biking (7%) and the highest car use at (63%). Nevertheless, at least a dozen children are typically seen cycling and even more scooting to Whitney.

Marlborough Girls College is relatively evenly split between walking (29%) car use (33%) and bus (34%). 14% bike to school and no one comes by scooter.



A change in travel behaviour is expected with the implementation of a cycleway that is safe, convenient, attractive and integrated into the network⁴. It will be possible to measure any change in mode share to determine the use of the facilities and whether the project has been successful.

2.3. Traffic data

Traffic counts were undertaken for Marlborough Roads by J & T McDowell on Eltham Road and Beaver Road from Saturday 12 November to Friday 25 November. The traffic counters were located at number 11 Beaver Road and at 18b Eltham Road.

2.3.1. Beaver Road

The week day traffic flow on Beaver Road is very consistent, with a 5 day average of 607 vehicles per day (VPD). The vehicle counting equipment classified 94% of vehicles using Beaver Road as light vehicles and 3.4% as bicycles or motorbikes.

Table 2-3: Beaver Road average VPD

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Average VPD	584	567	625	603	656	541	458

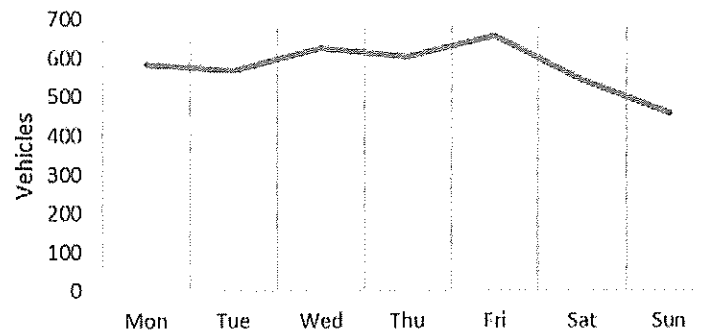


Figure 2-4: Beaver Road average VPD graph

The hourly traffic count graph (Figure 2-5) indicates no morning peak but a consistent flow of 30 to 40 vehicles per hour between 8:00 am and 4:00 pm, when school cyclists are likely to use the road, with an increase to 50- 60 vehicles per hour in the afternoon peak between 4:00 pm & 6:00 pm.

⁴ Criteria taken from the adopted Marlborough Walking and Cycling Strategy 2010.

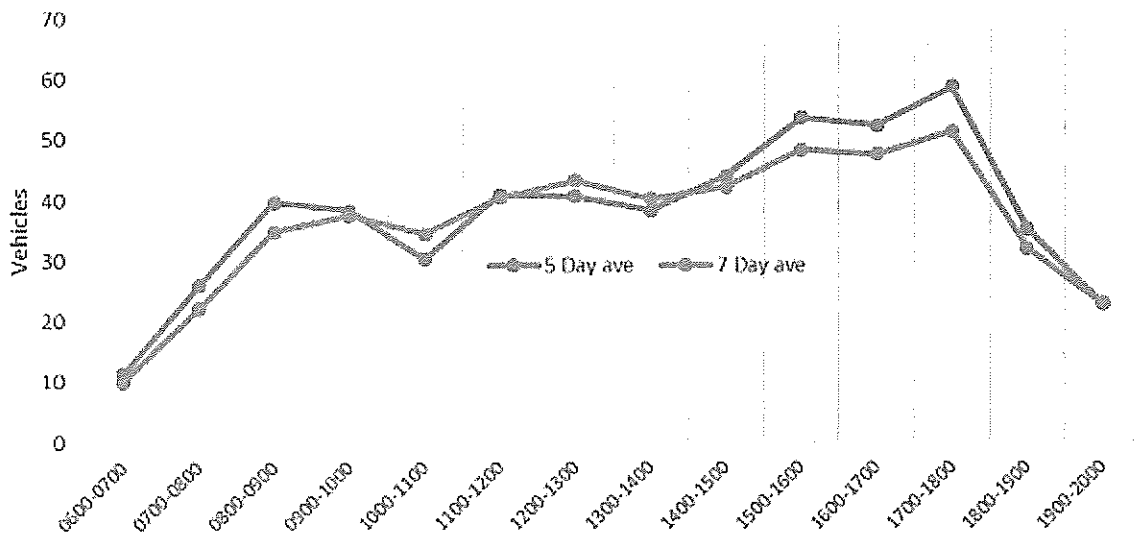


Figure 2-5: Beaver Road hourly traffic count

The key speed environment indicators for Beaver Road are noted in (Table 2-4).

Table 2-4: Beaver Road speed data

	85%	Median	Max.	Above 50km/h	Above 60 km/h
Speed	48.6 km/h	40.3 Km/h	96.4 Km/h	11.4%	1.1%

At 48.6 km/h, the 85th percentile speed is just below the posted speed limit of 50 km/h and indicates that the speed environment is appropriate for a residential road but is well above the recommended speed of 30 km/h for a neighbourhood greenway.

2.3.2. Eltham Road

As can be seen in (Table 2-5) and (Figure 2-6) the Monday to Friday week day traffic flow is very consistent, with a 5 day average of 4,449 VPD. The vehicle counting equipment classified 98% of vehicles using Eltham Road as light vehicles, with 1.2% bicycles or motorbikes.

Table 2-5: Eltham Road average VPD

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Average VPD	4,364	4,285	4,553	4,417	4,625	3,591	3,231

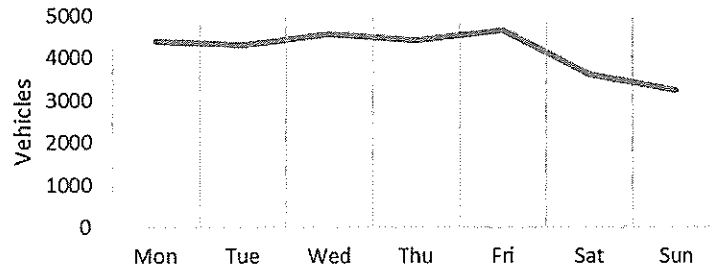


Figure 2-6: Eltham Road average VPD graph

The hourly traffic count graph (Figure 2-7) indicates a clear morning peak hour between 8:00 am & 9:00 am with a longer afternoon peak between 3:00 pm & 6:00 pm.

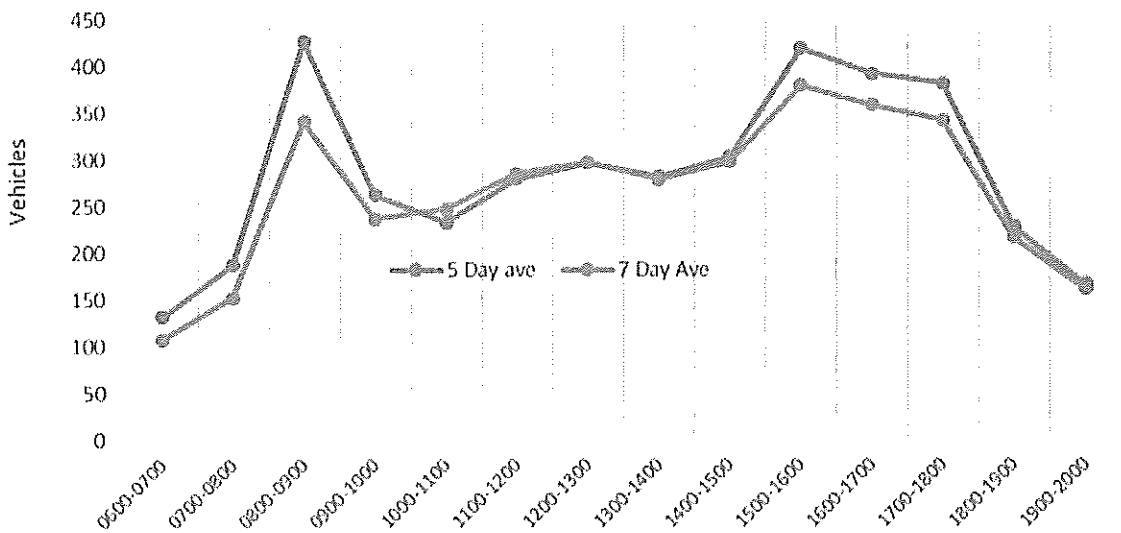


Figure 2-7: Eltham Road hourly traffic

The total number of vehicles recorded over the 14 days in the Eltham Road traffic count was 54,456. The key speed environment indicators are noted in Table 2-6.

Table 2-6: Eltham Road speed data

	85%	Median	Max.	Above 50km/h	Above 60 km/h
Speed	50.8 km/h	45.4 Km/h	116.6 Km/h	19%	0.8%

At 50.8 km/h, the 85th percentile speed is only just above the posted speed limit of 50 km/h and indicates that the speed environment is appropriate for a residential road.

Table 2-7 shows the number of vehicles recorded exceeding the posted speed limit categorised in 10 km/h bands. A review of the speed data that shows that the more extreme speeds are generally recorded late at night or very early morning. Of concern however, is that a number of the 414 vehicles recorded as travelling faster than 60 km/h were doing so during school hours.

Table 2-7: Eltham Road speed bands

	Speed bands (km/h)					
	50 - 60	60 - 70	70 - 80	80 - 90	90 - 100	>100
Number exceeding	9916 (18.2%)	371 (0.7%)	35	3	3	2

2.4. Crash history

A search was undertaken of the NZTA Crash Analysis System (CAS) to identify recorded crashes on Eltham Road and Beaver Road in the preceding 5 year period. The crash reports are attached in Appendix A.

No crash patterns were apparent in either road, however we note that of a total of 19 crashes, 6 (32%) occurred at the Dillon Street intersections with Eltham and Beaver. Three occurred at the Beaver / Dillon intersection and all were a result of failure to give way. Three occurred at the Eltham / Dillon intersection with one a failure to give way, one a loss of control and one a rear end crash.

2.4.1. Beaver Road

There have been 10 crashes recorded on Beaver Road in the five-year search period with no obvious crash pattern. There have been no fatal or serious injury crashes, but two crashes resulted in minor injuries. As would be expected, nine of the 10 crashes occurred at intersections (*Figure 2-8*); three at Dillon Street, two at George Street, two at Arthur Street and one each at High Street and White Street. Failure to give way was causal in eight of the crashes.

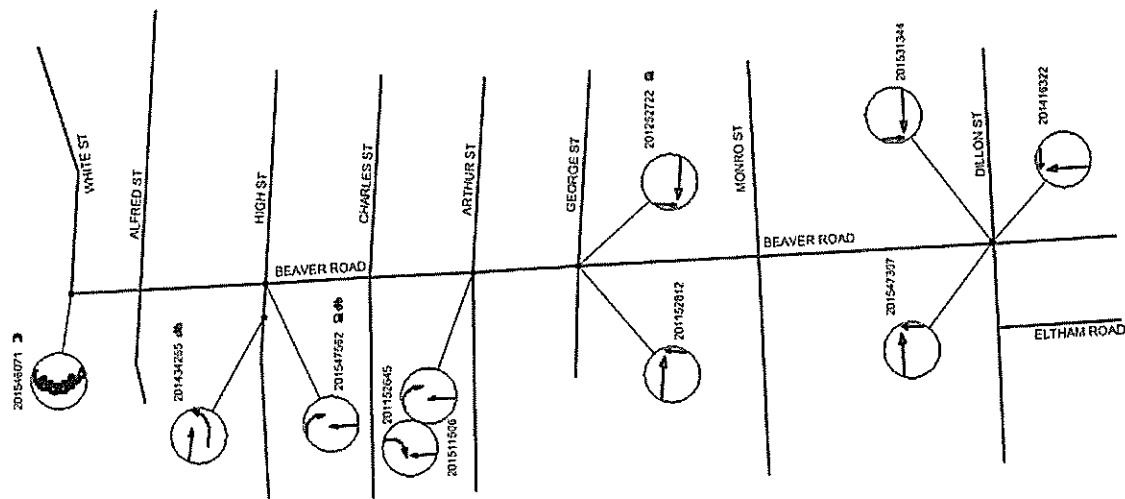


Figure 2-8: Beaver Road five year crash map

The non-intersection crash occurred on High Street, 30 metres west of Beaver Road, and involved a cyclist hit by a vehicle entering or exiting a driveway.



2.4.2. Eltham Road

There have been nine crashes recorded on Eltham Road in the five-year search period with no obvious crash pattern. There have been no fatal crashes, but one crash resulted in serious injury and two in minor injuries. The serious injury crash involved a cyclist eastbound on Maxwell Road hit by a vehicle turning right from Eltham Road and failing to give way.

Seven of the nine crashes occurred at intersections (Figure 2-9); three at Dillon Street and one each at Carr, Brewer, Stratford and Maxwell. Failure to give way was causal in three of the crashes and loss of control in two of the crashes. In the loss of control crashes, one was evading police and alcohol suspected as a factor in the other.

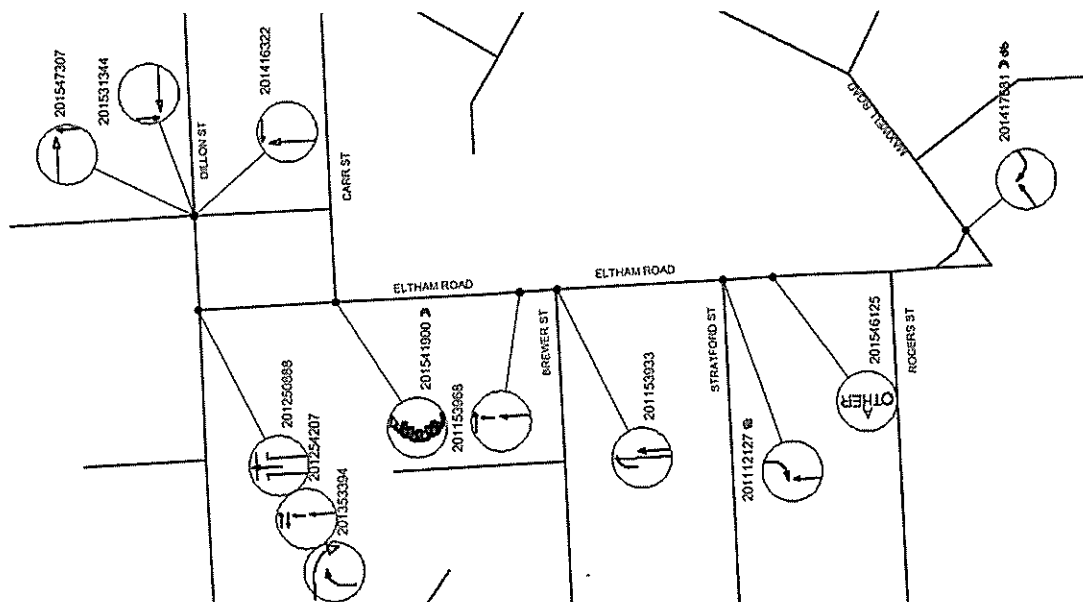


Figure 2-9: Eltham Road five year crash map

Both non-intersection crashes occurred on Eltham Road, one 30 m north of Brewer Street where a car that slowed for a pedestrian was rear ended and the other occurred 40 m south of Stratford Street and involved a northbound vehicle hitting a parked car.

2.5. On-street parking

A survey of parking availability and occupancy on Eltham and Beaver Roads was undertaken by MR staff on Thursday 22 September 2016. The surveyed roads were divided into segments, typically between intersecting side roads, and the number of available spaces in each segment identified. The actual number of vehicles parked in each segment was recorded in 30 minute intervals between 7:00 am and 7:00 pm.

2.5.1. Beaver Road

Beaver Road is a relatively narrow residential road, which the survey indicates has a low demand for parking. Apart from parking restrictions in the form of broken yellow lines (BYLs) outside the Blenheim Baptist Church between Alfred and High streets, there are no other parking restrictions. There are two sizable non-residential properties along Beaver Road that provide off street parking.



(Table 2-8) shows the number of available on-street parking spaces in each segment and the highest number of parked vehicles recorded in any 30 minute period between 7:00 am and 7:00pm. The only segment where parking demand exceeded 33% of available spaces was the west side of the Arthur / George segment. Of the seven available spaces, four were occupied although there were 10 spaces available on the east side of the road.

Table 2-8: Beaver Road parking demand

Segment	Side	Land use	Parking restrictions	Available parking	Maximum occupancy
Alfred/High	West	Baptist Church	BYLs	3	0 (0%)
	East	Residential	None	11	3 (27%)
High/Charles	West	Residential	None	9	3 (33%)
	East	Aorangi motel	None	8	1 (13%)
Charles/Arthur	West	Residential	None	9	2 (22%)
	East	Residential	None	10	0 (0%)
Arthur/George	West	Residential	None	7	4 (57%)
	East	Residential	None	11	1 (9%)
George/Monro	West	Residential	None	15	3 (20%)
	East	Residential	None	15	4 (27%)
Monro/Dillon	West	Residential	None	20	6 (30%)
	East	Residential	None	20	4 (20%)
Dillon/Carr	West	Residential	None	6	2 (33%)
	East	Residential	None	12	3 (25%)

2.5.2. Eltham Road

The Eltham Road entry to the Whitney Street School and the Blenheim Play Centre / Childcare Centre is located on the east side of Eltham Road just south of the Brewer Street intersection. As would be expected, parking demand is high here and peaks at school drop off and pick up times, with the highest demand at 3:00 pm when caregivers park and wait to collect children. The parking demand is centred around the zebra crossing which is located close to the school entrance. The survey also indicated high parking demand between 9:30 am and 11:30 am which is expected to be associated with dropping children off at the childcare centre.

Table 2-9 shows the parking availability and occupancy in the various segments of Eltham Road at 3:00 pm, the highest parking occupancy period.

Table 2-9: Eltham Road parking demand

Segment	Side	Land use	Parking restrictions	Available parking	Occupancy at 3 pm
Dillon/Carr	West	Residential	Bus stop	6	0 (0%)



Segment	Side	Land use	Parking restrictions	Available parking	Occupancy at 3 pm
Carr/School field	East	Residential	None	12	0 (0%)
	West	Residential	None	7	0 (0%)
	East	Residential	None	5	3 (60%)
School field/Brewer	West	Residential	None	11	8 (73%)
	East	School field	None	17	14 (82%)
Brewer/Stratford	West	Residential	30m BYLs 2 - P15 parks	9	7 (78%)
	East	Day care / school Residential	26m BYLs 6 - P15 parks	13	10 (77%)
Stratford/Rogers	West	Residential	None	12	0 (0%)
	East	Residential	None	14	2 (14%)
Rogers/Maxwell	West	Residential	None	5	0 (0%)
	East	Residential	None	6	1 (17%)

The following three diagrams graphically indicate the parking occupancy on Eltham Road at 8:30 am, 11:30 am and 3:00 pm. The segment between Brewer Street & Carr Street is split into two sections; the section in front of the school fields and the remainder to Carr Street.

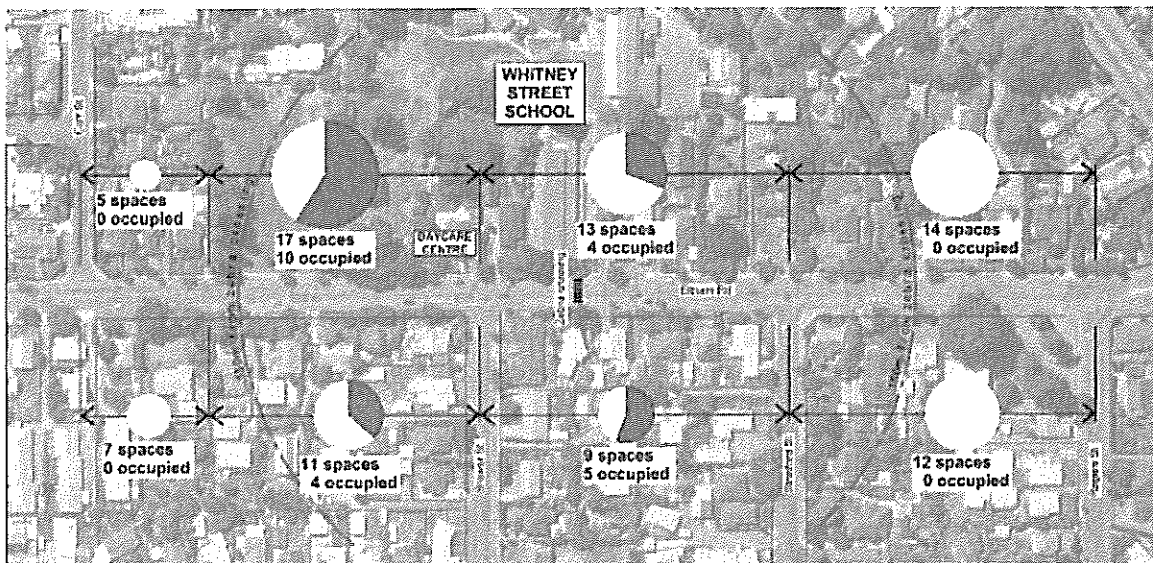


Figure 2-10: Eltham Road parking demand at 8:30 am

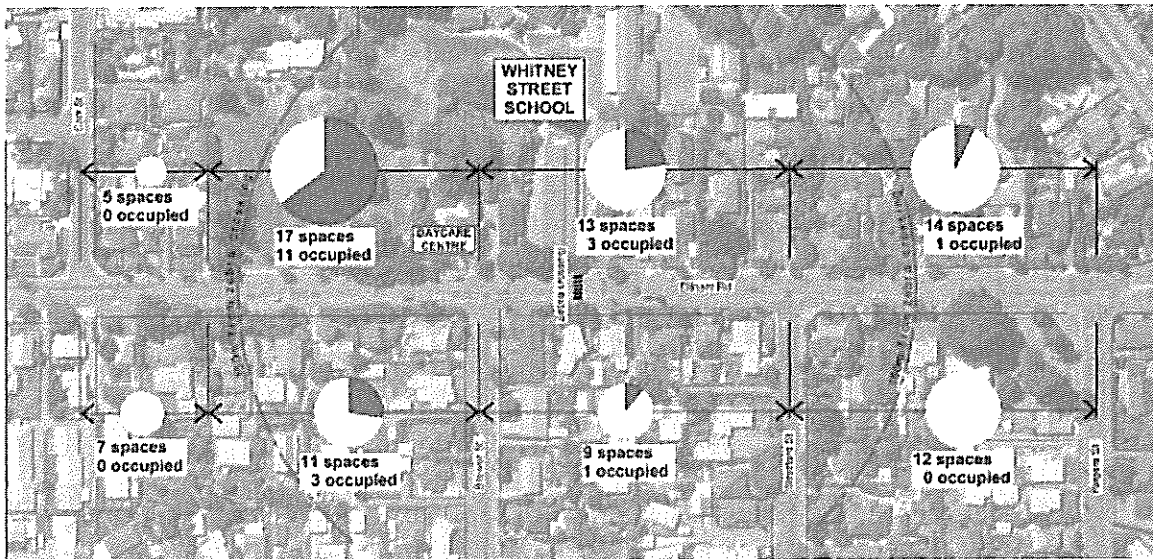


Figure 2-11: Eltham Road parking demand at 11:30 am

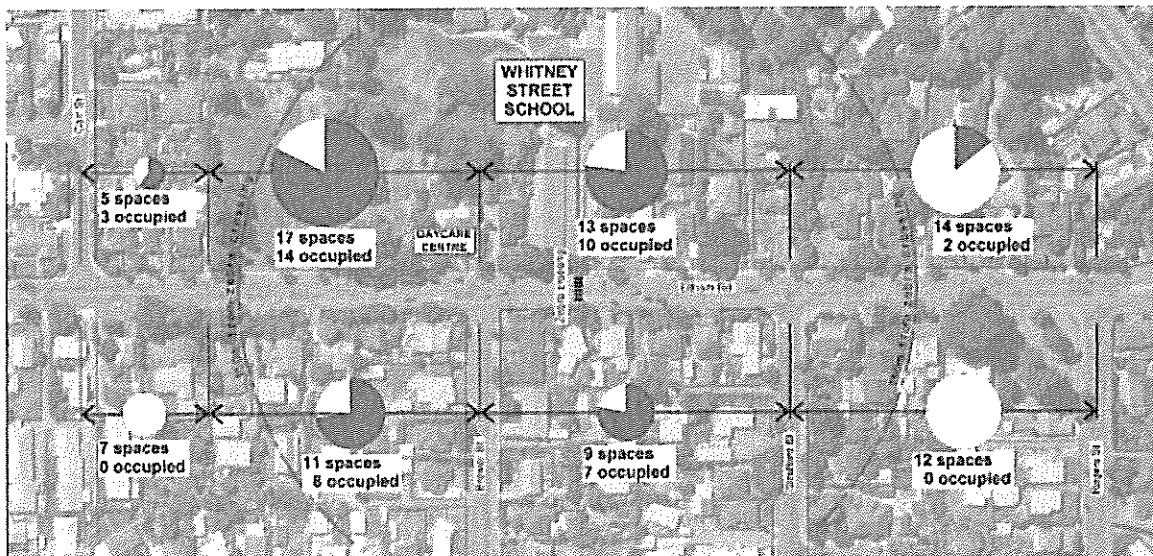


Figure 2-12: Eltham Road parking demand at 3:00 pm

Figure 2-10, Figure 2-11 and Figure 2-12 show that there is high parking demand on the east side of Eltham Road and any reduction in the parking availability will see these cars displaced to other locations (although some parents may choose to allow their children to use active travel modes as a result of the project). As can be seen there are other parking options within 150 m of the zebra crossing, in Eltham Road, Brewer Street and Stratford Street.

The parking occupancy in Brewer Street and Stratford Street has also been measured in the afternoon peak hour between 2:00 pm and 3:00 pm.

2.5.3. Stratford Street

The section of Stratford Street, from Eltham Road to No 8/10 Stratford Street has capacity for 25 parallel parked vehicles. During the survey, one car was parked on the south side



and three cars were parked on the north side. This indicates there is capacity for 21 more car parks in this street. Stratford Street is only 9.0 m wide which results in a 5.0 m wide carriageway when cars are parked on both sides. Should this street become fully parked with relocated vehicles from Eltham Road, the street will be reduced to one lane. This means drivers will need courtesy to pull into available space to allow another vehicle past. This should be monitored and parking restrictions considered as required.

2.5.4. Brewer Street

The section of Brewer Street (from Eltham Road to Argosy Street) has capacity for 28 parallel parked vehicles. During the survey, three cars were parked on the south side and two cars were parked on the north side. This indicates there is capacity for 25 more car parks in this street. Brewer Street is also 9.0 m wide and may have single lane flow during high parking demand. This may need to be monitored and parking restrictions considered if needed.

3. Option development

The options described in the following sections should be read in association with the relevant concept plans attached in Appendix B.

3.1. Overview

The proposed cycle route link between the Taylor River path and Maxwell Road is comprised of two different facility types; approximately 1 km of on-road cycling on Beaver Road and Carr Street and approximately 500 m of separated cycle path on the east side of Eltham Road. Sub options have been developed for both facilities that are considered interchangeable. Any Beaver Road option can be matched with any Eltham Road option. The options proposed in this report are based on the options discussed in the Eltham Road / Carr Street / Beaver Road Cycle Link report prepared by ViaStrada for MDC in January 2011, concepts refined in February 2017, and consultation undertaken during July 2017.

3.2. Costing

Rough order cost (ROC) estimates have been revised since the February options report, reflecting an increased level of certainty about project variables. A lower contingency (ranging from 0% to 20%) has been applied, however no survey has been undertaken and there is some risk in using these lower figures. Value engineering may be needed to remain within budget if there are unforeseen issues. In addition, the cost of the fencing work has been increased from a sum adequate for fence relocation (\$50 per metre) to a new fence (\$150 per metre).

3.3. Public engagement

Engagement was led by the Sport Tasman representative on the project team, with support from MDC's communications team. Key steps included:



- 26 April 2017 – open council meeting to consider concept report and seek approval for public engagement; followed by media reporting
- 27 April 2017 – meetings with Whitney school principal and a parent representative of the day care centre
- 28 June 2017 – meetings with Whitney school principal and board of trustees
- Late June and early July – residents affected by cycleway (invited by letter drop) and wider community (invited through MDC comms channels)
- 8 July 2017 – public ‘drop-in’ session at Whitney School with 26 members of the public attending
- 10 July to 1 August – three phone calls received

Three phone calls and 41 written responses were received (seven emails, 22 online response forms, six postal response forms, and six drop-in session response forms). Typical concerns included:

- Narrow width of general traffic lanes for options A and C
- Loss of parking on east side
- Impact on school field trees
- Concern from resident on the east side of Eltham Road at the corner with Maxwell Road about parking, access and safety

Of the 23 respondents who indicated a preference for Eltham Road options, two favoured option A, six option B, seven option C, and eight option D. The feedback has been incorporated into the design development for the Eltham Road segments.

The focus of the consultation was on Eltham Road, as only minor parking impacts (if any) are anticipated for the Beaver Road segments. Further engagement is recommended for Beaver Road residents when the detailed design and any changes of intersection priority are further developed.

4. Beaver Road options

4.1. Design options considered

A **shared path** may be feasible in some short sections of Beaver Road, but much of Beaver Road features narrow (2m) footpaths with no separation to property boundaries, multiple driveways and high fencing or hedges that restrict inter-visibility between vehicles exiting driveways and path users. Cyclists using the footpath would be required to cross the road at every intersection. This environment is not suitable for the footpath to operate as a shared path and this is not considered a feasible option for Beaver Road.

Cycle lanes would require a minimum kerb to kerb road width of 8.4 m, based on two 1.2 m cycle lanes and two 3.0 m traffic lanes and removal of all road side parking. Of the 8 segments that make up Beaver Road, only Dillon Street to Monro Street and Monro Street to George Street exceed 8.4 m in width. It is extremely unlikely that the Beaver Road residents in these segments would accept removal of all on street parking to allow the installation of cycle lanes. The average width of the remaining segments is 7.5 m and too narrow to accommodate cycle lanes. It would not be possible to create a coherent



route of cycle lanes along Beaver Road and this is not considered a feasible option for Beaver Road.

A **neighbourhood greenway** is proposed because the other two options are considered infeasible and it is appropriate given the low existing traffic volumes (600 vpd, refer section 2.3.1). As speed data indicates an 85th percentile of 48.6 km/h, traffic calming measures would further support the proposal (as per options B and C that follow). According to the NZTA⁵, neighbourhood greenways:

also known as 'quiet streets', 'slow streets' and 'bicycle boulevards', are streets with low volumes of motor traffic (preferably below 1,500 vehicles per day, with an upper limit of about 3,000 vehicles per day, depending on available width) travelling at low speeds (i.e. 30 km/h or slower), creating an environment where travel by cycle is pleasant without requiring specific cycle facilities. Neighbourhood greenways generally incorporate lower speed limits and, more importantly, physical measures to ensure low traffic speeds. Road markings (such as sharrow markings) may be used to indicate to cyclists and motorists that they are expected to share the same road space. Physical measures may be used to restrict the movements available to motorists in and out of a neighbourhood greenway, thus controlling vehicle volumes, while allowing permeability to people cycling.

Three options for a neighbourhood greenway have been developed for Beaver Road, as further described in the following sections:

- A. Do minimum (signs and markings only)
- B. Safer crossings plus signs and markings
- C. Traffic calming, safer crossings, signs and markings

4.2. Beaver Road option A: signs and markings

Refer plan C01 and C02, rough order cost (ROC) \$18,000

This do-minimum option is limited to warning signs (one per block in each direction) and sharrows installed at 70 m intervals. While the signs and markings would help, riders would need to cross Alfred Street, High Street, Monro Street, Dillon Street & Carr Street. In March 2009, traffic counts show that High Street carried 8,058 VPD which is a high number for interested but concerned cyclists to cross.

In all options considered for Beaver Road, signs and markings are proposed to highlight the route and promote courtesy. Sharrow markings (Figure 4-2) became legal road markings on 1 December 2016 and are proposed for Beaver Road and Carr Street. According to the NZTA⁶, sharrows:

- *Help reinforce that the carriageway is a valid place for cyclists to travel (reinforcing to other road users to act accordingly)*
- *Help to position cyclists on the street, clear of hazards like car doors and pinch points like kerb build outs and stormwater grates*

⁵ <https://www.nzta.govt.nz/walking-cycling-and-public-transport/cycling/cycling-network-guidance/designing-a-cycle-facility/between-intersections/neighbourhood-greenways/>

⁶ <https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/cycling-network-guidance/Sharrows-R1E160203-Best-Practice-Guidance-Note-Feb-2016.pdf>

- Help the cyclist 'occupy' the traffic lane when it is safe and appropriate to do so.



Figure 4-1: PW-35 Cyclists sign



Figure 4-2: Sharrow marking

4.3. Beaver Road option B: safer crossings

Refer plan C03 and C04, ROC \$115,000

In addition to the option A signs and markings, median islands would be installed on High Street to assist with road crossing and Beaver Road would be given priority over Alfred, Monro & Dillon streets. This would improve the comfort and travel time for cyclists but may also result in higher motor vehicle speeds. There will be some loss of parking at the High Street intersection to accommodate the proposed median islands.



Figure 4-3: median refuges to aid crossing at High Street; please refer to full plans in Appendix B for balance of proposals along Beaver Road

4.4. Beaver Road option C: traffic calming

Refer plan C05 and C06, ROC \$170,000

Safer crossings and traffic calming: in addition to the features of options A and B, this option would include some form of traffic calming. Calming could include landscaping or street trees in kerb build-outs (Figure 4-4). This would improve the visual amenity and road safety for all residents and road users as well as the comfort of people riding bikes. However, some reduction in on-street parking would be required to install traffic calming features (refer to parking assessment in section 2.5.1).

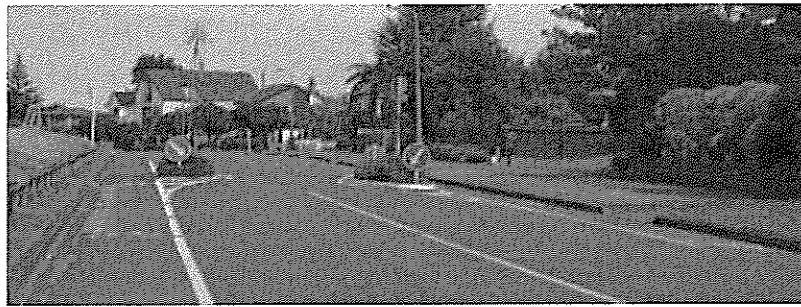


Figure 4-4: Example of landscaped traffic calming with cycle bypass, Palmerston North

4.5. Beaver Road option D: Dillon Street

Refer plan C07, ROC \$125,000

Option D could be applied to any of the previous options and consists of a 2.4 m wide shared path and 0.3 m buffer along the north side of Dillon Street (between Beaver and Eltham roads) as well as additional crossing facilities usable for the general public at any time of day. It would cross Carr Street via a raised platform where it joins the Eltham Road separated cycleway described in section 5. This would also include the opportunity to install kerb build outs in the wider portion of Eltham Road for street trees and indented parking, making the entire Eltham Road corridor more continuous.

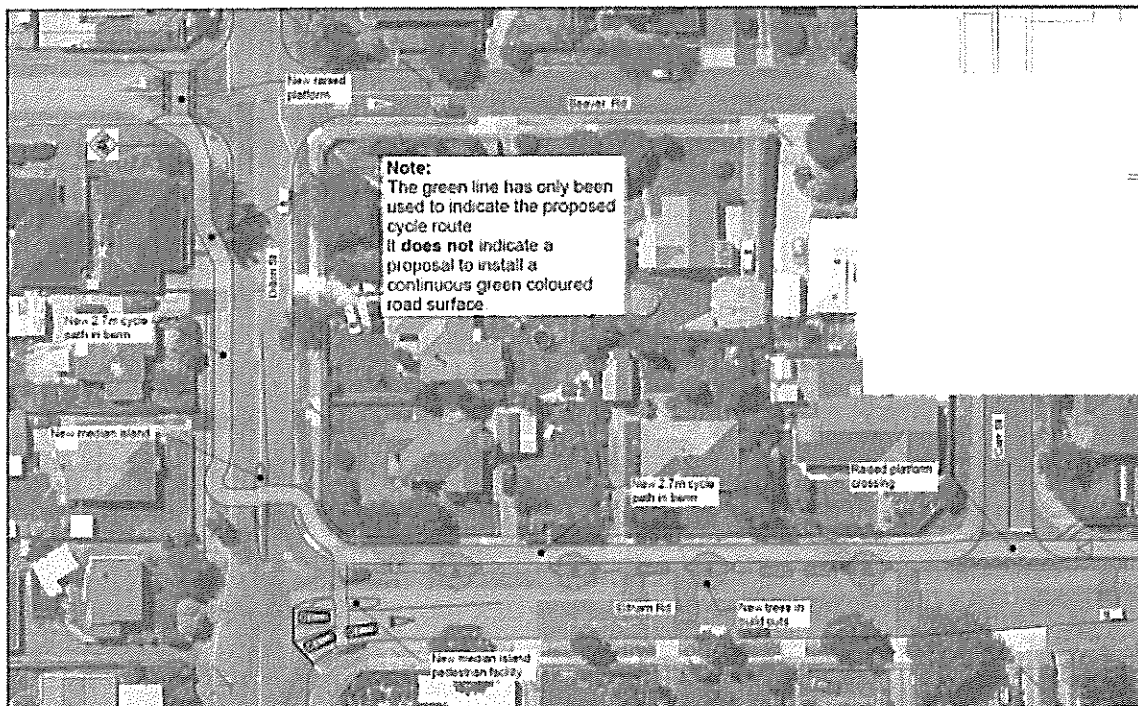


Figure 4-5: Dillon Street alternative route rather than Carr Street

4.6. Beaver Road option evaluation

As shown in Table 4-1, each option has been assessed against five main criteria. A negative outcome is assigned an "X", a neutral outcome a circle, and a positive outcome a



tick mark. Scores are 0, 1 or 2 respectively, with parking weighted double and safety weighted triple the other three criteria.

Table 4-1: Beaver Road option evaluation

		Criteria					Total score
Stakeholder		Safety	Coherent	Attractive	Parking	Acceptance	
Option A	Cyclists	✗	✓	●	✗	✓	5
	Residents	●	●	●	●	●	8
	Community	●	●	●	●	●	8
Option B	Cyclists	●	✓	●	✗	✓	8
	Residents	✗	●	●	●	●	5
	Community	●	●	●	●	●	8
Option C	Cyclists	✓	✓	✓	✗	✓	12
	Residents	✓	●	✓	●	✗	11
	Community	●	●	✓	●	●	9
Dillon St alternative	Cyclists	✓	✓	✓	✓	✓	16
	Residents	✓	●	●	●	✓	12
	Community	✓	●	✓	●	✓	13
✗ indicates a negative outcome		● indicates a neutral outcome			✓ indicates a positive outcome		

The difference between Option B and Option C is the introduction of traffic calming (if required) to address poor compliance with the 30 km/h speed limit and the potential for the intersection priorities to induce “rat running”; both of which pose a safety concern for cyclists. MDC may prefer to construct Option B and monitor speed and traffic volumes in Beaver Road and introduce traffic calming if required. If Option B is constructed, then consideration should be given to including the Dillon Street alternative option as noted above.

Option C has the best outcome for cyclists, and also has the highest score for the other two stakeholder groups. The Dillon Street alternative (versus Carr Street, which may be chosen for any of the options) would deliver the highest scoring outcomes for all three stakeholder groups and can be added to any of the options either at the same time or as a future stage of work when funding is available.

Table 4-2 summarises the Beaver Road option costs.



Table 4-2: Beaver Road cost estimate summary

	Option A	Option B	Option C	Option D
ROC	\$18,000	\$115,00	\$170,00	\$125,000

These estimates include a variable contingency depending on the complexity of work and survey needs, and exclude GST. The cost of Option D would be additional to other option costs.

Given the constraints of the overall budget, it is recommended that MDC select option B and consider adding the features of options C and D in future if warranted by the data and subject to funding availability.

5. Eltham Road options

In the original options report, four options were developed for Eltham Road between Carr Street and Maxwell Road:

- A. 2.7 m cycleway and 2.8 m traffic lanes, no parking on east side
- B. 3.2 m cycleway and 3.0 m traffic lanes, no parking on east side; move west kerb
- C. as per option A, with parking for 10-12 cars on east side by using school grounds
- D. as per option B, with parking for 10-12 cars on east side by using school grounds

As a result of the consultation, a new combination option has been developed:

- E. 2.7 m cycleway and 3.0 m traffic lanes, parking for 10 cars on east side by using school grounds, indented parking on west side rather than full kerb realignment

In all options, the physical separation between the cycle lane and the general traffic lane would be achieved with vertical flexi-post bollards and/or a kerb separator with small, regular openings to facilitate stormwater drainage and larger openings at driveways. All options join a shared path through the median island about 20 m north of Maxwell Road.

Each of the options is summarised in the following sections.

5.1. Eltham Road option A

Refer plan C10, ROC \$150,000

A 2.7 m separated two-way cycle lane and 2.8 m general traffic lanes with no change to west side kerb.

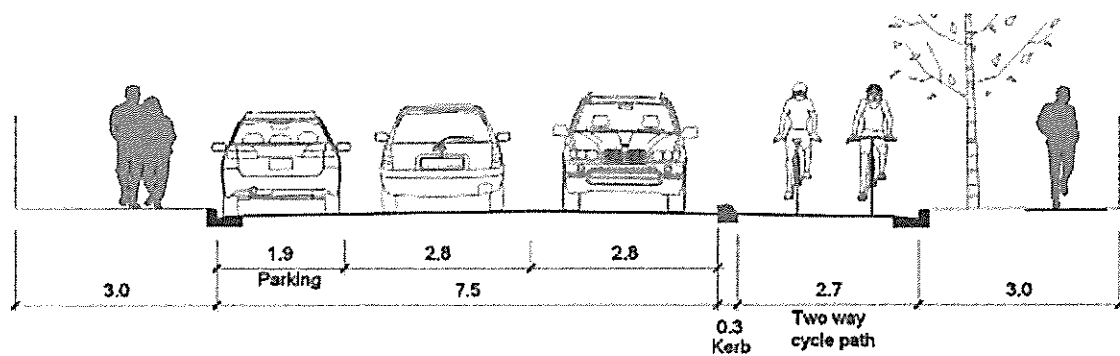


Figure 5-1: Eltham Road Option A cross section

5.2. Eltham Road option B

Refer plan C11, ROC 332,000

A 3.2 m separated two-way cycle lane and 3.0 m general traffic lanes; achieved by shifting west side kerb over 1.0 m (narrowing the existing footpath). Road widening on the west side requires new kerb, new dish channel, new seal & stormwater modifications.

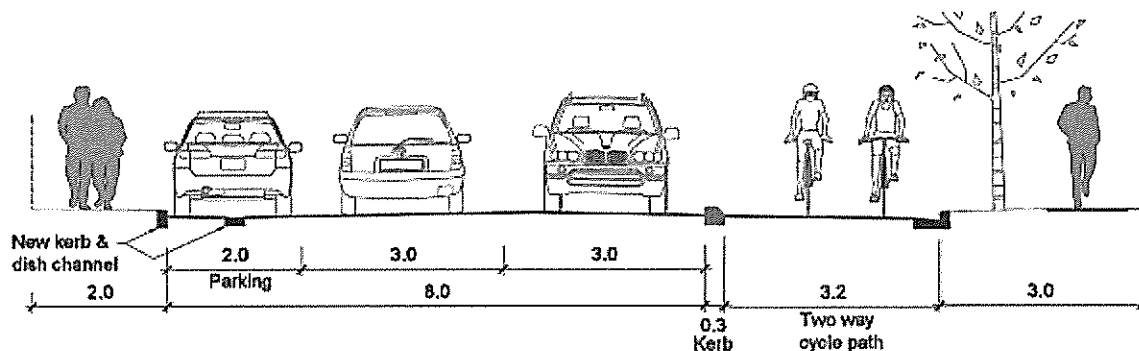


Figure 5-2: Eltham Road Option B cross section

5.3. Eltham Road options C and D using paths in school field

Adds \$31,000 to options A or B

For option C, refer plan C12, ROC total \$181,000

For option D, refer plan C13, ROC \$362,000

These options modify options A and B with a path along the school field to retain between 10 and 12 carparks on the east side near the school. The path would be designed to minimise the impact on existing trees and would not preclude future use of the area for other purposes. The land would not be acquired, but only used under an easement (whether formal or informal). The school board advised that the existing fence was consider insufficient and as it would need to be relocated, the project could help the school by replacing it with a similar fence that meets the school's requirements.

During the consultation process, three design variations were developed for the path through the school grounds. The full plans are provided in Appendix B. In summary, the three options are:

1. Option 1 is as per original design, with cycle path near kerb and footpath east of that; this has been discounted due to the impact on trees and potential conflicts with students embarking or disembarking from cars (plan C21)
2. Option 2 is a shared path to save space and limit impact on trees; this has been discounted due to the low level of service for both pedestrians and cyclists (plan C22)
3. Option 3 is the recommended option with a footpath near kerb for pickup and dropoff; this conserves space relative to option 1 and only requires a 'conflict zone' treatment at the two crossover points with the footpath (plan C23, with extract in Figure 5-3). This has the least encroachment into the school field.

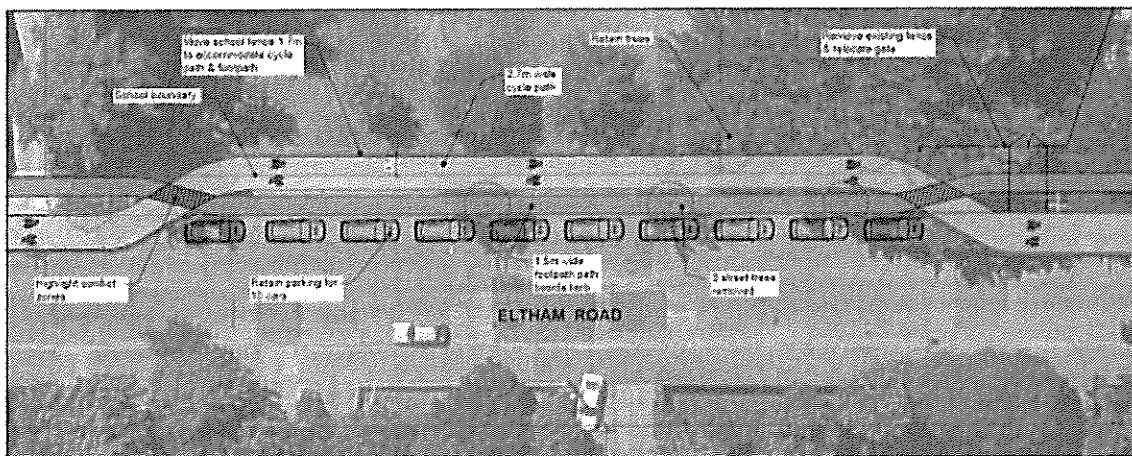


Figure 5-3: revised design for paths along school field (applies to options C, D, E)

5.4. Eltham Road option E

Variation of other options with cross sections as follows, ROC \$362,000

There are several impediments to fully shifting the west kerb as illustrated for option D – the existing kea crossing at the school entrance; several street trees; and various utilities. Concern was also raised about the constrained traffic lanes of options A and C. Therefore, a fifth option was developed during the consultation process as a hybrid of the previous options, with:

- 2.7 m separated cycle lane (as per option A)
- 3.0 – 3.25 m general traffic lanes (as per option B)
- parking on both sides of the road, achieved with the path along the school field (as per options C and D) and by indenting west side parking wherever possible, rather than shifting the entire west kerb.

Apart from the segment along the school field, this option requires 11.5 m of space (2.0 m for west side parking, 6.0 to 6.5 m for general traffic, 3.0 m for the two-way cycleway and separator). As there is only about 10.5 m of width between existing kerbs south of Carr Street, the indentation into the west kerb alignment would be about 0.5 to 1.0 m. All measurements are subject to a full survey and detailed design.

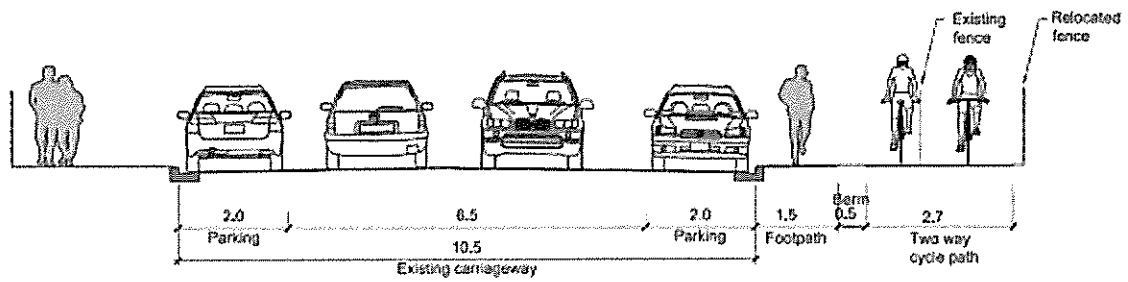


Figure 5-4: typical section at school field frontage

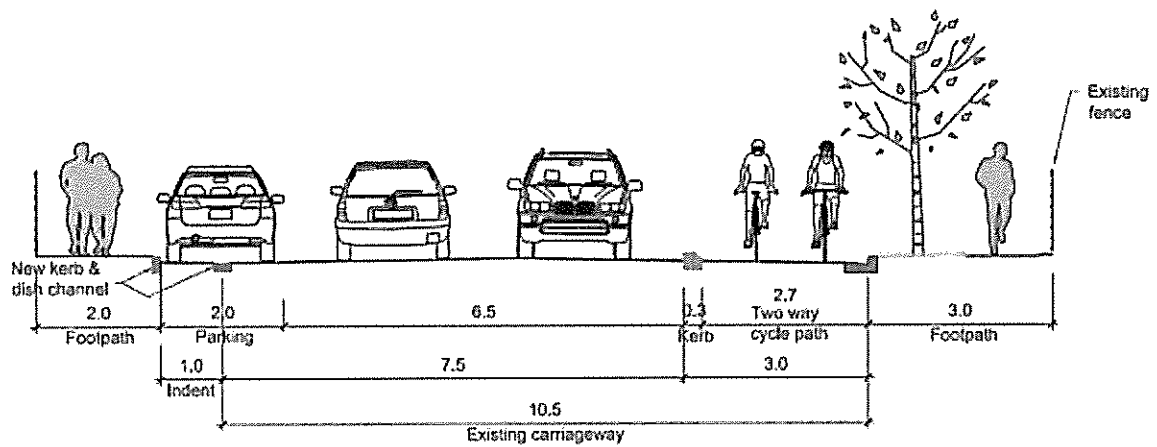


Figure 5-5: typical section with indented parking on west side (not along school field)

5.5. Eltham Road option evaluation

Using the same method as for Beaver Road (refer section 4.6), Eltham Road options have been assessed as shown in Table 5-1. Note that option E has been scored similarly to option D, as the design differences are relatively minor.



Table 5-1: Eltham Road option evaluation

		Criteria					Score
Stakeholder		Safety	Coherent	Attractive	Parking	Acceptance	
Option A	Cyclists	✓	✓	✓	✓	✓	16
	Residents	✗	●	●	✗	✗	2
	Community	✗	●	●	✗	✗	2
Option B	Cyclists	✓	✓	✓	✓	✓	16
	Residents	●	●	✓	✗	✗	5
	Community	●	●	✓	✗	✗	5
Option C	Cyclists	✓	✓	✓	✓	✓	16
	Residents	✗	●	✓	✗	✗	2
	Community	✗	●	✓	✗	✗	2
Option D / E	Cyclists	✓	✓	✓	✓	✓	16
	Residents	●	●	✓	✗	✗	5
	Community	●	●	✓	✗	✗	5

All options provide the same excellent outcome for cyclists. Options B & D, with the wider carriageway, deliver the best outcome for residents and the community.

Options A and B have received a zero score under parking due to the removal of parking from the east side. Options C, D and E, with the cycle path routed along the school field, is able to retain approximately 10 to 12 car parks on the east side of Eltham Road close to the day care centre and school.

Table 5-2 summarises the Eltham Road option costs.

Table 5-2: Eltham Road cost estimate summary

	Option A	Option B	Option C	Option D or E
ROC	\$150,000	\$332,000	\$181,000	\$362,000

These estimates include a 15% contingency but exclude GST.

Option E is the preferred option for Eltham Road as it delivers the best outcome for cyclists, residents and the community and incorporates community input to the extent practicable.



6. Combined route implementation options

Three sets of combined options are proposed:

The **lowest cost** approach would select Beaver Road option A and Eltham option A (rough order cost (ROC) \$168,000). The main advantage to this approach is a roughly \$194,000 cost saving versus the budgeted \$361,000. However, this option has a relatively narrow cross section (about 5.6 m for two-way general traffic, adjacent to a 2.0 m parking 'lane' on the west side) on Eltham Road. The road would be unmarked (i.e., not include any parking, edge or centre lines) and it would meet the legislative 2.5 m minimum dimension for a traffic lane. However, such a cross section will feel tight and could increase peak hour congestion. This combined approach also does not address parking concerns or improve crossings along Beaver Road.

The **best option while remaining within budget** would select Beaver Road option B and Eltham Road option C (ROC \$296,000). Relative to the lowest cost approach, this option still saves money (approx. \$66,000), improves the crossings along Beaver Road, and provides for parking on both sides of Eltham Road near the school. However, the narrow cross section near Whitney school may still be an issue, and it would require an easement from the school for the path along the school field.

The **recommended approach** is Beaver Road option B with Eltham Road option E (ROC \$407,000). This would require a roughly \$116,000 budget augmentation. In addition to the aforementioned benefits of option C, this provides more generous traffic lanes and indented parking along the west side of Eltham Road. Although the two-way cycle facility is narrower (2.7 m) than the 3.2 m in options B and D, this helps balance the needs of all road users including pedestrians on the west side of Eltham Road.

If the recommended approach is approved, the next steps will include a survey and detailed design.



Appendix A Crash Reports

Beaver Road – crashes recorded in CAS 2011 - 2016

High English report, run on 20-Jan-2017 Page 1

Crash Ref	Crash Date	Crash Time	Crash Location	Crash Description of Event	Crash Factors	Weather	Junction	Crash	Totals
									F H T A
20152645	27/07/2011	Wed 1415	CARL RD ON BEAVER ROAD AT CARL	CARL RD ON BEAVER ROAD AT CARL	CARL Failed to give way at a	Day	None	Give	3
				cutting right onto BEAVER ROAD from	priority traffic control.			Junction	
				the left.				Way	
20151806	05/02/2011	Wed 1016	CARL cutting right on BEAVER ROAD	CARL failed to give way when	CARL failed to give way when	Day	None	Give	3
				cutting right on BEAVER ROAD	not clear / other road user			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20152512	20/07/2011	Wed 0839	CARL RD ON BEAVER ST AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20152725	01/09/2012	Wed 0910	CARL RD ON BEAVER ST AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20152762	09/10/2011	Thu 1700	CARL RD ON BEAVER ROAD AT CARL	CARL failed to give way when	CARL failed to give way when	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20154091	16/02/2011	Wed 1340	CARL RD ON BEAVER ROAD AT CARL	CARL failed to give way when	CARL failed to give way when	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20141622	13/10/2014	Wed 1150	CARL RD ON BEAVER ROAD AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20152194	02/02/2011	Thu 0810	CARL RD ON BEAVER ST AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20150707	13/10/2011	Thu 1215	CARL RD ON BEAVER ST AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	
20145425	11/02/2014	Sat 0900	CARL RD ON BEAVER ST AT CARL	CARL failed to give way at a	CARL failed to give way at a	Day	None	Give	3
				cutting at the right angle from right	priority traffic control.			Junction	
				cutting at the right angle from right	priority traffic control.			Way	



Eltham Road – crashes recorded in CAS 2011 – 2016

Police Station	IN/OUT Street	Case Number	Date	Day	Time	Description of Incident	Crash Factors	Road	Weather	Beached Junction	Crash	Ref
Eltham St	Eltham Road	20150309	06/04/2012	Fri	1420	CAR1 HIT CAR2 ON ELTHAM ROAD, BRIDGE JUNCTION AT END OF ROAD, CAR1 HIT ROAD	1 CAR2 1 CAR1 1 ENV - Environmental Factors	DRY	BRIGHT	Fine	T Type Junction	Give Way Sign
Eltham Road	706 BREWER ST	20150708	30/09/2011	Fri	0830	CAR1 HIT CAR2 ON ELTHAM ROAD HIT CAR END OF CAR2 STOP/SLOW FOR RED LIGHT	1 CAR1 following too closely, failed to notice car slowing	DRY	BRIGHT	Fine	Endroad	Nil
Eltham Road	1 BREWER ST	20150923	22/09/2011	Thu	1315	CAR1 HIT CAR2 ON ELTHAM ROAD OVERTAKING HIT CAR2 TURNING RIGHT	1 CAR1 overtaking vehicle signalling left turn, failed to notice leading vehicle brake / sign	DRY	BRIGHT	Fine	Sideway	Nil
Eltham Road	1 CAMP ST	20150308	23/07/2011	Sat	2156	CAR1 HIT CAR2 ON ELTHAM ROAD LEFT TURNING INTO CAMP ST	1 CAR1 alcohol suspected, entering / on curve, lost contact with leading vehicle	DRY	DARK	Fine	T Type Junction	Give Way Sign
Eltham Road	1 DILLON ST	20150307	14/11/2012	Wed	1730	CAR1 HIT CAR2 ON ELTHAM ROAD HIT CAR END OF CAR2 STOP/SLOW FOR RED LIGHT	1 CAR1 failed to notice car slowing, attention diverted	DRY	BRIGHT	Fine	T Type Junction	Give Way Sign
Eltham Road	1 DILLON ST	20150304	27/09/2012	Thu	1700	CAR1 HIT CAR2 ON ELTHAM ROAD TURNING RIGHT HIT CAR2 TURNING RIGHT INTO ELTHAM ROAD	1 CAR1 failed to give way at a priority traffic control, did not check / notice subject party	DRY	BRIGHT	Fine	T Type Junction	Give Way Sign
Eltham Road	481 STRATFORD ST	20150625	29/09/2011	Mon	1820	CAR1 HIT CAR2 ON ELTHAM ROAD OVERTAKING CAR2 CAR1 HIT PARKED VEHICLE	1 CAR1 too close following too closely overtaking, following too closely	DRY	BRIGHT	Fine	Endroad	Nil
Eltham Road	1 STRATFORD ST	20151127	10/06/2011	Fri	0845	CAR1 HIT CAR2 TURNING RIGHT HIT BY ONCOMING CAR2 CAR1 HIT ON ELTHAM ROAD	1 CAR2 failed to give way when turning to non-turning traffic, misjudged intentions of leading party	Wet	Overcast	Light Rain	T Type Junction	Nil
Eltham Road	1 ELTHAM ROAD	20141701	05/12/2016	Fri	0150	CAR2 TURNING RIGHT HIT BY ONCOMING CAR1 (CAR 47) END ON MARSHALL ROAD E	1 CAR2 failed to give way when turning to non-turning traffic, attention diverted	DRY	Twilight	Fine	T Type Junction	Nil



Note:
The green line has only been used to indicate the proposed cycle route.
It does not indicate a proposal to install a continuous green coloured road surface.

Typical sharrow road marking

BEAVER ROAD OPTION A
DO MINIMUM
Beaver Road operates as a neighbourhood greenway with no assistance for cyclists at intersections

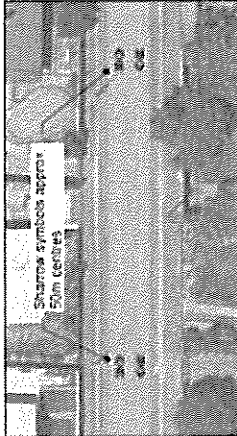
New infrastructure:

- Cyclist PW-35 signs at intersections
- Sharrow symbols @ 50 m spacings (approx.)

Beaver / Munro Intersection
(Beaver / Dillon similar)

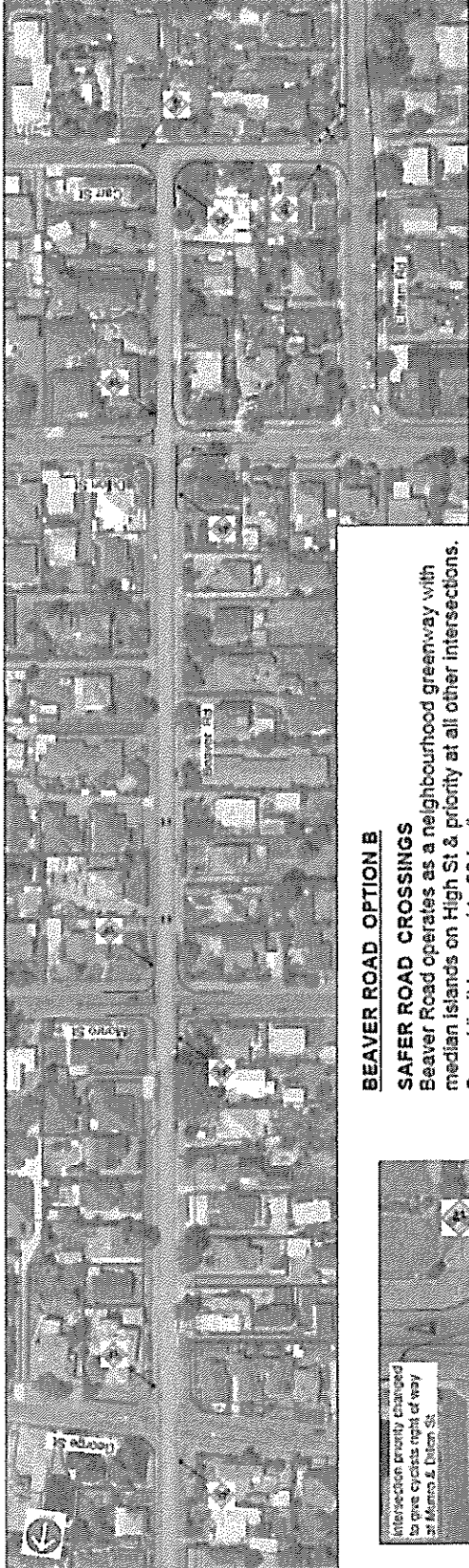
MARLBOROUGH ROADS ELTHAM / BEAVER ROAD CYCLE LINK ROUTE CONCEPT PLANS	BEAVER ROAD OPTION A (Sheet 2 of 2)	Date: 11 Rev: 11 Date: 11 Rev: 11
VIATRADA <small>TRADING CORPORATION FOR CYCLISTS</small>	DO MINIMUM	1089-1 C02
R. LYNCH-ELTHAM TEL: 0204 529411 FAX: 0204 529412 ELTHAM@VIATRADA.CO.UK		





Sharrow symbols approx.
50m centres

Typical sharrows road marking

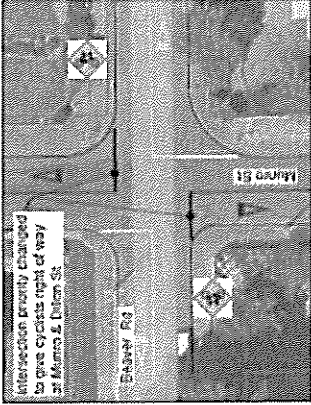


BEAVER ROAD OPTION B

SAFER ROAD CROSSINGS
Beaver Road operates as a neighbourhood greenway with median islands on High St & priority at all other intersections. Speed limit lowered to 30 km/h

New infrastructure:

- Two median islands installed on High St
- Intersection priority changed at Alfred St, Munro St & Dillon St to give Beaver Road priority
- 30 km/h speed limit signs
- Cyclist Pw-35 signs at intersections
- Sharrow symbols @ 50 m spacings (approx.)



Intersection priority changed to give cyclists right of way at Munro & Dillon St

Beaver / Munro Intersection (Beaver / Dillon similar)

<p>MARLBOROUGH ROADS ELTHAM / BEAVER ROAD CYCLE LINK ROUTE CONCEPT PLANS</p>	<p>BEAVER ROAD OPTION B (Sheet 2 of 2)</p> <p>SAFER ROAD CROSSINGS</p>	<p>Rev 1 10/09/2016</p> <p>Rev 2 10/09/2016</p> <p>Rev 3 10/09/2016</p> <p>Rev 4 10/09/2016</p> <p>Rev 5 10/09/2016</p> <p>Rev 6 10/09/2016</p> <p>Rev 7 10/09/2016</p> <p>Rev 8 10/09/2016</p> <p>Rev 9 10/09/2016</p> <p>Rev 10 10/09/2016</p> <p>Rev 11 10/09/2016</p> <p>Rev 12 10/09/2016</p> <p>Rev 13 10/09/2016</p> <p>Rev 14 10/09/2016</p> <p>Rev 15 10/09/2016</p> <p>Rev 16 10/09/2016</p> <p>Rev 17 10/09/2016</p> <p>Rev 18 10/09/2016</p> <p>Rev 19 10/09/2016</p> <p>Rev 20 10/09/2016</p> <p>Rev 21 10/09/2016</p> <p>Rev 22 10/09/2016</p> <p>Rev 23 10/09/2016</p> <p>Rev 24 10/09/2016</p> <p>Rev 25 10/09/2016</p> <p>Rev 26 10/09/2016</p> <p>Rev 27 10/09/2016</p> <p>Rev 28 10/09/2016</p> <p>Rev 29 10/09/2016</p> <p>Rev 30 10/09/2016</p> <p>Rev 31 10/09/2016</p> <p>Rev 32 10/09/2016</p> <p>Rev 33 10/09/2016</p> <p>Rev 34 10/09/2016</p> <p>Rev 35 10/09/2016</p> <p>Rev 36 10/09/2016</p> <p>Rev 37 10/09/2016</p> <p>Rev 38 10/09/2016</p> <p>Rev 39 10/09/2016</p> <p>Rev 40 10/09/2016</p> <p>Rev 41 10/09/2016</p> <p>Rev 42 10/09/2016</p> <p>Rev 43 10/09/2016</p> <p>Rev 44 10/09/2016</p> <p>Rev 45 10/09/2016</p> <p>Rev 46 10/09/2016</p> <p>Rev 47 10/09/2016</p> <p>Rev 48 10/09/2016</p> <p>Rev 49 10/09/2016</p> <p>Rev 50 10/09/2016</p> <p>Rev 51 10/09/2016</p> <p>Rev 52 10/09/2016</p> <p>Rev 53 10/09/2016</p> <p>Rev 54 10/09/2016</p> <p>Rev 55 10/09/2016</p> <p>Rev 56 10/09/2016</p> <p>Rev 57 10/09/2016</p> <p>Rev 58 10/09/2016</p> <p>Rev 59 10/09/2016</p> <p>Rev 60 10/09/2016</p> <p>Rev 61 10/09/2016</p> <p>Rev 62 10/09/2016</p> <p>Rev 63 10/09/2016</p> <p>Rev 64 10/09/2016</p> <p>Rev 65 10/09/2016</p> <p>Rev 66 10/09/2016</p> <p>Rev 67 10/09/2016</p> <p>Rev 68 10/09/2016</p> <p>Rev 69 10/09/2016</p> <p>Rev 70 10/09/2016</p> <p>Rev 71 10/09/2016</p> <p>Rev 72 10/09/2016</p> <p>Rev 73 10/09/2016</p> <p>Rev 74 10/09/2016</p> <p>Rev 75 10/09/2016</p> <p>Rev 76 10/09/2016</p> <p>Rev 77 10/09/2016</p> <p>Rev 78 10/09/2016</p> <p>Rev 79 10/09/2016</p> <p>Rev 80 10/09/2016</p> <p>Rev 81 10/09/2016</p> <p>Rev 82 10/09/2016</p> <p>Rev 83 10/09/2016</p> <p>Rev 84 10/09/2016</p> <p>Rev 85 10/09/2016</p> <p>Rev 86 10/09/2016</p> <p>Rev 87 10/09/2016</p> <p>Rev 88 10/09/2016</p> <p>Rev 89 10/09/2016</p> <p>Rev 90 10/09/2016</p> <p>Rev 91 10/09/2016</p> <p>Rev 92 10/09/2016</p> <p>Rev 93 10/09/2016</p> <p>Rev 94 10/09/2016</p> <p>Rev 95 10/09/2016</p> <p>Rev 96 10/09/2016</p> <p>Rev 97 10/09/2016</p> <p>Rev 98 10/09/2016</p> <p>Rev 99 10/09/2016</p> <p>Rev 100 10/09/2016</p>
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Note:
The green line has only been used to indicate the proposed cycle route. It does not indicate a proposal to install a continuous green coloured road surface.

Typical sharrow road marking

Examples of possible traffic calming

BEAVER ROAD OPTION C
SAFER CROSSINGS & TRAFFIC CALMING
Beaver Road operates as a neighbourhood greenway with median islands on High St, priority at all other intersections. Speed limit lowered to 30 km/h and traffic calming

New Infrastructure:

- Traffic calming between intersections
- Median islands at High St intersection to assist crossing cyclists priority
- 30 km/h speed limit signs
- Cyclist PW-35 signs at intersections
- Sharrow symbols @ 50 m spacings (approx.)

Beaver / Munro intersection
(Beaver / Dillon similar)

SAFER CROSSINGS & TRAFFIC CALMING
Beaver Road operates as a neighbourhood greenway with median islands on High St, priority at all other intersections. Speed limit lowered to 30 km/h and traffic calming

VIASTRADA
TRAFFIC ENGINEERING AND PLANNING
CONSULTANTS & CONTRACTORS

ROUTE CONCEPT PLANS
MARLBOROUGH ROADS
ELTHAM / BEAVER ROAD CYCLE LINK
SAFER CROSSINGS & TRAFFIC CALMING

Sheet No: **1089-1 C06**

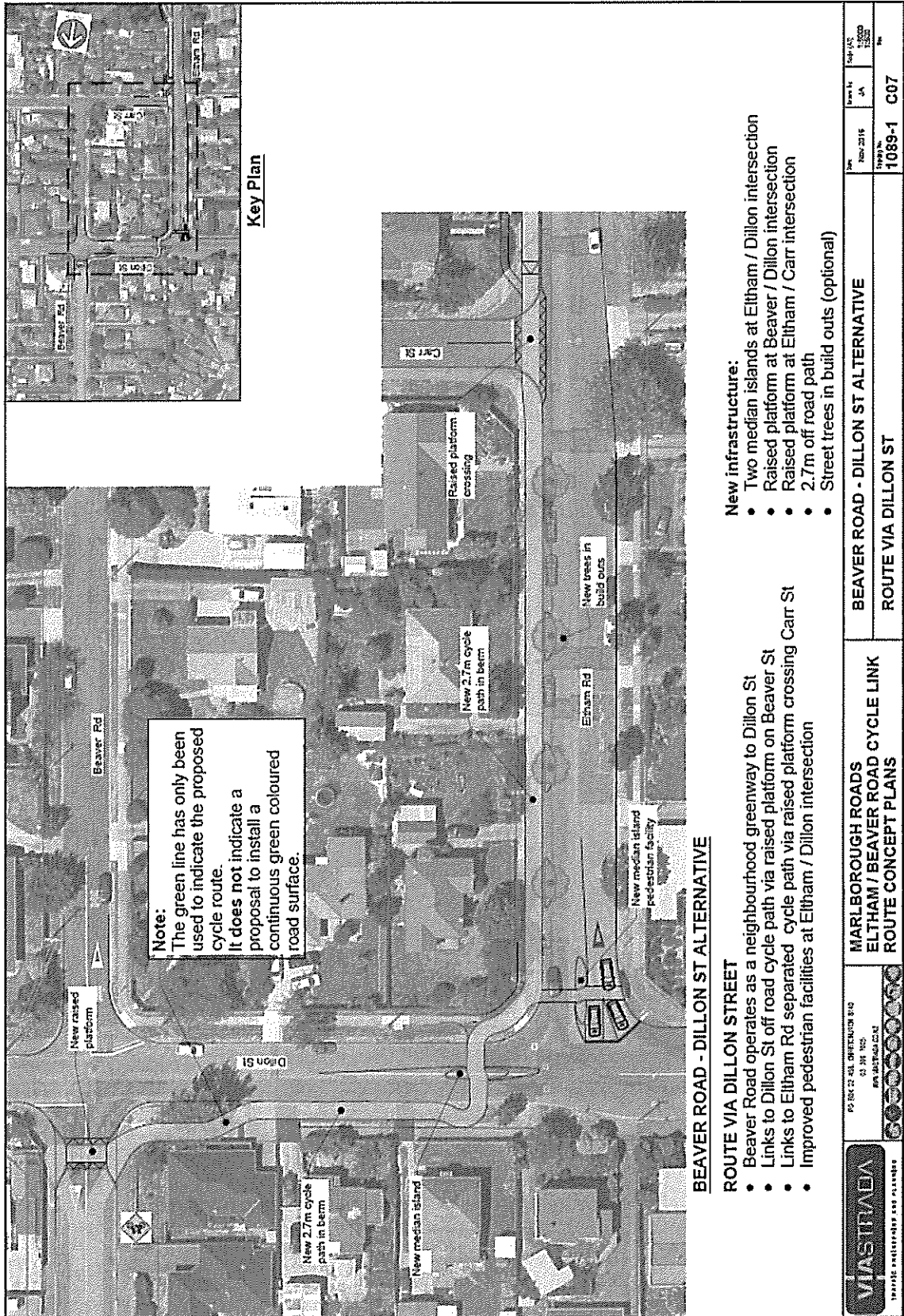
Scale: 1:1000

Date: 10/05/2016

Author: J.A.

Check: J.A.

Drawn: J.A.



BEAVER ROAD - DILLON ST ALTERNATIVE

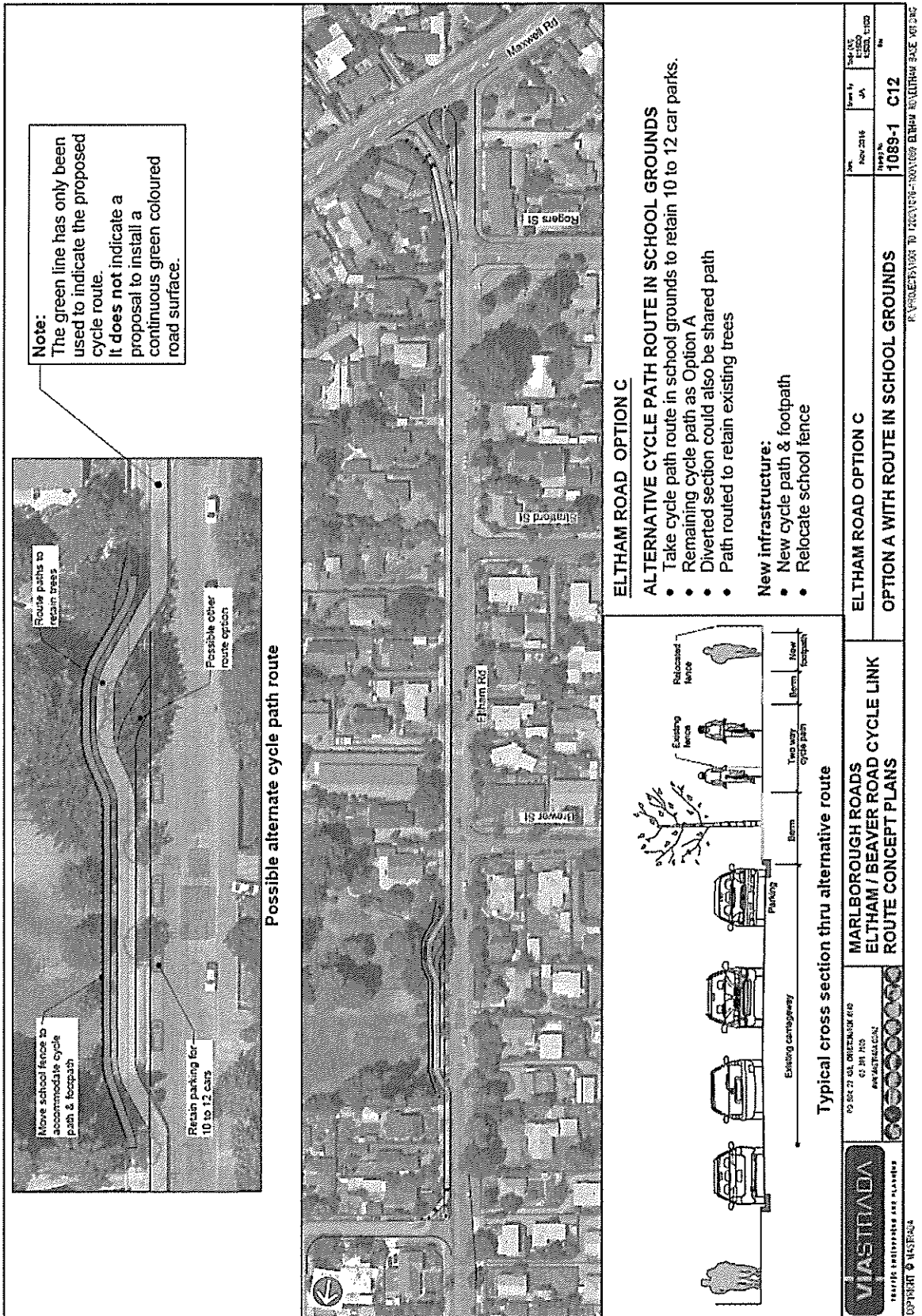
ROUTE VIA DILLON STREET

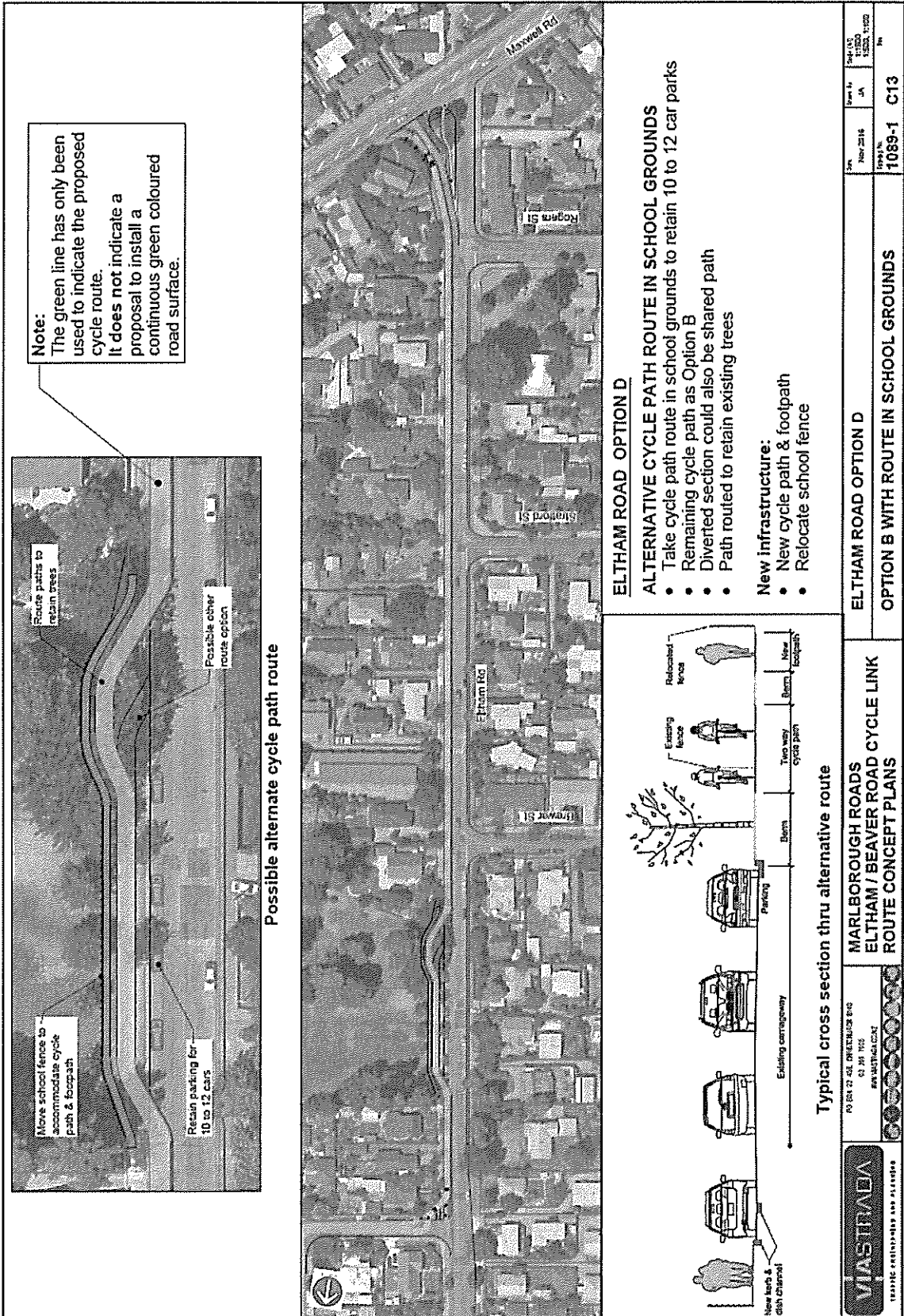
- Beaver Road operates as a neighbourhood greenway to Dillon St
- Links to Dillon St off road cycle path via raised platform on Beaver St
- Links to Eltham Rd separated cycle path via raised platform crossing Carr St
- Improved pedestrian facilities at Eltham / Dillon intersection

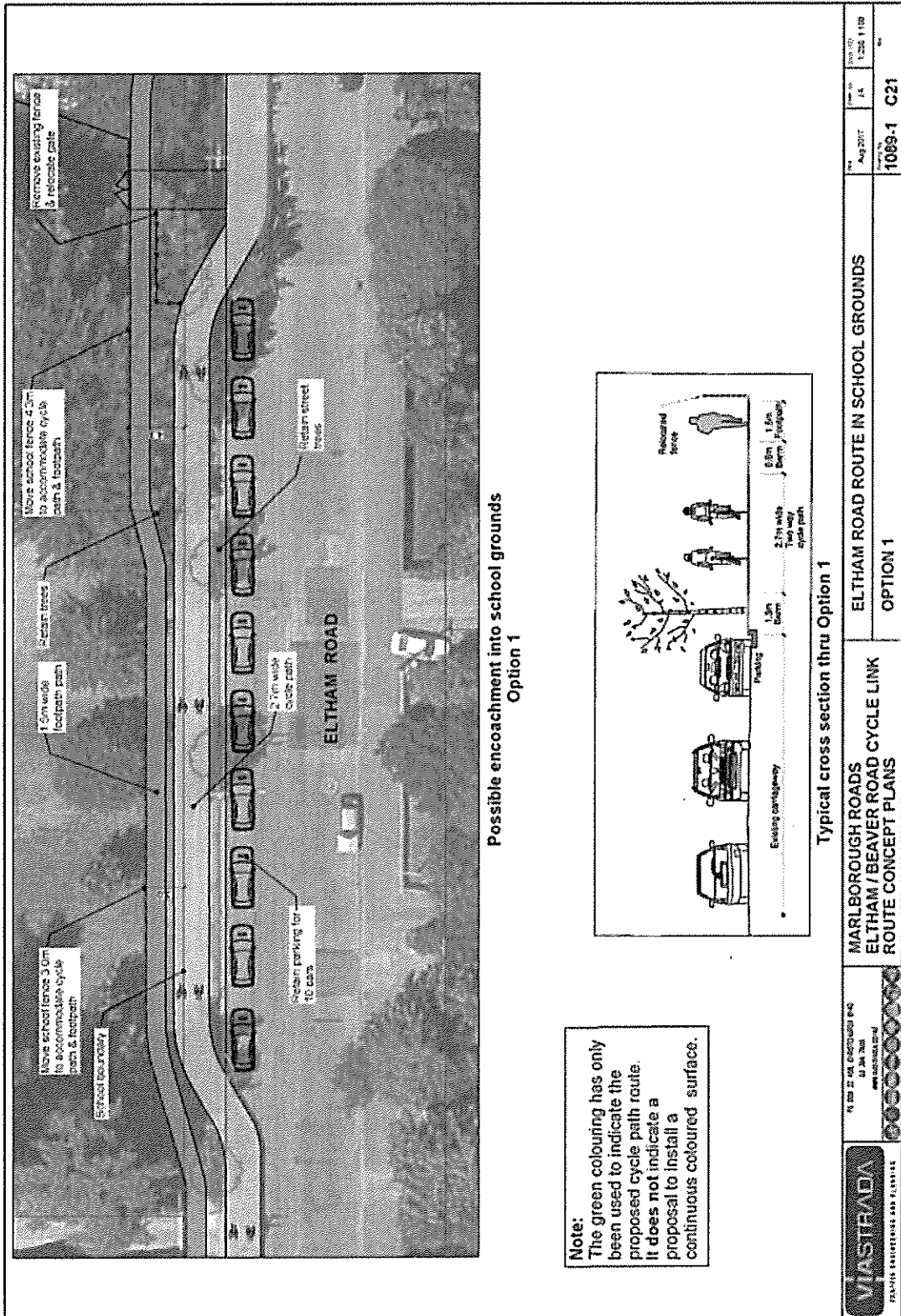
New infrastructure:

- Two median islands at Eltham / Dillon intersection
- Raised platform at Beaver / Dillon intersection
- Raised platform at Eltham / Carr intersection
- 2.7m off road path
- Street trees in build outs (optional)

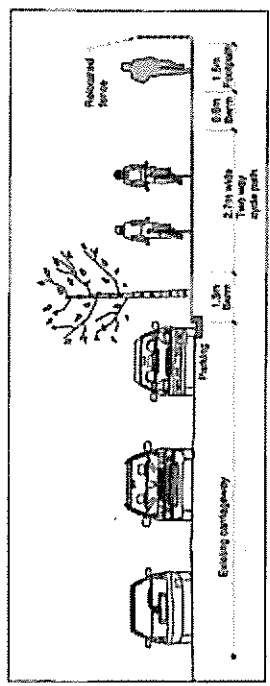
<p>TRAFFIC ENGINEERING AND PLANNING COPYRIGHT © 14378204</p>	<p>PO BOX 22 404, ORIENTAL BLDG 03 305 1003 www.viasstrada.co.nz</p>	<p>DATE: NOV 2016 DRAWN BY: 10889-1 SCALE: A4</p>	<p>PROJECT NO: 10889-1 PROJECT NAME: BEAVER ROAD/BEAVER RD/ELTHAM RD/BEAVER RD</p>
	<p>PO BOX 22 404, ORIENTAL BLDG 03 305 1003 www.viasstrada.co.nz</p>	<p>DATE: NOV 2016 DRAWN BY: 10889-1 SCALE: A4</p>	<p>PROJECT NO: 10889-1 PROJECT NAME: BEAVER ROAD/BEAVER RD/ELTHAM RD/BEAVER RD</p>







Possible encroachment into school grounds
Option 1



Typical cross section thru Option 1

MARLBOROUGH ROADS ELTHAM / BEAVER ROAD CYCLE LINK ROUTE CONCEPT PLANS		ELTHAM ROAD ROUTE IN SCHOOL GROUNDS OPTION 1		Date: Aug 2007 Drawn by: 1089-1 C21 Scale: 1:200 Project No: 1089-1
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