

## Short List MCA – Preferred Option

<b>Date:</b>	5 August 2022	<b>Jacobs New Zealand Limited</b>
<b>Project name:</b>	Brooklyn Cycleway	Level 8, 1 Grey Street
<b>Project no:</b>	Z128800	Wellington, 6143
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<b>V1</b>	Amended as final following WCC comments 15.08.22	

## Introduction

Wellington City Council have been trialling a 1.3km cycle lane on Brooklyn and Ohiro Roads under the Innovating Streets initiative and funding. The trial lane was made live on 11 June 2021. A condition of the funding from Waka Kotahi is that there is a pathway to permanence in place that will take the project from pilot to permanent. Further extensions to the physical scope including wider improvements to PT, pedestrian accessibility and intersection safety improvements are now to be considered creating a connected approach to the whole street and wider network travel choices.

This memo follows on from the processes undertaken and outlined by the Jacobs Project Team in the long list MCA Summary Memo V3, which was issued to WCC on the 22 June 2022, to arrive at the preferred option for each section.

## Short List Workshop

The short list MCA workshop was completed on the 15 July 2022 and was attended by the following representatives from Jacobs, WCC, GWRC, LGWM and Taranaki Whanui

Name	Organisation
Simon Cager	Jacobs
Leona Irsevic	GWRC
Marran Young	Jacobs
Leslie Brown	Taranaki Whanui
Hilary Fowler	WCC
Zack Moodie	WCC
Evandro Scherer	WCC
Stephen Harte	WCC
Haydn Wardley	WCC
Annie Bruckner	WCC
Tobie Pretorius	LGWM
Joe Hewitt	WCC
Daniel Cairncross	WCC
William Melville	WCC
Anna Matevosyan	WCC
Anni Bailey	WCC

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Brennan Baxley	WCC
David Ensor	WCC
Dennis Davis	WCC
Dem Rusu	Jacobs
Tim Kirby	WCC

The aim of the workshop was to determine a preferred option for each section and therefore the complete route. This was achieved through a quantitative assessment of each option and scored via a developed short list multi criteria framework. This framework adopted the same criteria and weightings as the previous long list scoring assessment, except for Section 7 which was not initially scored in the long list MCA stage due to a planned upgrade by WCC at the intersection. Internal WCC discussions put forward amended options to investigate and tie into this upgrade, those being Options 7e, 7f and 7g.

The quantitative assessment measures used for the short list MCA were:

Criteria	Measure
Safety for people walking	Austroads Safe Systems Assessment (Pedestrians)
Convenience (LOS) for people walking	Waka Kotahi Pedestrian LOS Tool
Safety for people on bikes	Austroads Safe Systems Assessment (Cyclists)
Convenience (LOS) for people on bikes	Danish LOS Assessment
Bus speed and reliability	Delay through intersections SIDRA modelling & travel times
General road safety	Austroads Safe System Assessment run off road, head on, intersection
General traffic efficiency	Traffic delay through intersection modelling & travel times

The scoring criteria was based on the assessment measures and was broken down as follows:

Score	3	2	1	0	-1	-2	-3	F
Safety for people walking	Reduction in SSA of >36	Reduction in SSA of 17-35	Reduction in SSA of 4-16	No change	Increase in SSA of 4-16	Increase in SSA of 17-35	Increase in SSA of >36	
Convenience (level of service) for people walking	Reduction in LOS of 3+	Reduction in LOS of 2	Reduction in LOS of 1	No change	Increase in LOS of 1	Increase in LOS of 2	Increase in LOS of 3+	
Safety for people on bikes	Reduction in SSA of >36	Reduction in SSA of 17-35	Reduction in SSA of 4-16	No change	Increase in SSA of 4-16	Increase in SSA of 17-35	Increase in SSA of >36	
Convenience (level of service) for people on bikes	Reduction in LOS of 6+	Reduction in LOS of 4-6	Reduction in LOS of 1-3	No change	Increase in LOS of 1-3	Increase in LOS of 4-6	Increase in LOS of 6+	
Bus speed and reliability	Reduction in LOS / travel time of 3+ letters	Reduction in LOS / travel time of 2 letters	Reduction in LOS / travel time of 1 letters	No change	Increase in LOS / travel time of 1 letters	Increase in LOS / travel time of 2 letters	Increase in LOS / travel time of 3+ letters	
General road safety	Reduction in SSA of >36	Reduction in SSA of 17-35	Reduction in SSA of 4-16	No change	Increase in SSA of 4-16	Increase in SSA of 17-35	Increase in SSA of >36	
General traffic efficiency	Reduction in LOS / travel time of 3+ letters	Reduction in LOS / travel time of 2 letters	Reduction in LOS / travel time of 1 letters	No change	Increase in LOS / travel time of 1 letters	Increase in LOS / travel time of 2 letters	Increase in LOS / travel time of 3+ letters	
Place amenity of the area	Significantly achieves	Moderately achieves	Slightly achieves	No change	Slightly reduces	Moderately reduces	Significantly reduces	
Parking	Significantly achieves	Moderately achieves	Slightly achieves	No change	Slightly reduces	Moderately reduces	Significantly reduces	

Parking scoring was brought through from the long list MCA as there was no quantitative measure for assessment.

It was decided, through discussions with WCC that amenity improvements wouldn't be score in the workshop and they would be considered in the next stage (Preliminary Design) as the preferred option was developed.

Following the conclusion of the long list MCA there were 19 options that were recommended to be included in the short list for assessment, these were:

- Section 1: Option 1d – Dedicated shared cycle / bus lane
- Section 2: Option 2d – Shared bus / cycle lane uphill and sharrows downhill  
Option 2f – Shared bus / cycle lane uphill and separated cycle lane downhill
- Section 3: Option 3b – Enhanced fully separated uphill cycle lane (uni-directional) and downhill sharrows  
Option 3c and 3d combined – Enhanced fully separated uphill and downhill cycle lanes (uni-directional) Wherever practical, cycle lanes should be separated, but where space is limited, unprotected cycle lanes will be considered.  
Option 3f – Enhanced fully separated uphill cycle lane (uni-directional) and downhill sharrows via Ohiro Road
- Section 4: Option 4b – Enhanced intersection safety improvements  
Option 4d – Roundabout
- Section 5: Option 5b – Separated cycle lane on both sides  
Option 5c – Separated cycle lane from Brooklyn and sharrows on other side  
Option 5e – Separated cycle lane from Brooklyn and new footpath on other side
- Section 6: Option 6b – Enhanced intersection safety improvements  
Option 6c – Closure of Tanera Crescent between Helen Street and Ohiro Road  
Option 6d – Tanera Street made one way from Ohiro Road to Helen Street  
Option 6e – Tanera Street made one way towards Ohiro Road from Helen Street
- Section 7: Option 7e – Do Minimum changes that fit within the planned upgrade  
Option 7f – Removal of the right turn pocket from Ohiro Rd to Todman St and speed management  
Option 7g – Intersection Safety Improvements that fit within the planned upgrade
- Section 8: Option 8b – Minor safety improvements

Concept designs were completed for each of these Options as the basis for assessment.

## Short List MCA Summary

This section of the memo summarises the short list MCA assessment for each section and its respective Option(s) brought forward from the long list workshop and has been extracted from the master MCA excel spreadsheet.

Notes for each section are also contained within the master MCA excel spreadsheet. These notes have been derived from a recording made of the workshop through discussions by the participants.

### Section 1: Victoria / Webb Street (Karo Drive to Willis Street)

This section adjoins the boundary of the SW CBD Improvements of LGWM and as such any Preferred Option would be required to provide continuity linkages with any infrastructure changes / improvements to the CBD network. It's been acknowledged throughout the process to date that any options for this Section were required to be transitional and low cost as LGWM are still in the process of assessing Options through their own MCA processes.

One Option was brought forward and assessed from the long list stage for this section:

Option 1d – Dedicated shared cycle / bus lane

### Assessment

The quantitative scoring for Section 1 is shown in Table 1 below. When comparing to the Do Minimum, Option 1d shows distinct improvements to safety (walking), safety (cycling), LOS (cycling) and safety (road).

The provision of a shared bus / cycle lane also has beneficial speed and reliability advantages for public transport, however the loss of a traffic lane through this section is considered detrimental to traffic efficiency and the scoring reflects this.

It was however noted through discussions in the workshop that depending on the conclusions LGWM reach on their corridor this option could be revised, including reverting back to possible Options that were discounted in the long list MCA.

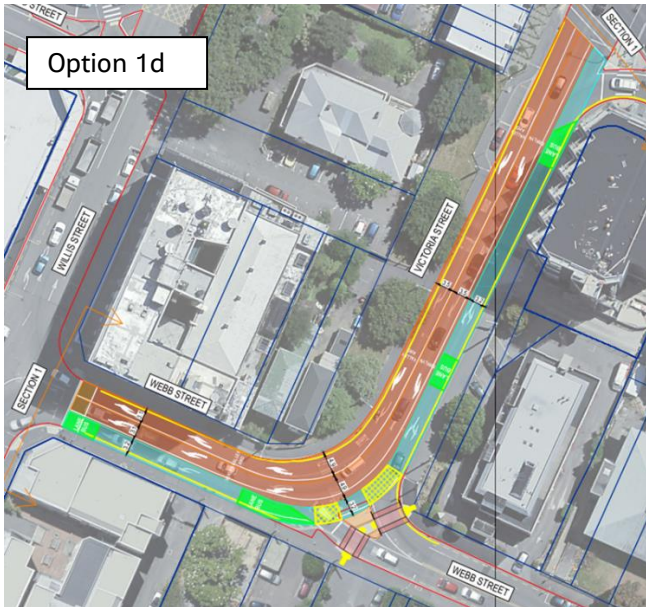
Table 1: Section 1 Quantitative Scoring

Option	Option Title	Design criteria						
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Traffic efficiency
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>20%</b>	<b>15%</b>	<b>20%</b>	<b>10%</b>	<b>10%</b>
Do Min	Mixed traffic with sharrow markings	0	0	0	0	0	0	0
		SSA = 32	5.4	SSA = 48	LOS = D+	No bus facility	SSA= 44	Do min 3 traffic lanes
1d	Shared cycle / bus lane	1	0	1	3	2	1	-3
		SSA = 16	5.5	SSA = 32	LOS = A	Section not modelled. Long list score	SSA = 32	Section not modelled. Long list score

The calculated total weighted scores for Section 1 are shown in Table 2 below.

Table 2: Section 1 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Mixed traffic with sharrow markings	Do minimum option	0	2	N
1d	Shared cycle / bus lane	Bus priority on signals at Webb / Willis Street intersection	100	1	Y



## Section 2: Willis Street (Nairn Street to Webb Street)

This Section also adjoins the boundary of the SW CBD improvements of LGWM and as with Section 1 any Preferred Option would be required to provide continuity linkages. As we understand there is also some work underway on assessing the intersections of Webb / Willis, Aro / Willis and Abel Smith / Karo / Willis (SH1) which may again necessitate a revisit of the downhill options from Brooklyn Hill. This small stretch of road of 180m widens from 2 lanes at the Webb / Willis intersection to 4 lanes at Abel Smith / Karo / Willis with all modes weaving for position with two lanes assigned for the State Highway and two for Willis Street.

Two options were brought forward and assessed from the long list stage for this section:

Option 2d – Shared bus / cycle lane uphill and sharrows downhill

Option 2f – Shared bus / cycle lane uphill and separated cycle lane downhill

### Assessment

The quantitative scoring for Section 2 is shown in Table 3 below. When comparing to the Do Minimum both Options show distinct improvements to safety (walking), LOS (walking), safety (cycling), LOS (cycling) and safety (road).

The provision of a shared bus / cycle lane also has beneficial speed and reliability advantages for public transport, however the loss of a traffic lane through this section is considered detrimental to traffic efficiency and the scoring reflects this as it did for Section 1.

While the total weighted scores were similar, the assessment of Option 2f provides a greater LOS for cycling, however its now understood that most cyclists will use the right-hand lane when approaching the Webb / Willis intersection from the downhill direction as this allows them to position themselves in the correct lane as they move beyond the intersection. This reasoning will also apply to the use of sharrows in the same way as shown in Option 2d.

For these reasons WCC has decided to put on hold any decisions for downhill facilities in this Section until there is more clarity around the LGWM plans for the adjoining Section and its network connectivity.

The concept designs for the uphill infrastructure are identical for both Options 2d and 2f and therefore either option could be taken forward as the preferred option for Section 2.

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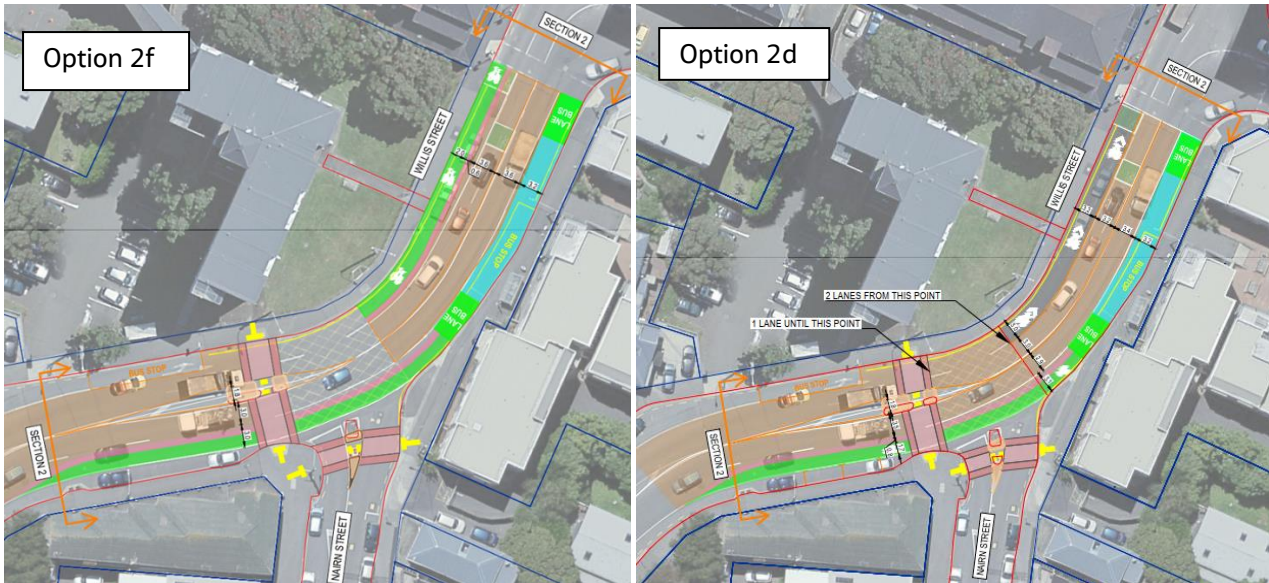
Table 3: Section 2 Quantitative Scoring

Option	Option Title	Design criteria						
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Traffic efficiency
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>20%</b>	<b>15%</b>	<b>20%</b>	<b>10%</b>	<b>10%</b>
Do Min	Minor safety improvements and sharrows both sides	0	0	0	0	0	0	0
		SSA = 48	5.9	SSA = 32	D	No bus lane	SSA = 124	2 lanes merging
2d	Shared bus / cycle lane uphill and sharrows downhill	1	0	1	2	1	2	-1
		SSA = 32	6.7	SSA = 16	B	Section not modelled. Long list score	SSA = 104	Section not modelled. Long list score
2f	Shared bus / cycle lane uphill and separated cycle lane downhill	1	0	1	3	1	2	-2
		SSA = 32	6.7	SSA = 16	B+	Section not modelled. Long list score	SSA = 104	Section not modelled. Long list score

The calculated total weighted scores for Section 2 are shown in Table 4 below.

Table 4: Section 2 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Minor safety improvements and sharrows both sides	Do minimum - Sharrows both lanes kerbside	0	3	N
2d	Shared bus / cycle lane uphill and sharrows downhill	Removal of a traffic lane on the uphill side, bus priority on signals	95	2	N
2f	Shared bus / cycle lane uphill and separated cycle lane downhill	Removal of a traffic lane both sides, bike lane downhill and bus lane uphill shared with cyclists	100	1	Y (uphill design only)



### Section 3: Brooklyn Road (Webb Street to Ohiro Road)

Three Options were brought forward and assessed from the long list stage for this Section:

Option 3b – Enhanced fully separated uphill cycle lane (uni directional) and downhill sharrows

Option 3c / 3d – Enhanced fully separated uphill and downhill cycle lanes (uni-directional) Wherever practical, cycle lanes should be separated, but where space is limited, unprotected cycle lanes will be considered.

Option 3f - Enhanced fully separated uphill cycle lane (uni directional) and downhill sharrows via Ohiro Road, however this will include the downhill elements of Option 3b for Brooklyn Road.

### Assessment

The quantitative scoring for this Section is shown in Table 5 below. When comparing to the Do Minimum all Options show distinct improvements to safety (walking), LOS (walking), safety (cycling), and safety (road).

Options 3c and 3f however show a better LOS outcome than Option 3b for cycling, this would be predominantly due to the provision of separated facilities and / or the alternate route.

Option 3c has the most impact on the parking in this section with all being reallocated to the space required for the cycle lanes. A few on street parks would be lost at the bottom of Ohiro Road in Option 3f to provide a safer operating width for cyclists and vehicles sharing the space.

The total weighted scores indicate that Option 3f should be recommended as the preferred option for this section, however the assessment scores were very similar to Option 3c with the only real differential being safety given the reduced exposure of using Ohiro Road as an alternative downhill route.

Providing a fully separated downhill route on Brooklyn Road rather than an unprotected lane would achieve greater safety for cycling and consequently a better Safe System Assessment score. However, there are some concerns about whether this full downhill separation could be achieved due to the space constraints in some parts of this Section especially around bus stops. A downhill cycle facility requires greater width than a standard cycle facility, to allow for higher cycling speeds. A downhill cycle facility that is too narrow maybe considered less safe than sharing with traffic, especially by confident riders.

For these reasons WCC have decided to proceed with Option 3f.

Table 5: Section 3 Quantitative Scoring

Option	Option Title	Design criteria						
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Parking
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>20%</b>	<b>15%</b>	<b>20%</b>	<b>10%</b>	<b>10%</b>
Do Min	Existing trial layout formalised	0	0	0	0	0	0	0
		SSA = 48	4.6	SSA = 32	B+		SSA = 116	Trial layout parks lost
3b	Uphill: fully separated cycle lane.	1	1	1	0	1	2	0
	Downhill: sharrows	SSA = 32	6.2	SSA = 16	B+	Section not modelled. Long list score	SSA = 88	No additional parks lost
3c	Uphill: fully separated cycle lane.	2	1	1	1	1	2	-3
	Downhill: unprotected cycle lane	SSA = 16	6.3	SSA = 16	A-	Section not modelled. Long list score	SSA = 88	All parks lost on both sides of Brooklyn Road
3f	Uphill: fully separated cycle lane.	1	1	2	1	1	2	-1
	Downhill: sharrows + Ohiro Road route with sharrows	SSA = 32	6.2	SSA = 8	A-	Section not modelled. Long list score	SSA = 88	5 parks lost at the bottom of Ohiro road

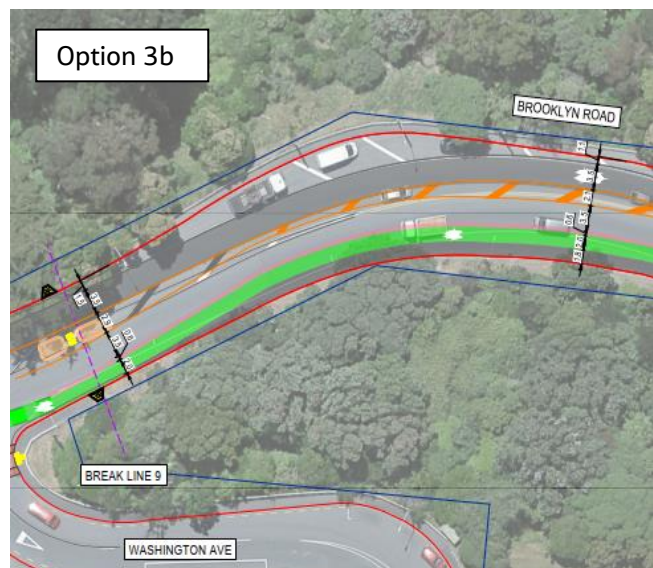
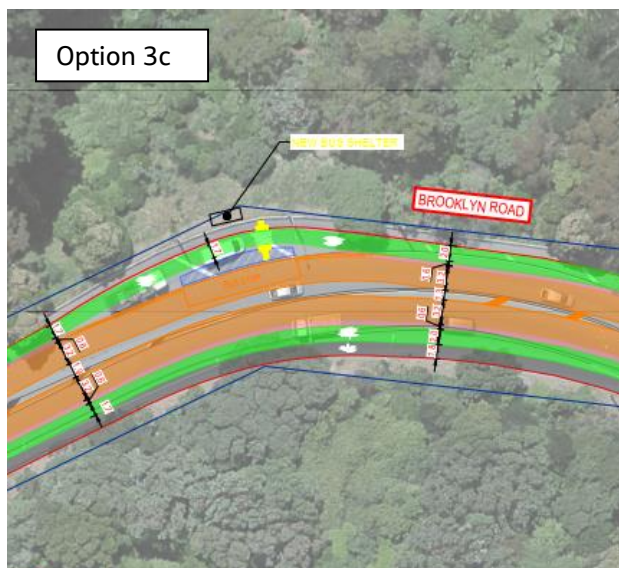
The calculated total weighted scores for Section 3 are shown in Table 6 below.

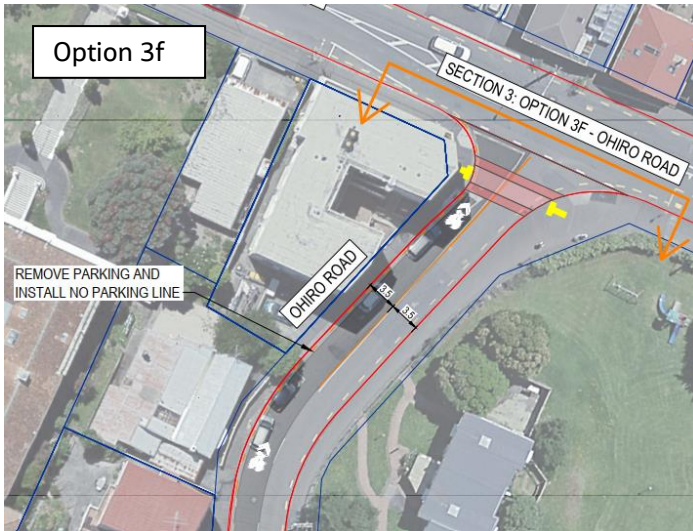


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Table 6: Section 3 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Existing trial layout formalised	Minor Improvements to existing uphill trial layout for permanence. Simple PT rationalisation (removal of #6713 / #7713 pair - Central Park) No improvements for pedestrian connectivity Parking loss consistent with trial layout	0	4	N
3b	Uphill: fully separated cycle lane. Downhill: sharrows	Pedestrian footpath provided on both sides PT improvements, enhanced connectivity and accessibility for users Safety improvements for pedestrians Parking loss consistent with trial layout	85	3	N
3c	Uphill: fully separated cycle lane. Downhill: unprotected cycle lane	Pedestrian footpath provided on both sides PT improvements, enhanced connectivity and accessibility for users Safety improvements for pedestrians Parking removed on downhill sides	90	2	N
3f	Uphill: fully separated cycle lane. Downhill: sharrows + Ohiro Road route with sharrows (Option 3B)	Pedestrian footpath provided on both sides PT improvements, enhanced connectivity, and accessibility for users Safety improvements for pedestrians Parking loss at the bottom of Ohiro Road	110	1	Y





### Section 4: Brooklyn Road / Ohiro Road Intersection

Two Options were brought forward and assessed from the Long List stage for this section

Option 4b – Enhanced intersection safety improvements

Option 4d – Roundabout

#### Assessment

The quantitative scoring for Section 4 is shown in Table 7 below. When comparing to the Do Minimum, both Options show distinct improvements to safety (walking), LOS (walking), safety (cycling), LOS (cycling) and safety (road).

The traffic modelling completed shows that Option 4d provides an increased LOS for movements from Ohiro Road due to a combination of the roundabout design allowing an easier 'gap seek' and the raised crossing approaches slowing entry speeds. This slowing of entry speeds also provides significant road safety benefits for vehicles as any crashes are likely to be at a much lower speed.

The total weighted score confirms that Option 4d is recommended to be the Preferred Option for this Section and workshop participants indicated their preference was to further develop this concept design during the Preliminary Design phase to reflect a 'Dutch style' roundabout where possible. A recent example of this is shown in the picture below from Cambridge in the UK.



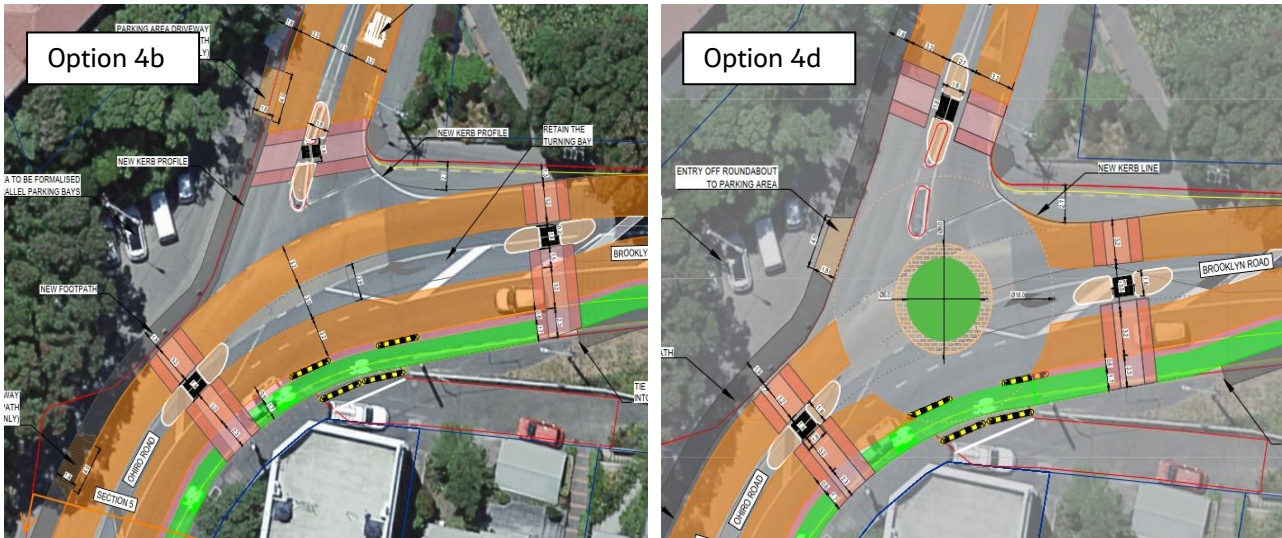
Table 7: Section 4 Quantitative Scoring

Option	Option Title	Design criteria								
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Traffic Efficiency	Place Amenity	Parking
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>20%</b>	<b>15%</b>	<b>20%</b>	<b>10%</b>	<b>10%</b>		<b>10%</b>
Do Min	Intersection Minor Safety Improvements	0	0	0	0	0	0	0	0	0
		SSA = 48	4.7	SSA = 48	B+	Brooklyn Rd: A (both)	SSA = 120	Brooklyn Rd: A (both) Ohiro: E (both) Brooklyn Tce: C (both)		
4b	Enhanced Intersection Safety Improvements	2	1	1	1	0	3	0	0	-1
		SSA = 16	6.3	SSA = 32	A-	No change	SSA = 68	No change	No change from Do Min	A few parks lost. Formalised with better entrances
4d	Roundabout	2	1	1	1	0	3	2	0	-1
		SSA = 16	6.3	SSA = 32	A-	No change	SSA = 64	Brooklyn Rd: A (both) Ohiro: B (both) Brooklyn Tce: A (both)	No change from Do Min	A few parks lost. Formalised with better entrances

The calculated total weighted scores for Section 4 are shown in Table 8 below.

Table 8: Section 4 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Intersection Minor Safety Improvements	Intersection priority amendments. Minor Safety Improvements and pedestrian upgrades.	0	3	N
4B	Enhanced Intersection Safety Improvements	Major Safety Improvements including priority amendments, pedestrian upgrades, improved cycling safety, raised table crossings.	105	2	N
4D	Roundabout	Major Safety Improvements, pedestrian upgrades, improved cycling safety, raised table crossings.	140	1	Y



## Section 5: Ohiro Road (Brooklyn Road to Cleveland Street)

Three Options were brought forward and assessed from the Long List stage for this Section:

Option 5b – Separated cycle lane on both sides

Option 5c – Separated cycle lane to Brooklyn and sharrows on other side

Option 5e – Separated cycle lane from Brooklyn and new footpath on other side

### Assessment

The quantitative scoring for Section 5 is shown in Table 9 below. When comparing to the Do Minimum all Options show distinct improvements to safety (walking), LOS (walking), safety (cycling), LOS (cycling) and safety (road).

Both Options 5b and 5e remove most, if not all, parking in this Section and this is reflected within the scoring.

The total weighted scores of Options 5b and 5e were very similar in this Section with both Options providing new infrastructure that increases LOS and safety for pedestrians and cyclists. Participants of the Short List MCA workshop felt the provision of protected cycle facilities in both directions outweighed the benefits of a new footpath, especially as the current footpath provided a good level of service on the eastern side of Ohiro Road.

The route is part of Wellington's strategic cycling network and is also an arterial road which has a high percentage of HGV trips to the Southern Landfill site and therefore separation of cyclists for safety is hugely beneficial and will also encourage future uptake of the route.

With the above in mind its recommended that Option 5b is taken forward as the Preferred Option for this Section.

Table 9: Section 5 Quantitative Scoring

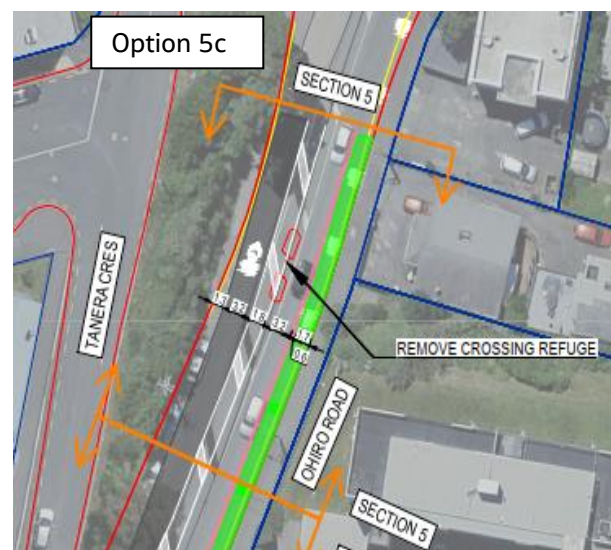
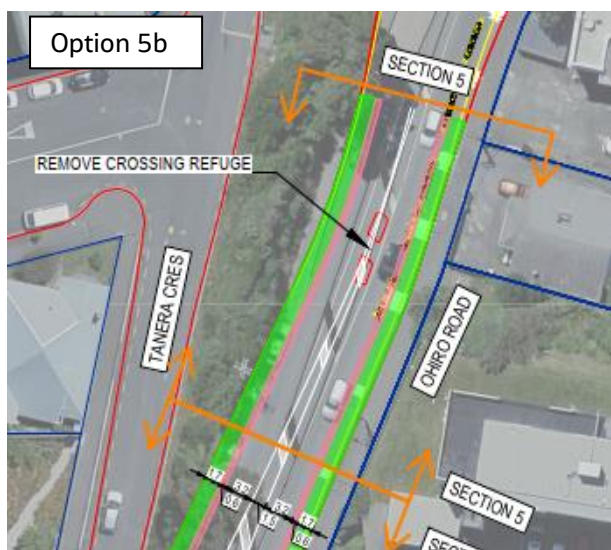
Option	Option Title	Design criteria						
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Parking
<b>Weighting</b>		<b>20%</b>	<b>10%</b>	<b>25%</b>	<b>15%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>
Do Min	Minor Safety Improvements	0	0	0	0	0	0	0
		SSA = 64	4.3	SSA = 48	D+	Do Min	SSA = 56	Do Min
5b	To Brooklyn: fully separated cycle lane.	1	0	2	2	0	1	-3
	To City: fully separated cycle lane.	SSA = 48	5.1	SSA = 16	B	Section not modelled. Long List score	SSA = 48	23 lost to City side 7 lost to Brooklyn side
5c	To Brooklyn: fully separated cycle lane.	1	0	1	2	0	1	-1
	To City: sharrows	SSA = 48	5	SSA = 32	B	Section not modelled. Long List score	SSA = 48	7 lost to Brooklyn side
5e	To Brooklyn: fully separated cycle lane.	2	1	1	2	0	1	-3
	To City: sharrows + new footpath	SSA = 32	5.5	SSA = 32	B	Section not modelled. Long List score	SSA = 48	23 lost to City side 7 lost to Brooklyn side

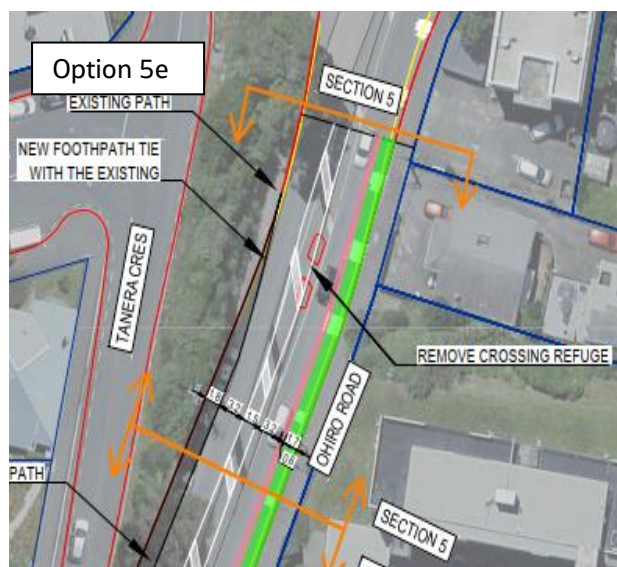
The calculated total weighted scores for Section 5 are shown in Table 10 below.

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Table 10: Section 5 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Minor safety improvements	Sharrows in conjunction with the intersection improvements of Tanera / Bretby. Implementation of speed limit extension. PT improvements (rationalisation) and accessibility for users (safe crossing point between bus stops).	0	4	N
5b	To Brooklyn: fully separated cycle lane. To City: fully separated cycle lane.	Parking removed on both sides of the road. Safety improvements for pedestrians. Implementation of speed limit extension. PT improvements (rationalisation), enhanced connectivity and accessibility for users (including safe crossing point between bus stops).	80	2	Y
5c	To Brooklyn: fully separated cycle lane. To City: sharrows	Parking removed on side towards Brooklyn. Safety improvements for pedestrians. Implementation of speed limit extension. PT improvements (rationalisation), enhanced connectivity and accessibility for users (including safe crossing point between bus stops).	75	3	N
5e	To Brooklyn: fully separated cycle lane. To City: sharrows + new footpath	Parking removed on both sides of the road. Safety improvements for pedestrians. Implementation of speed limit extension. PT improvements (rationalisation), enhanced connectivity and accessibility for users (including safe crossing point between bus stops).	85	1	N





## Section 6: Ohiro Road / Tanera Crescent / Bretby Crescent Intersection

Four Options were brought forward and assessed from the Long List stage in this Section:

Option 6b – Enhanced Intersection Safety Improvements

Option 6c – Closure of Tanera Crescent between Helen Street and Ohiro Road

Option 6d – Tanera Crescent made one way from Ohiro Road to Helen Street

Option 6e – Tanera Crescent made one way towards Ohiro Road from Helen Street

### Assessment

The quantitative scoring for Section 6 is shown in Table 11 below. When comparing to the Do Minimum Options 6c, 6d and 6e showed distinct improvements to safety (walking), LOS (walking), safety (cycling) and safety (road). It has been assumed there is no change to the LOS (cycling) as the Do Minimum Option would include the facility continuity from Section 5.

While there is no clear increase to bus speed and reliability in this Section it should be noted that improvements to facilities, in-lane bus stops and safer crossings will increase the general LOS for PT.

Options 6c, 6d and 6e have a significant effect on traffic efficiency through the closure or restriction of vehicle movement at the intersection. The resultant effect of these Options is the re-routing of vehicles via a sizeable detour through the Todman / Cleveland / Ohiro intersection which may increase congestion at this intersection. With the planned upgrade works at the Todman / Cleveland / Ohiro intersection also likely to begin in September 2022 it was also considered best to let this work be completed and monitored before any other network adjustments were made locally.

These issues were discussed at the Short List workshop and while the total weighted score of Option 6c lends itself to adopting it as the Preferred Option for this Section, there were several other local variables that needed to be considered. It was suggested that it would be beneficial to trial Options 6c, 6d and 6e with the local community, potentially through other planned maintenance or capital works at the intersection. This would therefore be a separate piece of work beyond the timescales of the current project.

It was therefore decided that Option 6b would be recommended as the Preferred Option for this Section in the interim.

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Table 11: Section 6 Quantitative Scoring

Option	Option Title	Design criteria							
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Traffic Efficiency	Place Amenity
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>15%</b>	<b>10%</b>	<b>10%</b>	<b>15%</b>	<b>15%</b>	<b>10%</b>
Do Min	Intersection Minor Safety Improvements	0	0	0	0	0	0	0	0
		SSA = 64	4.1	SSA = 64	B	Ohiro: A	SSA = 108	75 m	Do Min
6b	Enhanced Intersection Safety Improvements	1	0	1	0	0	1	0	0
		SSA = 48	4.7	SSA = 48	B	No change	SSA = 100	75 m	No change from Do Min.
6c	Closure of Tanera Cres	3	2	3	0	0	3	-3	0
		SSA = 16	7	SSA = 16	B	No intersection	SSA = 60	1.6 km detour Approx 4 min detour	No change from Do Min.
6d	One way Tanera Cres From Ohiro Road	2	2	2	0	0	2	-2	0
		SSA = 32	6.8	SSA = 32	B	No change	SSA = 76	1.6 km detour Approx 4 min detour	No change from Do Min.
6e	One way Tanera Cres To Ohiro Road	2	2	2	0	0	2	-2	0
		SSA = 32	6.8	SSA = 32	B	No change	SSA = 80	1.6 km detour Approx 4 min detour	No change from Do Min.

The calculated total weighted scores for Section 6 are shown in Table 12 below.



Memorandum

Table 12: Section 6 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Minor Safety Improvements	Intersection priority amendments. Minor Safety Improvements and pedestrian upgrades including a safe refuge crossing point of Ohiro Road	0	5	N
6b	Enhanced Intersection Safety Improvements	Major Safety Improvements including priority amendments, pedestrian upgrades, improved cycling safety, raised table crossings.	45	4	Y
6c	Closure of Tanera Cres	Major Safety Improvements including priority amendments, pedestrian upgrades, improved cycling safety, raised table crossings.	110	1	N
6d	One way Tanera Cres From Ohiro Road	Major safety improvements including priority amendments, pedestrian upgrades, improved cycling safety, raised table crossings.	80	2	N
6e	One way Tanera Cres To Ohiro Road	Major safety improvements including priority amendments, pedestrian upgrades, improved cycling safety, raised table crossings.	80	2	N

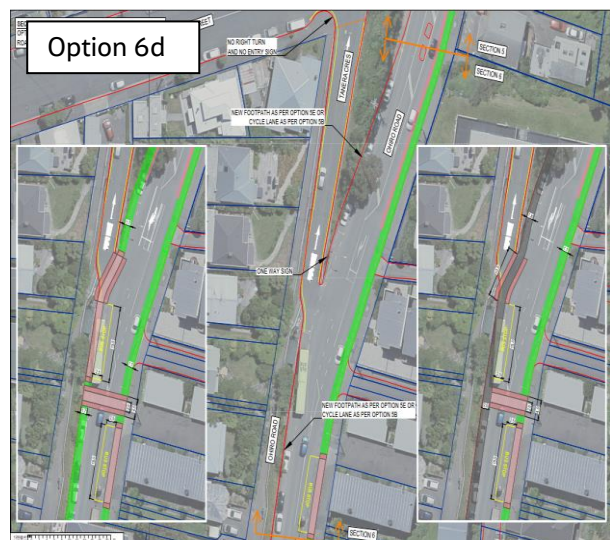
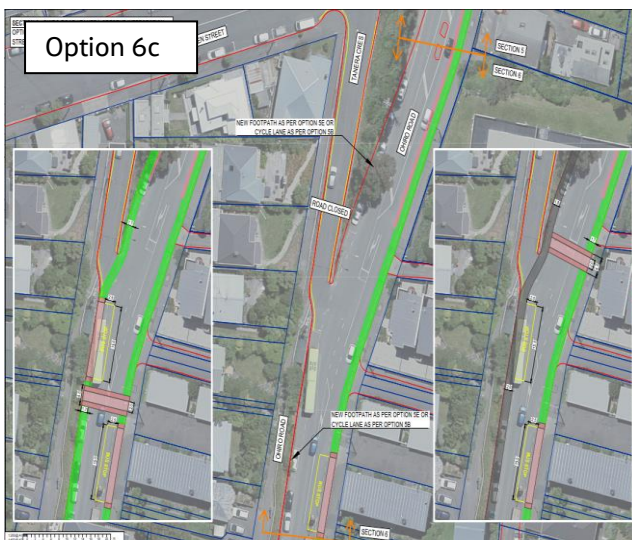




Table 13: Section 7 Quantitative Scoring

Option	Option Title	Design criteria						
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Traffic Efficiency
<b>Weighting</b>		<b>20%</b>	<b>10%</b>	<b>20%</b>	<b>15%</b>	<b>10%</b>	<b>10%</b>	<b>15%</b>
Do Min	Planned WCC Upgrade	0	0	0	0	0	0	0
		SSA = 24	6.1	SSA = 36	B	Ohiro: C Todman: D Cleveland: D	SSA =52	Ohiro: C Todman: D Cleveland: D
7e	Minor changes that fit within the planned changes	0	0	0	0	0	0	0
		SSA = 24	6.1	SSA = 36	B	No change	SSA =52	No change
7f	Right Removal from Ohiro to Todman	0	0	1	0	-1	0	-1
		SSA = 24	6.3	SSA = 24	B	Ohiro: D/C Todman: D Cleveland: E	SSA =52	Ohiro: D/C Todman: D Cleveland: E
7g	Intersection Safety Improvements	1	0	1	0	0	1	0
		SSA = 8	6.8	SSA = 24	B	No change	SSA = 40	No change

The calculated total weighted scores for Section 7 are shown in Table 14 below.

Table 14: Section 7 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Planned WCC Upgrade	Planned WCC Upgrade	0	2	N
7e	Minor changes that fit within the planned upgrade	Do Minimum changes that fit within the planned upgrade	0	2	N
7f	Right Removal from Ohiro to Todman	Removal of the right turn pocket from Ohiro Rd to Todman St and speed management	-10	4	N
7g	Intersection Safety Improvements	Intersection Safety Improvements that are a change from the planned upgrade	50	1	Y



Memorandum

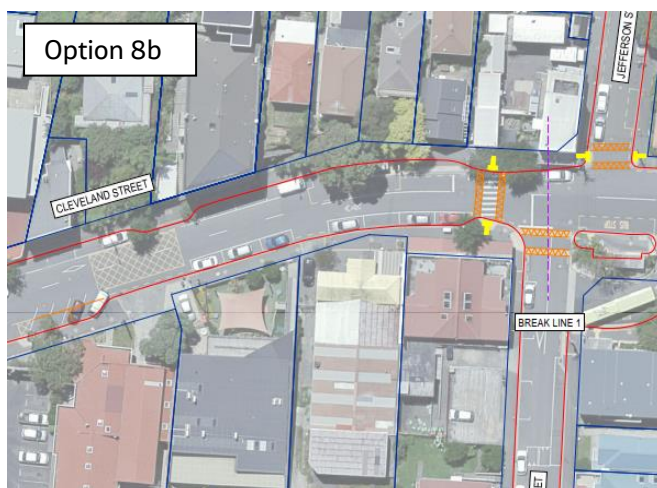
Table 15: Section 8 Quantitative Scoring

Option	Option Title	Design criteria							
		Safety (walking)	LOS (walking)	Safety (cycling)	LOS (cycling)	Bus speed /reliability	Safety (road)	Place Amenity	Parking
<b>Weighting</b>		<b>15%</b>	<b>10%</b>	<b>10%</b>	<b>10%</b>	<b>5%</b>	<b>5%</b>	<b>15%</b>	<b>30%</b>
Do Min	Sharrows (existing)	0	0	0	0	0	0	0	0
		SSA = 16	5	SSA = 16	B	Do Min	SSA = 28	0	Existing parking
8b	Minor Safety Improvements	1	1	0	0	0	1	0	0
		SSA = 8	6.6	SSA = 16	B	Section not modelled. Long List score	SSA = 20	No change from Do Min at this stage	2 parks lost. But not a step change different from Do Min

The calculated total weighted scores for Section 7 are shown in Table 14 below.

Table 16: Section 8 Calculated Total Weighted Scores, Option Ranking and Preferred Option Status

Option	Option Title	Description	Total Weighted Scores	Rank	Preferred Option
Do Min	Sharrows (existing)	Do Minimum option (Do nothing)	0	2	N
8b	Minor Safety Improvements	Pedestrian and cycling safety improvements. Parking layout amendments.	30	1	Y



## Preferred Option Summary

The following Options for Section 1 to Section 8 are therefore recommended to move forward into Preliminary Design.

The Options for Section 1 and Section 2, highlighted in red below are adjacent to the LGWM SW CBD Improvements boundary and as such may change depending on the outcomes of the LGWM MCA processes. The concept designs for the uphill infrastructure in Section 2 are also identical for both Options 2d and 2f and therefore either Option could have been taken forward as the Preferred Option. The downhill Option for this Section has been removed pending the outcomes of LGWM MCA processes.

- Section 1:      **Option 1d – Dedicated shared cycle / bus lane**
- Section 2:      **Option 2f – Shared bus / cycle lane uphill**
- Section 3:      Option 3f - Enhanced fully separated uphill cycle lane (uni-directional) and downhill sharrows via Ohiro Road
- Section 4:      Option 4d – Roundabout
- Section 5:      Option 5b – Separated cycle lane on both sides
- Section 6:      Option 6b – Enhanced Intersection Safety Improvements
- Section 7:      Option 7g – Intersection Safety Improvements that fit within the planned upgrade
- Section 8:      Option 8b – Minor Safety Improvements