GREENWAY MASTERPLAN
APPENDIX D
TRAFFIC ANALYSIS REPORT

The Greenway Master Plan: Cooks to Cove Greenway

McGregor Coxall

Feasibility traffic assessment of on-road sections and at-grade crossings

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The Greenway Master Plan: Cooks to Cove Greenway

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Document history and status

Revision	Date	Description	By	Review	Approved
A	29/03/2018	Draft report for comment	R. Banzon	S. Read	D. Borella
B	24/04/2018	Response to draft report comments	R. Banzon	S. Read	D. Borella
C	08/05/2018	Final draft report	R. Banzon	S. Read	D. Borella
D	25/07/2018	Final draft report – Updated	R. Banzon	S. Read	D. Borella

Contents

1. Introduction

Jacobs has been commissioned by the Inner West Council to undertake a traffic and transport feasibility assessment for the Greenway project. This report outlines the traffic and transport feasibility assessment of on-road sections and at-grade crossings of the Greenway.

The outcomes of this assessment will inform the route options assessment by McGregor Coxall, which is being prepared as part of The Greenway Missing Links Master Plan development process.

This report is structured as follows:

- Chapter 2 provides a brief overview of the Greenway.
- Chapter 3 describes the methodology undertaken to qualitatively and quantitatively assess the project based on traffic engineering principles.
- Chapter 4 outlines the assessment of on-road sections of the Greenway.
- Chapter 5 outlines the assessment of at-grade crossings of the Greenway.
- Chapter 6 presents a summary and conclusion of the traffic assessment.

2. The Greenway

The Greenway is a 5.8 km environmental and active transport corridor linking the Cooks River at Earlwood to Parramatta River at Iron Cove. Following the Inner West Light Rail line, the Greenway would feature bike paths and foreshore walks, cultural and historical sites, cafes, bush care sites and a range of parks, playgrounds and sporting facilities.

In July 2016, the New South Wales Government and Inner West Council committed joint funding of $14.5 million towards the cost of completing the Greenway. Concurrent with the detailed design of some sections, Inner West Council is developing The Greenway Missing Links Master Plan for the entire Greenway corridor. The Master Plan would guide the delivery of additional landscaping and infrastructure along the corridor over the next 10-15 years. A key objective of the Master Plan is to create a safe and permeable active transport corridor linking the Cooks River to Iron Cove, to suit all types of users. This involves:

- Completing the "spine" – a legible, safe and accessible route along the entire Greenway
- Addressing existing barriers including road crossings
- Creating "Greenway streets" – safe, rideable streets where the route needs to remain on-road

This report addresses the technical assessment of options to meet these goals.

Figure 2.1 shows the location of the Greenway and its surrounding areas.

Figure 2.1 : Local context of the Greenway

Source: Greenway (Inner West Council and City of Canterbury Bankstown, 2018)

3. Methodology

The Greenway's proposed on-road sections and at-grade road crossings were assessed qualitatively and quantitatively based on a desktop review, site investigations, traffic data (where available) and relevant guidelines. Additional quantitative assessment was undertaken for intersections proposed to be upgraded or modified as part of the Greenway.

3.1 On-road sections and at-grade crossings assessment locations

The following on-road and road crossing segments of the Greenway corridor were assessed:

- On-road sections from Iron Cove to Marion Street
- Marion Street crossing
- Signalisation of Old Canterbury Road / Weston Street / Edward Street
- Weston Street on-road corridor section
- Davis Street crossing
- Constitution Road crossing
- New Canterbury Road crossing
- Hercules Street crossing
- Signalisation of Ewart Street / Terrace Road
- On-road sections from Jack Shanahan Park to Cooks River

Crossings at Parramatta Road and Longport Street will be grade separated and are funded under the Parramatta Road Urban Amenity Improvement Program and therefore have not been included in this assessment.

3.2 Separation or mixed traffic

A key consideration in the design of safe, high-quality on-road bicycle facilities is to correctly identify when to provide treatments that physically separate bicycles from vehicular traffic (e.g. by including separated cycleways) and otherwise, when mixing bicycle and vehicular traffic is acceptable. Roads and Maritime's *NSW Bicycle Guidelines* outlines the traffic conditions that require the implementation of separated bicycle facilities and when a mixed traffic environment may be acceptable. This is largely dependent on traffic volume and vehicle speed, as shown in Figure 3.1.

The feasibility of providing these treatments may be constrained by other factors such as road space availability, parking requirements, road grades, directness and bicycle rider numbers. Therefore, Figure 3.1 indicates the minimum traffic conditions at which separation of cyclists and motor vehicles should be considered. Figure 3.1 does not intend to indicate that there are (low) traffic conditions for which separation should not necessarily be implemented or that there will be no benefit by providing separation.

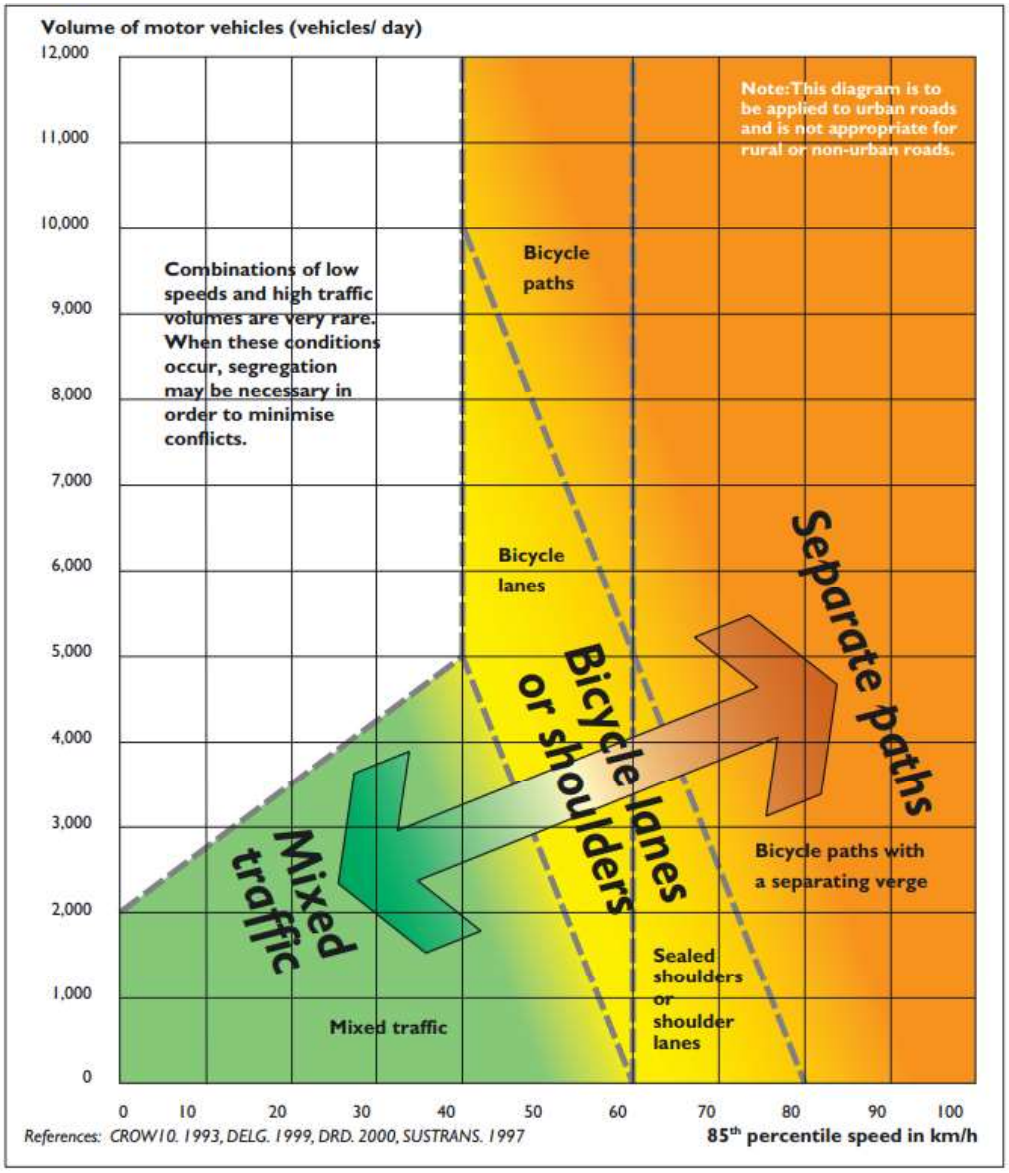


Figure 3.1 : Separation of bicycles and motor vehicles according to traffic speed and volume

Source: NSW Bicycle Guidelines (Roads and Maritime, 2005)

3.3 Traffic modelling approach

3.3.1 Intersection performance criteria

The quantitative assessment has been undertaken using SIDRA INTERSECTION (Sidra) modelling software (version 7). Sidra is a micro-analytical tool for evaluating intersection performance in terms of capacity, Degree of Saturation, Level of Service, average vehicle delay and queue lengths and is an appropriate tool for modelling individual intersections. Roads and Maritime Services (Roads and Maritime) *Traffic Modelling Guidelines* (version 1.0, February 2013) state that the following core performance elements should be assessed when modelling using Sidra:

- Degree of Saturation (DoS)
- Level of Service (LoS)
- 95 per cent back of queue distance

Degree of Saturation

DoS is defined as the ratio of demand (arrival) flow to capacity (also known as volume to capacity ratio). DoS above 1.0 represent oversaturated conditions (demand flow exceeds capacity), and DoS below 1.0 represent under-saturated conditions (demand flows are below capacity).

Level of Service

LoS is a qualitative measure describing operational conditions within a traffic stream and their perception by drivers and / or passengers. This measure is used in planning design and operation of roads. LoS criteria are classified into six categories as shown in Table 3.1.

Table 3.1 : Level of Service (LoS) criteria

LoS	Average delay per vehicle (seconds per vehicle)	Traffic signals	Roundabout
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory
D	43 to 56	Operating near capacity	Operating near capacity
E	57 to 70	At capacity; incidents will cause delays.	At capacity; requires other control mode
F	Over 70	Extra capacity required	Extra capacity required

Source: Guide to Traffic Generating Developments (Roads and Maritime, version 2.2, 2002)

The average delay assessed for roundabouts is for the worst movement and is expressed in seconds per vehicle.

4. On-road sections assessment

4.1 Iron Cove to Marion Street

Proposed on-road options for Iron Cove to Marion Street are shown in Figure 4.1.

Figure 4.1 : Iron Cove to Marion Street on-road options

Options considered are:

- Option 1 – existing off-road path
- Option 2 – Canal Road
- Option 3 – Hawthorne Parade
- Option 4 – Darley Road

On-road sections overview

- Canal Road, Hawthorne Parade and Darley Road presently function as marked bicycle routes.
- Canal Road provides an on-road cycle environment of low difficulty as shown in Figure 4.2.
- Hawthorne Parade provides an on-road cycle environment of moderate difficulty, except for the section between Barton Avenue and Waratah Street which is of high difficulty, as shown in Figure 4.2. The high difficulty is due to the high turnover of on-street parking.
- Darley Road provides an on-road cycle environment of high difficulty for most of its length as shown in Figure 4.2 due to the high vehicle volumes.
- Both Hawthorne Parade and Darley Street would accommodate commuter / experienced cyclists given their difficulty.
- Canal Road carries very low volumes of traffic given its existing function and therefore would be suitable for inexperienced and experienced cyclists, provided that the road is upgraded to be more cycle friendly.
- Cyclists travelling on Hawthorne Parade have to navigate through three roundabouts.
- Angled parking on the eastern side of Hawthorne Parade presents additional conflicts between vehicles and cyclists, particularly when vehicles are reversing out of a parking bay.
- Bicycle symbols placed on Hawthorne Parade are currently unclear at specific locations and therefore new symbols in conjunction with upgrades to improve cyclist safety and network legibility should be implemented.
- Darley Road consists of wide-shoulders which would be suitable for cyclists, however the road carries higher traffic volumes compared to Hawthorne Parade and Canal Road.

Recommendation

- Canal Road – Minor upgrades to ensure the road is made more cycle friendly.
- Hawthorne Parade – Ensure the road can accommodate commuter / experienced cyclists, with modifications to the three roundabouts and addition of slow points to improve cyclist safety. Modify roundabouts and intersections generally to improve pedestrian access and bicycle transition from on-road to Greenway. Where angled parking is to be retained, it should be retained as rear to kerb parking. On-street bicycle lanes are not recommended due to the high turnover of parking, especially on weekends. Mixed traffic with pavement logos should be maintained. Additional logos should be painted at existing slow points and roundabouts. The posted speed limit could be reduced from 50km/h to 40km/h although this may require supporting traffic-calming measures at mid-block sections to ensure those vehicle speeds are achieved. It is also recommended to install bicycles may use full lane signs at intervals along Hawthorne Parade and bicycles excepted signs on the Hawthorne Parade to Dobroyd Parade one-way link.
- Darley Road – Provide a separated cycleway.

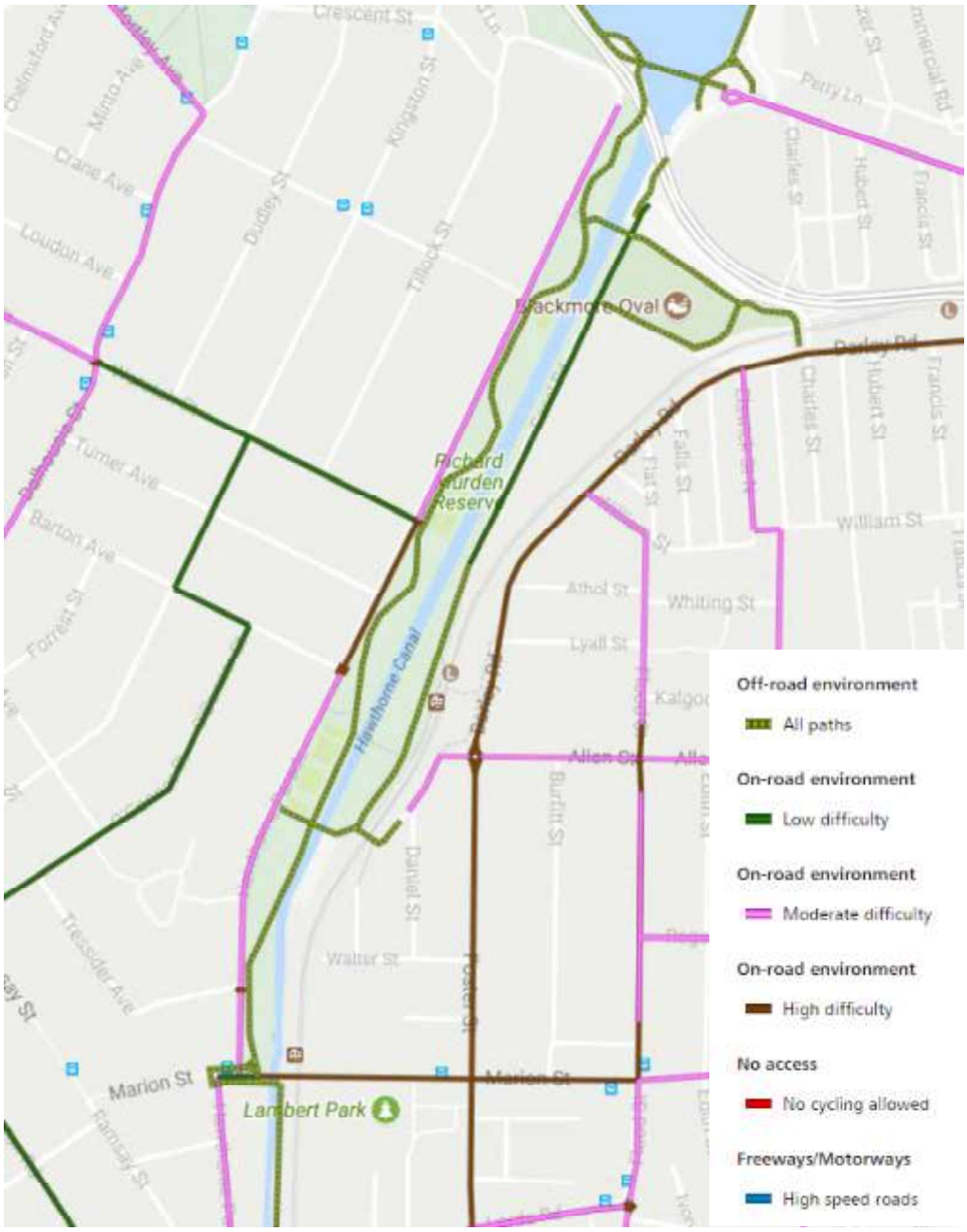


Figure 4.2 : Cycling network from Iron Cove to Marion Street

Source: Cycleway Finder (Roads and Maritime, 2018)

4.2 Weston Street

The Weston Street on-road options are shown in Figure 4.3.

Figure 4.3 : Weston Street on-road options

On-road sections overview

- Weston Street carries a very low volume of traffic, with 2014 Annual Average Daily Traffic (AADT) of 80 vehicles northbound and 160 vehicles southbound.
- 85th percentile speed in 2014 was 46.8 km/h.
- Weston Street would be an appropriate on-road cycle environment (mixed-traffic) given the low 85th percentile speed and low daily volume (240 AADT, bi-directional) as shown in Figure 3.1.
- Traffic calming devices may be installed to slow traffic even further, however this may not be necessary.

Recommendation

- Mixed traffic environment with appropriate line marking, signage and wayfinding facilities to be installed (at a minimum).
- The posted speed limit could be reduced from 50km/h to 40km/h although this may require supporting traffic-calming measures at mid-block sections to ensure those vehicle speeds are achieved. A trial of a posted speed limit of 30km/h could also be considered as part of a bike boulevard treatment.

It should be noted that above is predicated on the maintaining existing or reduced traffic volumes on Weston Street. Should signalisation of Weston Street / Old Canterbury Road with entry and exit at Weston Street, result in an increase in traffic along Weston Street a separated cycleway may be required. This is assessed in Section 5.2.

4.3 Jack Shanahan Park to Cooks River

Proposed on-road options for Jack Shanahan Park to Cooks River are shown in Figure 4.4.

Figure 4.4 : Jack Shanahan Park to Cooks River on-road options

Options considered are:

- Option 1 – Tennant Parade and Ness Avenue
- Option 2 – Tennant Parade and Garnet Street
- Option 3 – Wardell Road, Riverside Crescent, Tennyson Street and Ness Avenue
- Option 4 – Golf Course and Ness Avenue
- Option 5 – Wardell Road, Riverside Crescent and Ewart Street

Existing traffic

A summary of available traffic data on local roads that may form part of the Greenway are shown in Table 4.1.

Table 4.1 : Local road traffic data

Road	Year	AADT	85th percentile speed (km/h)
Garnet Street / Tennant Parade	2006	740	43.6
Ness Avenue	2007	990	51.8
Riverside Crescent	2003	1,800	38.7
Tennyson Street	2016	870	51.5

On-road sections overview

- All local roads carry a low volume of traffic and low 85th percentile speed – see Table 4.1.
- Garnet Street is narrow at the bridge.
- Garnet Street is designated as an on-road cycle environment of moderate difficulty – see Figure 4.5.
- Tennant Parade is designated as an on-road cycle environment of low difficulty – see Figure 4.5.
- All local roads are suitable for a mixed-traffic on-road environment due to their low daily traffic volumes and 85th percentile speed – see Table 4.1.
- Traffic calming devices may be installed to slow traffic even further, however this may not be necessary.

Left-turn ban from Wardell Road northbound to Riverside Crescent

- The left turn ban supports all options by minimising vehicles that rat-run from Wardell Road to Garnet Street via Riverside Crescent, Tennyson Street and Ness Avenue.
- Access to residential properties on Riverside Crescent, Tennyson Street, Ness Avenue and Balfour Street would be via Ewart Street and Riverside Crescent when approaching from the south. The maximum distance and delay is estimated at 550 metres and 45 seconds plus signal stopping time, respectively. Access would be unchanged from all other directions.
- Around 80-100 vehicles per hour during peak periods travel northbound on Riverside Crescent (assuming the peak hour traffic is 10 per cent of AADT). However, available traffic data is from 2003 and therefore new counts should be undertaken to determine the quantum of traffic currently using Riverside Crescent.
- With the left-turn ban, northbound vehicles would be required to travel through the Wardell Road / Ewart Street intersection.
- Given the low peak hour volume, Wardell Road / Ewart Street should be able to accommodate the additional vehicles, however additional quantitative analysis (modelling) may need to be undertaken to confirm this.

- Riverside Crescent 85th percentile speed is 38.7 km/h.
- The low 85th percentile speed and low daily volume (1,800 AADT, bi-directional), may not require prohibition of the left turn – see Figure 3.1.

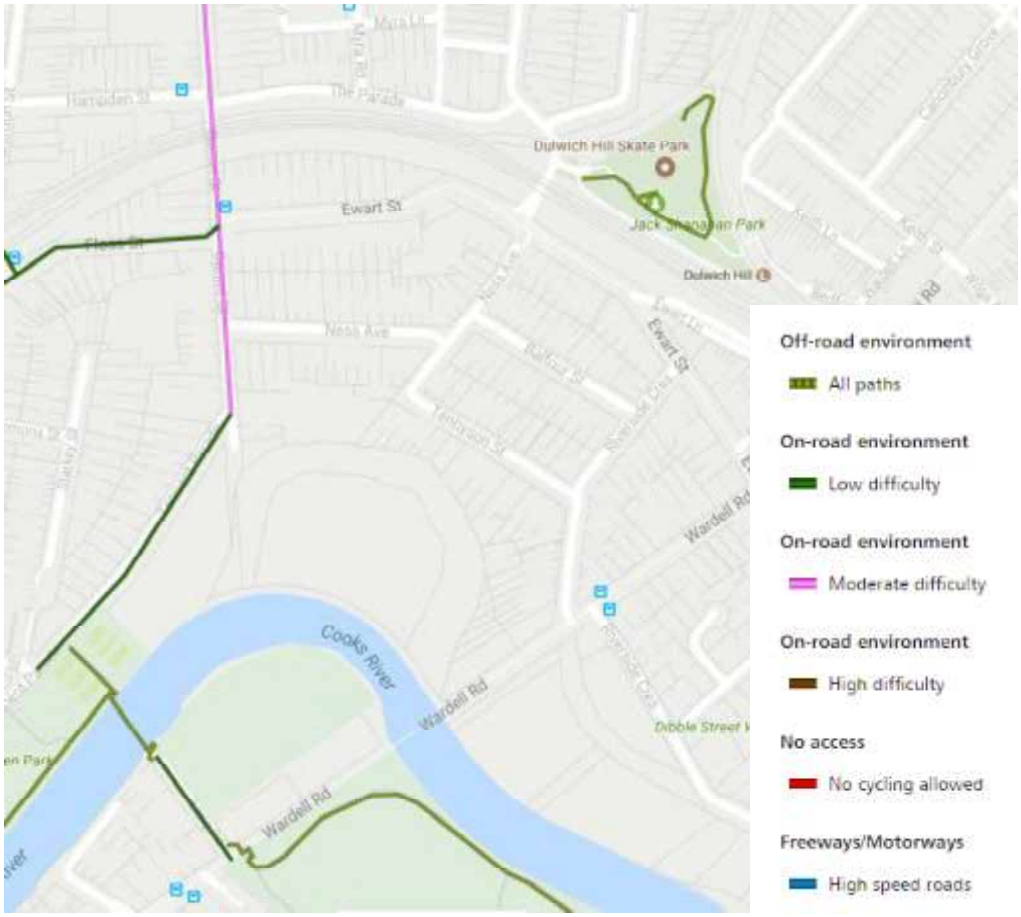


Figure 4.5 : Cycling network from Jack Shanahan Park to Cooks River

Source: Cycleway Finder (Roads and Maritime, 2018)

Recommendation

- Mixed traffic environment on all local roads with appropriate line marking, signage and wayfinding facilities to be installed (at a minimum).
- New traffic counts should be undertaken on Riverside Crescent and at the intersection of Wardell Road and Ewart Street to quantitatively assess the impact of the left turn ban.

5. At-grade crossings assessment

5.1 Marion Street

Proposed options for Marion Street are shown in Figure 5.1.

Figure 5.1 : Marion Street crossing options

Options considered at Marion Street are:

- Option 1 – modification to existing signalised crossing (quantitatively assessed in this report)
- Option 2 – existing signalised crossing

At-grade crossing overview

- Long cycle times are an issue, which encourages users to cross when it is unsafe to do so.
- In the current configuration, cyclists are required to dismount on both sides of the crossing.
- Crossing provision for walkers and riders could be improved.
- Parking lanes are currently provided in each direction which encourages motorists to travel on lane 2 during periods when parking is permitted.
- Although suggestions to widen the crossing (like at Martin Place) would provide more space for both pedestrians and cyclists and align riders onto the Greenway desire line, there may be difficulty in gaining Roads and Maritime approval as this is not a typical crossing width. Also, Marion Street is a designated regional road.
- Roads and Maritime approved crossing widths are 3.6m, 4.5m, 6m or 10m wide[1] depending on location and volumes.

Four scenarios have been modelled in Sidra as follows:

- **Existing**: Current configuration with two lanes in in each direction.
- **Option 1A**: Moving the signalised crossing in line with the Council driveways and reducing Marion Street in the westbound direction to one lane with provision of a shared pedestrian and cyclist crossing on the west approach, a pedestrian only crossing on the east approach and signalised control of vehicle movements to and from the driveways on the north and south approaches.
- **Option 1B**: Moving the signalised crossing in line with the Council driveways and reducing Marion Street in the westbound direction to one lane with provision of pedestrian only crossings on the east and west approaches and signalised control of vehicle and cyclist movements to and from the driveways on the north and south approaches.
- **Option 1C:** Moving the signalised crossing west of the Council driveways at the canal overpass and reducing Marion Street in the westbound direction to one lane with provision of a shared pedestrian and cyclist crossing on the west approach, a pedestrian only crossing on the east approach and uncontrolled access to and from the driveways on the north and south approaches.

The intersection concept and modelling results are presented in Section 5.1.1. Traffic counts used for the assessment is provided in Appendix A.

[1] Traffic signal design, section 6 – pavement markings (Roads and Maritime, 2008)

5.1.1 Intersection performance

Option 1A

Figure 5.2 shows the Option 1A intersection configuration modelled in Sidra.

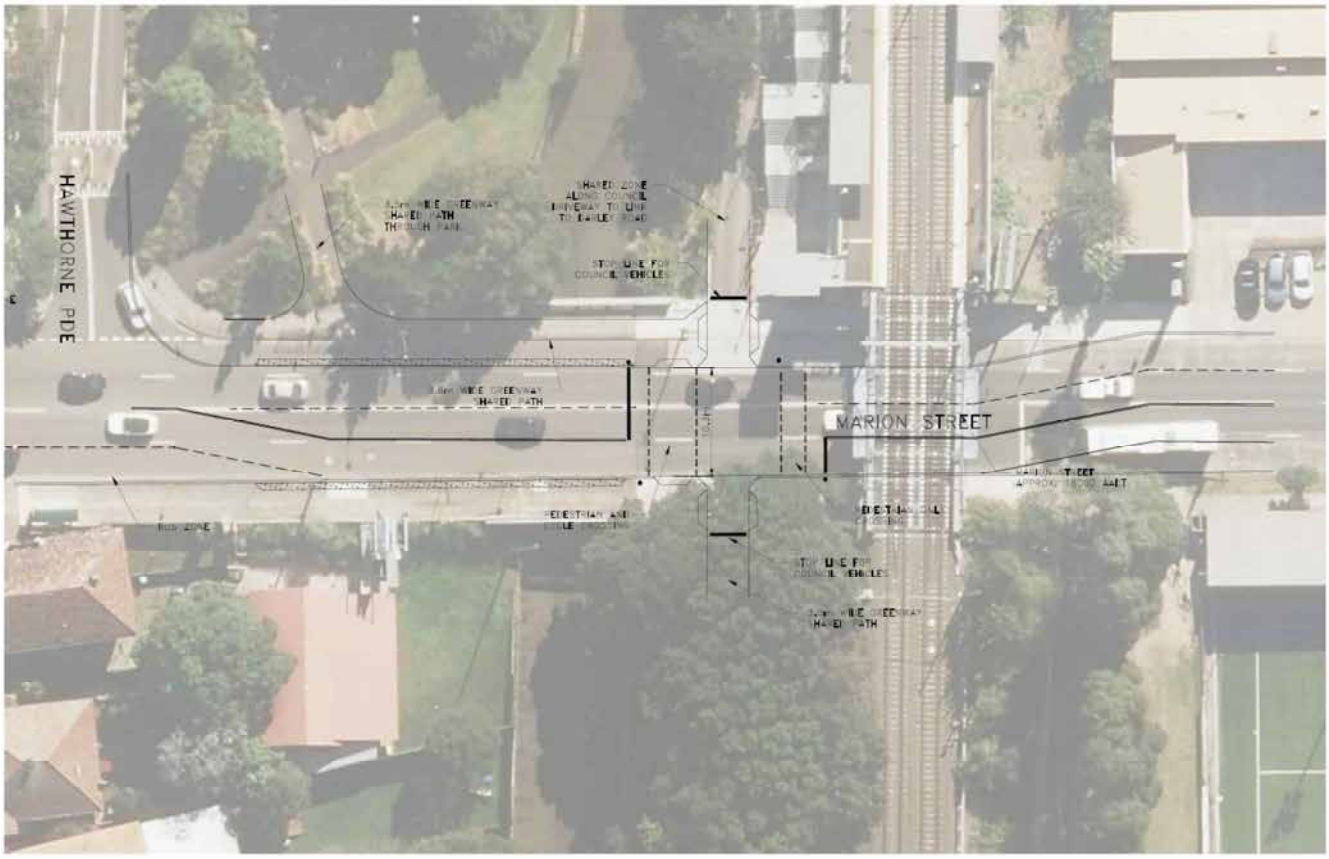


Figure 5.2 : Option 1A – Marion Street modification

Table 5.1 shows a comparison of the intersection performance with and without Option 1A.

Table 5.1 : Option 1A modelling results

Time period / approach	Existing				Option 1A			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Council driveway south approach	N/A	N/A	N/A	N/A	0.26	40	C	<10
Marion Street east approach	0.19	<5	A	20	0.31	<5	A	35
Council driveway north approach	N/A	N/A	N/A	N/A	0.26	40	C	<10
Marion Street west approach	0.58	5	A	80	0.90	25	B	160
Overall intersection	**0.58**	**5**	**A**	**80**	**0.90**	**21**	**B**	**160**
Evening peak hour								
Council driveway south approach	N/A	N/A	N/A	N/A	0.13	36	C	<10
Marion Street east approach	0.42	5	A	50	0.71	7	A	120
Council driveway north approach	N/A	N/A	N/A	N/A	0.13	36	C	<10
Marion Street west approach	0.46	5	A	60	0.46	5	A	55
Overall intersection	**0.46**	**5**	**A**	**60**	**0.71**	**6**	**A**	**120**

Without modification to the existing signals, the intersection performs at LoS A during the morning and evening peak hour. Reducing Marion Street to one lane in the westbound direction and moving the crossing to the west, in line with the Council driveways which would be converted to signalised control and used by Council vehicles only would result in the intersection operating at LoS B during the morning peak hour and LoS A during the evening peak hour. Queue lengths would remain acceptable, with a maximum queue length of 160 metres on Marion Street in the eastbound direction during the morning peak hour and 120 metres on Marion Street in the westbound direction during the evening peak hour.

The signalisation of the Council driveways requires additional kerb and gutter treatments to ensure that pedestrians perceive the driveway as a road. This eliminates any confusion over right of way between pedestrians and vehicles[2].

Option 1A would improve crossing safety by providing a shared pedestrian and cyclist crossing on the west approach in-line with the Greenway desire line while maintaining a pedestrian crossing on the east approach in-line with the light rail desire line.

Additional modelling outputs are provided in Appendix B.

[2] Traffic signal design, section 15 – special situations (Roads and Maritime, 2016)

Option 1B

Figure 5.3 shows the Option 1B intersection configuration modelled in Sidra.

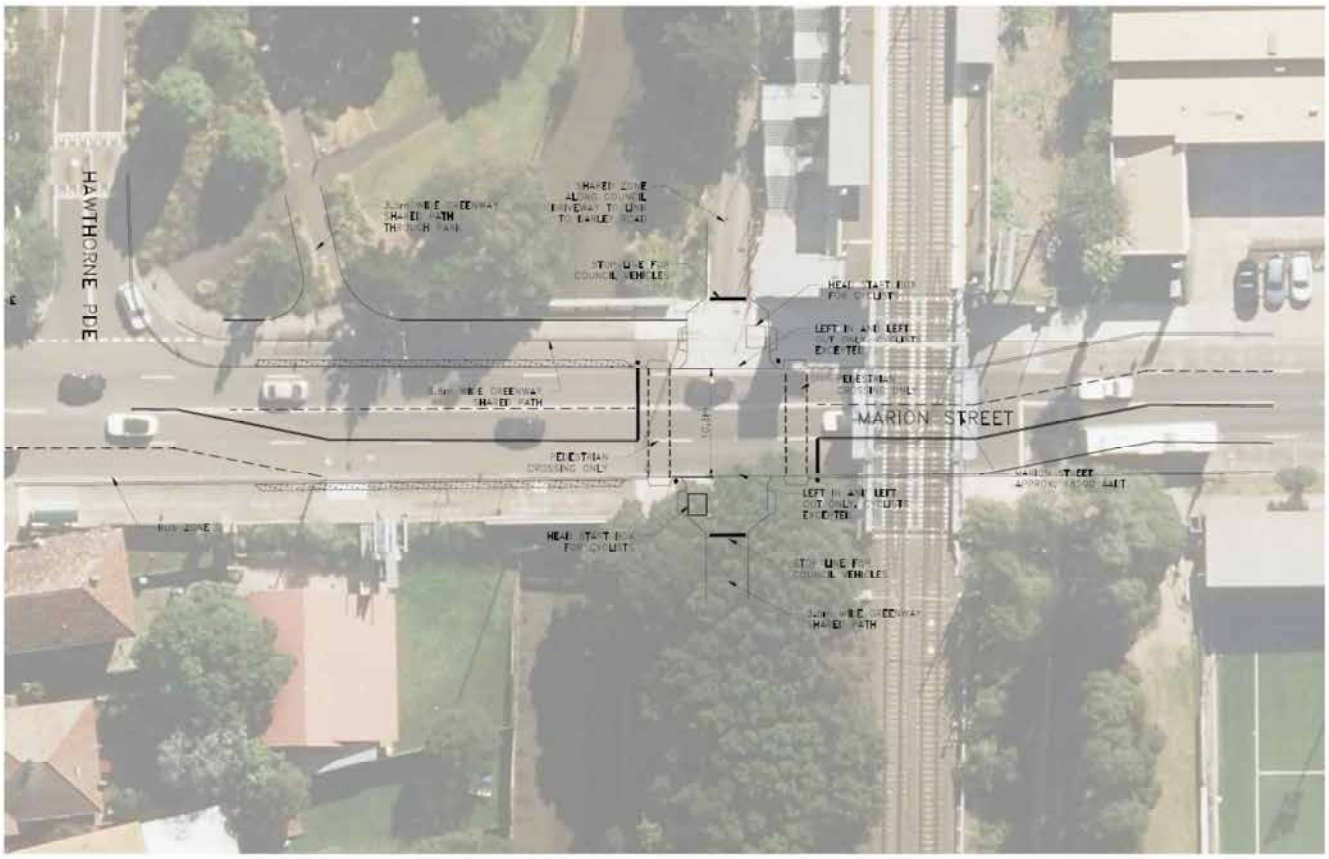


Figure 5.3 : Option 1B – Marion Street modification

Table 5.2 shows a comparison of the intersection performance with and without Option 1B.

Table 5.2 : Option 1B modelling results

Time period / approach	Existing				Option 1B			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Council driveway south approach	N/A	N/A	N/A	N/A	0.07	31	C	<10
Marion Street east approach	0.19	<5	A	20	0.31	<5	A	35
Council driveway north approach	N/A	N/A	N/A	N/A	0.07	31	C	<10
Marion Street west approach	0.58	5	A	80	0.30	25	B	160
Overall intersection	**0.58**	**5**	**A**	**80**	**0.90**	**21**	**B**	**160**
Evening peak hour								
Council driveway south approach	N/A	N/A	N/A	N/A	0.07	31	C	<10
Marion Street east approach	0.42	5	A	50	0.67	6	A	105
Council driveway north approach	N/A	N/A	N/A	N/A	0.07	31	C	<10
Marion Street west approach	0.46	5	A	60	0.43	<5	A	50
Overall intersection	**0.46**	**5**	**A**	**60**	**0.67**	**5**	**A**	**105**

Reducing Marion Street to one lane in the westbound direction and moving the crossing to the west, in line with the Council driveways which would be converted to signalised control and used by Council vehicles and Greenway cyclists, would result in the intersection operating at LoS B during the morning peak hour and LoS A during the evening peak hour. Queue lengths would remain acceptable, with a maximum queue length of 160 metres on Marion Street in the eastbound direction during the morning peak hour and 105 metres on Marion Street in the westbound direction during the evening peak hour.

Similar to Option 1A, the signalisation of the Council driveways requires additional kerb and gutter treatments to ensure that pedestrians perceive the driveway as a road. This would eliminate confusion over right of way between pedestrians and vehicles.

Similar to Option 1A, Option 1B would improve crossing safety by providing a pedestrian crossing on the west approach in-line with the Greenway desire line while maintaining a pedestrian crossing on the east approach in-line with the light rail desire line. Cyclists would cross the road using the Council driveways, which is also in-line with the Greenway desire line.

Additional modelling outputs are provided in Appendix B.

Option 1C

Figure 5.4 shows the Option 1C intersection configuration modelled in Sidra.

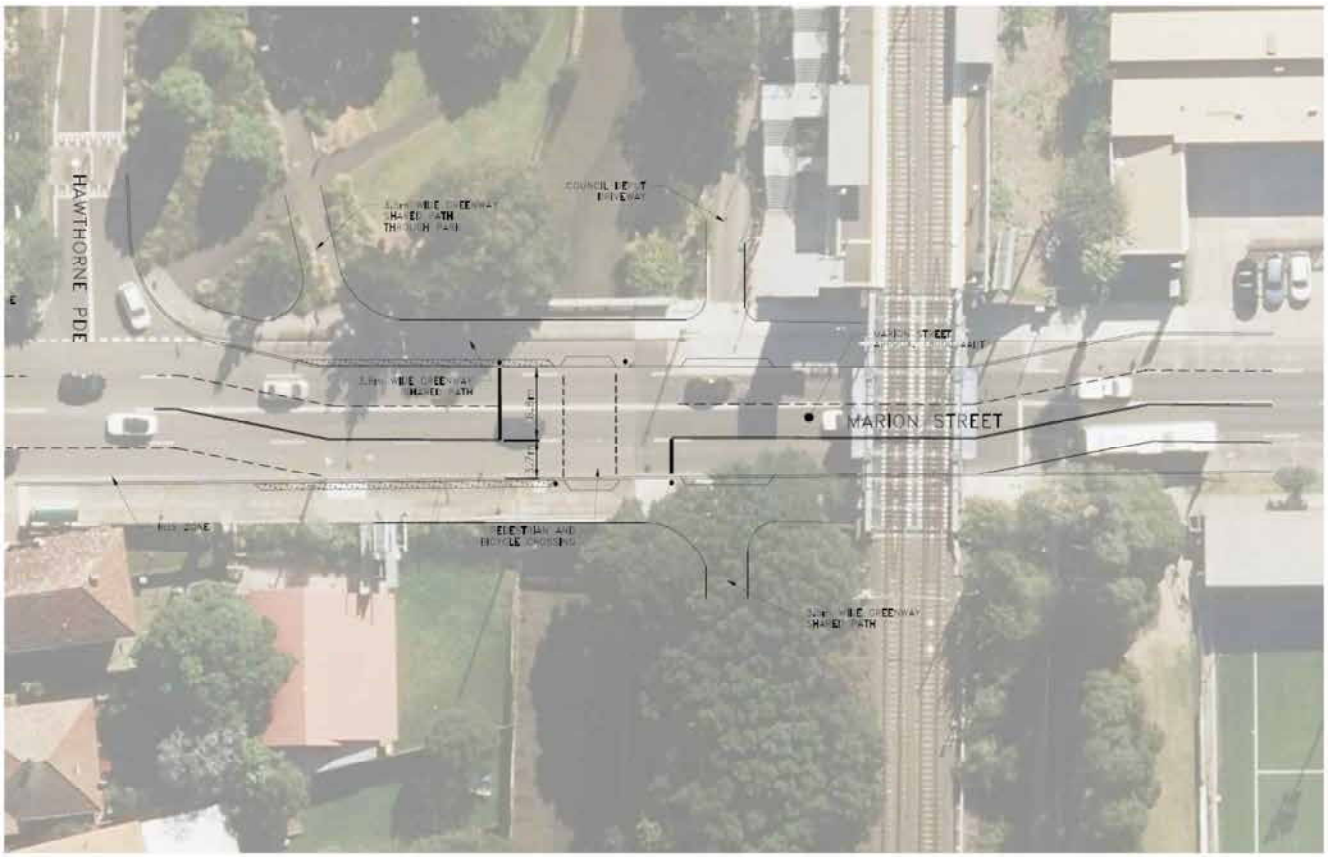


Figure 5.4 : Option 1C – Marion Street modification

Table 5.3 shows a comparison of the intersection performance with and without the modification to the existing signalised Option 1C.

Table 5.3 : Option 1C modelling results

Time period / approach	Existing				Option 1C			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Marion Street east approach	0.19	<5	A	20	0.30	<5	A	30
Marion Street west approach	0.58	5	A	80	0.84	14	A	115
Overall intersection	**0.58**	**5**	**A**	**80**	**0.84**	**11**	**A**	**115**
Evening peak hour								
Marion Street east approach	0.42	5	A	50	0.65	5	A	100
Marion Street west approach	0.46	5	A	60	0.43	<5	A	50
Overall intersection	**0.46**	**5**	**A**	**60**	**0.65**	**5**	**A**	**100**

Reducing Marion Street to one lane in the westbound direction and moving the crossing to the west at the canal overpass control would result in the intersection maintaining LoS A during the morning and evening peak hour. Queue lengths remain acceptable, with a maximum queue length of 115 metres on Marion Street in the eastbound direction during the morning peak hour and 100 metres on Marion Street in the westbound direction during the evening peak hour.

Option 1C would improve crossing safety by providing a shared pedestrian and cyclist crossing on the west approach in-line with the Greenway desire line.

Additional modelling outputs are provided in Appendix B.

5.1.2 Options summary

Table 5.4 provides a summary of the modelling assessment for Marion Street crossing options.

Table 5.4 : Marion Street modelling summary

Option	Morning peak hour		Evening peak hour		Comments
	Level of Service	Queue length (metres)	Level of Service	Queue length (metres)	
Option 1A	B	160	A	120	Acceptable operational performance and queue lengths. For safety reasons, additional kerb and gutter treatments would be required on the signalised Council driveways to ensure that pedestrians and cyclists perceive the driveway as a road.
Option 1B	B	160	A	105	Acceptable operational performance and queue lengths. For safety reasons, additional kerb and gutter treatments would be required on the signalised Council driveways to ensure that pedestrians perceive the driveway as a road.
Option 1C	A	115	A	100	Acceptable operational performance and queue lengths

Option 1C (as shown in Figure 5.4) would provide the most efficient intersection operation with the shortest queues and least delay to vehicles.

Recommendation

- Option 1C is preferred – acceptable intersection performance, acceptable queue lengths, in-line with the Greenway, uncontrolled driveways due to the low number of Council vehicles.
- Option 1C is not in-line with the light rail desire line, however is preferred over Option 1A and Option 1B due to its lower cost and the low number of Council vehicles using the driveways. Note Option 1C provides approaches to light rail in all directions except from southside of Marion Street from Lambert Park
- Option 1A and 1B would be preferred if the driveways remain uncontrolled, similar to other intersections with bicycle facilities such as Union Square, Pyrmont and Pitt Street Mall, Sydney CBD.

5.2 Old Canterbury Road

The options considered at Old Canterbury Road are:

- Option 1 – tunnel under Old Canterbury Road
- Option 2 – traffic signals at the Old Canterbury Road / Weston Street / Edward Street intersection

5.2.1 Signalisation of Old Canterbury Road / Weston Street / Edward Street

The intersection of Old Canterbury Road, Weston Street and Edward Street currently operates as a priority controlled intersection with Old Canterbury Road functioning as a major east-west sub-arterial road and Weston Street and Edward Street as minor local roads.

A tunnel under Old Canterbury Road east of Edward Street is currently being designed as part of the Central Links package. Assessment of at-grade crossing options has been undertaken to make use of the signalisation of Old Canterbury Road / Weston Street / Edward Street as part of the Summer Hill Flour Mill development north-east of the intersection. This crossing would be used by cyclists and pedestrians until the tunnel is operational.

Five scenarios have been modelled in Sidra as follows:

- **Existing without development**: Priority controlled intersection (current configuration).
- **Existing with development**: Priority controlled intersection with additional traffic generated due to the Flour Mill and McGill Street developments.
- **Option 2A**: Signalised intersection with provision of a bi-directional shared path on the eastern side of Weston Street, an extended no-stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street, pedestrian only crossings on the north, west and south approaches and a shared pedestrian and cyclist crossing on the east approach.
- **Option 2B**: Signalised intersection with closure of Weston Street southbound at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction, an extended no-stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street, pedestrian only crossings on the north, west and south approaches and a shared pedestrian and cyclist crossing on the east approach.
- **Option 2C**: Signalised intersection with full closure of Weston Street at its interface with Old Canterbury Road, provision of a right turn lane on Old Canterbury Road in the westbound direction and an extended no-stopping zone on Old Canterbury Road in the westbound direction, east of Weston Street, pedestrian only crossings on the north and west approaches and a shared pedestrian and cyclist crossing on the east approach.

These intersection concepts and modelling results are presented in Section 5.2.2. Traffic counts used for the assessment is provided in Appendix C.

5.2.2 Intersection performance

Existing

Table 5.5 shows the performance of the existing intersection configuration with and without additional traffic generated due to the Flour Mill and McGill Street developments.

Traffic forecasts have been based on an assessment of the Flour Mill and McGill Street developments undertaken by Arup as outlined in *Summer Hill Flour Mill Preferred Project Report – Traffic and Transport* (Arup 2012).

Table 5.5 : Existing intersection modelling results

Time period / approach	Existing without development				Existing with development			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.12	93	F	<10	0.18	>100	F	<10
Old Canterbury Road east approach	0.38	16	B	25	0.45	18	B	30
Edward Street north approach	0.38	>100	F	10	>1	>100	F	70
Old Canterbury Road west approach	0.31	9	A	<10	0.32	9	A	<10
Overall intersection	**0.38**	**>100**	**F**	**25**	**0.45**	**>100**	**F**	**70**
Evening peak hour								
Weston Street south approach	0.10	>100	F	<10	0.16	>100	F	<10
Old Canterbury Road east approach	0.61	13	A	40	0.69	16	B	60
Edward Street north approach	0.52	>100	F	10	>1	>100	F	200
Old Canterbury Road west approach	0.21	17	B	<10	0.23	18	B	<10
Overall intersection	**0.61**	**>100**	**F**	**40**	**>1**	**>100**	**F**	**200**

The existing intersection without development traffic currently operates at LoS F during the morning and evening peak hour. This is due to the worst performing movement reported for priority controlled (unsignalised) intersections, which in this case corresponds to the right turns out of Weston Street and Edward Street. Vehicles turning right from either of these roads have to give way to a number of conflicting movements including vehicles travelling on Old Canterbury Road, which is a major east-west road that experiences high traffic volumes.

The addition of development traffic results in the intersection degrading in performance, with average delays greater than 100 seconds. The intersection's deterioration with development traffic is largely attributed to the additional traffic turning into and out of Edward Street. The intersection in its existing configuration would not be able to accommodate the additional traffic generated due to the two developments.

Additional modelling outputs are provided in Appendix D.

Option 2A

Figure 5.5 shows the Option 2A intersection configuration modelled in Sidra.

Figure 5.5 : Option 2A – Weston Street open with shared path

Table 5.6 shows the performance of the intersection with and without Option 2A.

Table 5.6 : Option 2A modelling results

Time period / approach	Existing with development				Option 2A			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	0.09	66	E	<10
Old Canterbury Road east approach	0.45	18	B	30	0.91	42	C	205
Edward Street north approach	>1	>100	F	70	0.87	64	E	110
Old Canterbury Road west approach	0.32	9	A	<10	0.89	26	B	275
Overall intersection	**0.45**	**>100**	**F**	**70**	**0.91**	**37**	**C**	**275**
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	0.04	64	E	<10
Old Canterbury Road east approach	0.69	16	B	60	0.97	58	E	475
Edward Street north approach	>1	>100	F	200	0.43	33	C	55
Old Canterbury Road west approach	0.23	18	B	<10	0.95	57	E	250
Overall intersection	**>1**	**>100**	**F**	**200**	**0.97**	**55**	**D**	**475**

Signalisation of the intersection with an extended no-stopping zone on Old Canterbury Road in the westbound direction and modifying Weston Street with a bi-directional shared path on the eastern side improves the intersection's performance from LoS F to LoS C during the morning peak hour and LoS F to LoS D during the evening peak hour. However, queue lengths on Old Canterbury Road in the eastbound direction during the morning peak hour would extend beyond the Old Canterbury Road / Junction Road intersection. During the evening peak hour, queues on Old Canterbury Road in the westbound direction would extend beyond the Old Canterbury Road / Toothill Street intersection.

Extension of the no-stopping zone on Old Canterbury Road in the westbound direction would not improve queue lengths to an acceptable level and therefore additional modifications would be required.

Additional modelling outputs are provided in Appendix D.

Option 2B

Figure 5.6 shows the Option 2B intersection configuration modelled in Sidra.

Prohibiting vehicles from entering Weston Street at its northern end would require vehicles to turn into Windsor Road to access Weston Street. This would result in a minor redistribution of traffic given the low number of vehicles turning into Weston Street, with the surveys recording 12 vehicles and 22 vehicles turning into Weston Street during the morning and evening peak hour, respectively.

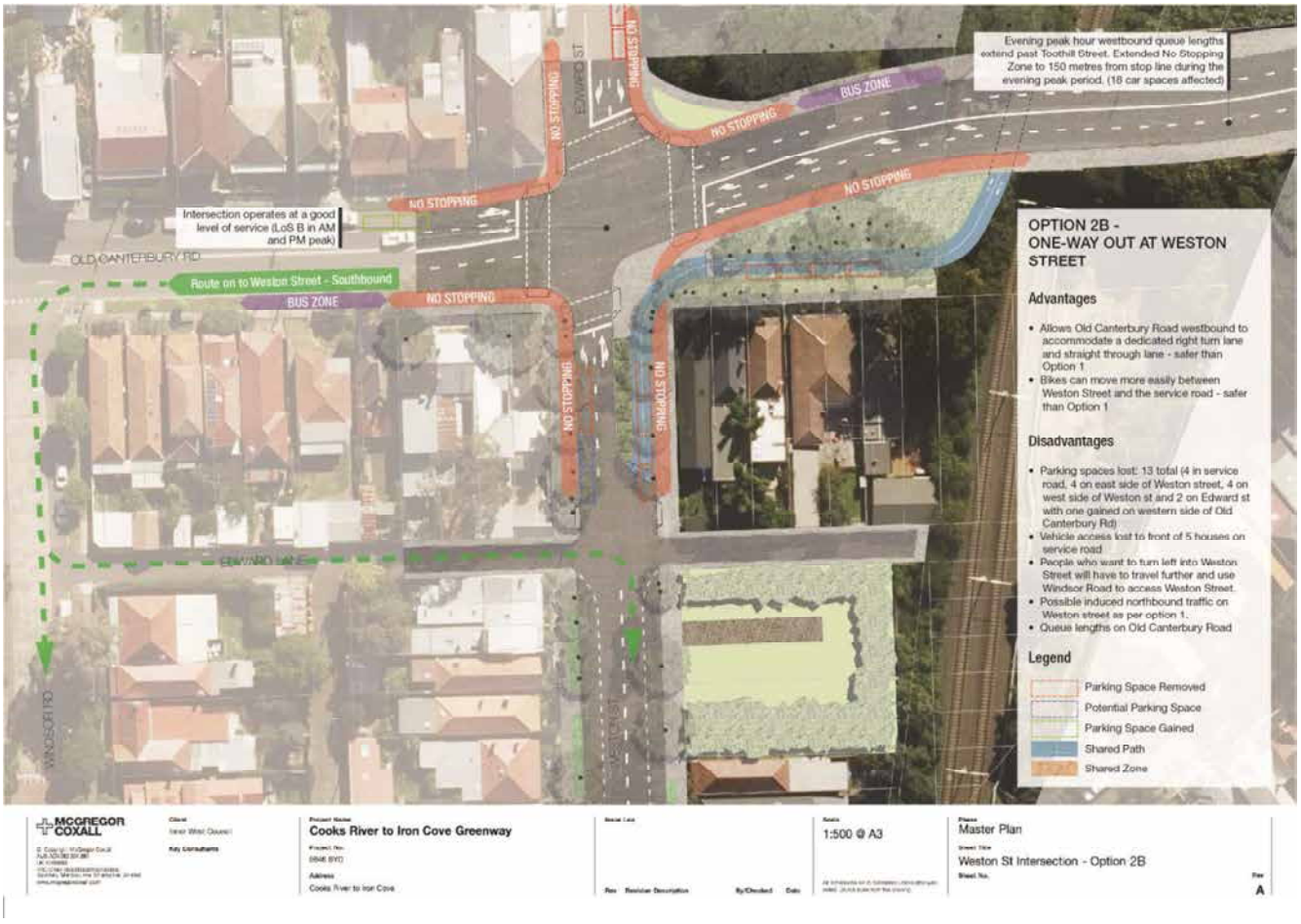


Figure 5.6 : Option 2B - Weston Street partial closure (one-way northbound)

Table 5.7 shows the performance of the intersection with and without Option 2B.

Table 5.7 : Option 2B modelling results

Time period / approach	Existing (with development)				Option 2B			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	0.09	66	E	<10
Old Canterbury Road east approach	0.45	18	B	30	0.58	18	B	130
Edward Street north approach	>1	>100	F	70	0.83	60	E	105
Old Canterbury Road west approach	0.32	9	A	<10	0.86	20	B	240
Overall intersection	**0.45**	**>100**	**F**	**70**	**0.86**	**25**	**B**	**240**
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	0.04	64	E	<10
Old Canterbury Road east approach	0.69	16	B	60	0.82	11	A	260
Edward Street north approach	>1	>100	F	200	0.62	42	C	70
Old Canterbury Road west approach	0.23	18	B	<10	0.66	17	B	125
Overall intersection	**>1**	**>100**	**F**	**200**	**0.82**	**17**	**B**	**260**

Signalisation of the intersection with an extended 'no-stopping' zone on Old Canterbury Road in the westbound direction and converting Weston Street to one-way northbound improves the performance of the intersection from LoS F to LoS B during both peak hours. However, queue lengths during the evening peak hour on Old Canterbury Road in the westbound direction would extend beyond the adjacent Old Canterbury Road / Toothill Street intersection.

Further extension of the no-stopping zone on Old Canterbury Road in the westbound direction would not improve queue lengths to an acceptable level.

Additional modelling outputs are provided in Appendix D.

Option 2C

Figure 5.7 shows the Option 2C intersection configuration modelled in Sidra.

Prohibiting vehicles from entering or exiting Weston Street at its northern end would require vehicles to change their travel route. Existing traffic volumes on Weston Street south of Old Canterbury Road are low, with 12 vehicles travelling southbound and 13 vehicles travelling northbound during the morning peak hour and 22 vehicles travelling southbound and seven vehicles travelling northbound during the evening peak hour.

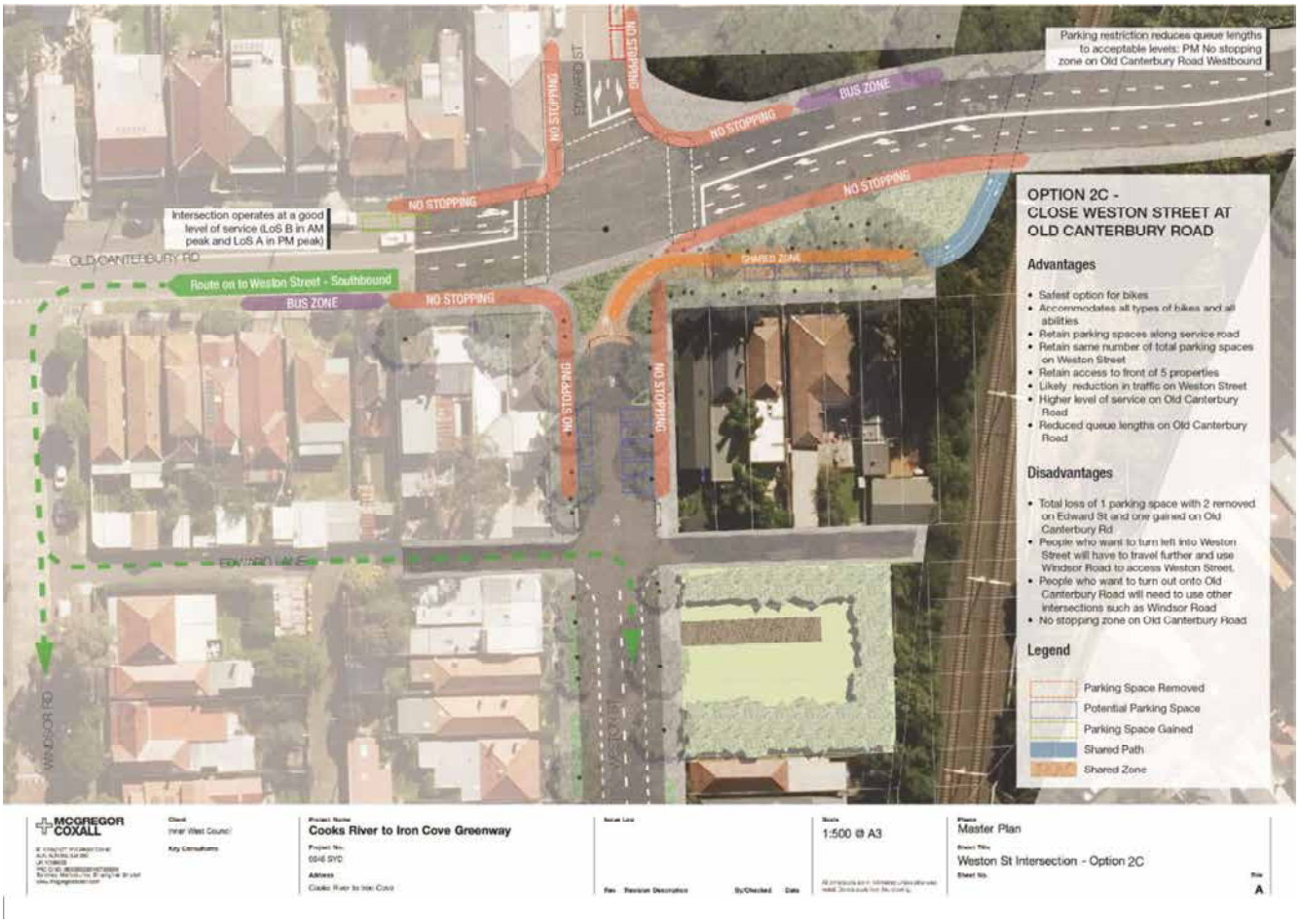


Figure 5.7 : Option 2C – Weston Street full closure

Table 5.8 shows the performance of the intersection with and without Option 2C.

Table 5.8 : Option 2C modelling results

Time period / approach	Existing with development				Option 2C			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Weston Street south approach	0.18	>100	F	<10	N/A	N/A	N/A	N/A
Old Canterbury Road east approach	0.45	18	B	30	0.45	11	A	100
Edward Street north approach	>1	>100	F	70	0.76	54	D	100
Old Canterbury Road west approach	0.32	9	A	<10	0.75	9	A	150
Overall intersection	**0.45**	**>100**	**F**	**70**	**0.76**	**16**	**B**	**150**
Evening peak hour								
Weston Street south approach	0.16	>100	F	<10	N/A	N/A	N/A	N/A
Old Canterbury Road east approach	0.69	16	B	60	0.67	5	A	155
Edward Street north approach	>1	>100	F	200	0.48	46	D	75
Old Canterbury Road west approach	0.23	18	B	<10	0.57	12	A	100
Overall intersection	**>1**	**>100**	**F**	**200**	**0.67**	**12**	**A**	**155**

Signalisation of the intersection with an extended no-stopping zone on Old Canterbury Road in the westbound direction and closing off Weston Street to traffic at its interface with Old Canterbury Road improves the performance of the intersection from LoS F to LoS B during the morning peak hour and LoS F to LoS A during the evening peak hour. Queue lengths are acceptable during both peak hours.

Removing parking during the morning peak period marginally improves the performance of the intersection, and therefore prohibiting parking would only be necessary during the evening peak period.

Additional modelling outputs are provided in Appendix D.

Induced traffic on Weston Street resulting from signalisation of the intersection

For Options 2A and 2B the signalisation of Old Canterbury Road / Weston Street / Edward Street would induce traffic on Weston Street.

For Option 2A the induced traffic would be based on the traffic diverting from adjacent Windsor Road. The AADT in 2014 on Windsor Road was observed to be 540 vehicles northbound and 640 vehicles southbound. The signalisation of Old Canterbury Road / Weston Street / Edward Street may induce traffic from Windsor Road onto Weston Street. Based on the assumption that Weston Street northbound traffic volumes would be similar to Windsor Road northbound volumes, this would equate to a maximum of 50 vehicles travelling onto Weston Street from Windsor Road during the morning and evening peak hour. Therefore, induced traffic on Weston Street due to the signalisation of Old Canterbury Road / Weston Street / Edward Street would be up to an additional vehicle every minute during the morning and evening peak hour.

This level of induced traffic is within the environmental capacity performance standard for a local street (200 vehicles per hour[3]). Hence the impact to amenity on Weston Street would be acceptable, however may impact on the suitability of mixed traffic environment recommendation for Greenway users (refer to section 4.2). In addition, signalisation of Old Canterbury Road / Weston Street / Edward Street may lead to vehicles turning left onto Old Canterbury Road via Windsor Road instead of Weston Street.

Option 2B would also induce traffic however the this is likely to be less than Option 2A due to the left turn ban.

Option 2C would likely maintain traffic volumes in Weston Street around current levels. However, based on traffic movements at Weston Street / Old Canterbury Road, Option 2C would likely result in a maximum of an additional 20 vehicles travelling onto Windsor Road from Weston Street during the morning and evening peak hours.

Service road at the corner of Old Canterbury Road and Weston Street

Users of the Greenway would need to cross the service road located immediately south-east of the Old Canterbury Road / Weston Street / Edward Street intersection. The design to signalise Old Canterbury Road / Weston Street / Edward Street should consider the intended form and function of the service road while the Greenway is operational. Traffic volumes and the speed of vehicles using this service road are likely to be very low as it provides vehicular access to a limited number on-street parking spaces.

Future access to the service road by vehicles would be constrained by intersection geometry and location of poles and traffic signal equipment. Further this could potentially create unsafe conflicts between vehicles and pedestrians. Treatments that have been considered include:

- Closing vehicle access to and from the service road (Option 2A and Option 2B)
- A continuous footpath treatment that would allow vehicular access to a shared zone along the service road (Option 2C)

Implementing a shared zone may create conflicts with pedestrian waiting areas, however the number of vehicles that would access the service road would be very low and therefore this is an appropriate treatment.

[3] Guide to Traffic Generating Developments (Roads and Maritime, 2002)

5.2.3 Options summary

Table 5.9 provides a summary of modelling assessment of the differing intersection configurations considered. The modelling results presented are independent of whether the Greenway crossing is provided at-grade (as a shared pedestrian/cyclist crossing on the east approach to the intersection) or as a grade-separated tunnel (under Old Canterbury Road). This is because all modelling assumes pedestrian crossings are called at the intersection's east approach every signal cycle.

Table 5.9 : Old Canterbury Road / Weston Street / Edward Street modelling summary

Option	Morning peak hour		Evening peak hour		Comments
	Level of Service	Queue length (metres)	Level of Service	Queue length (metres)	
Option 2A (Weston Street open)	C	275	D	475	Acceptable operational performance, however unacceptably long queue lengths during the morning and evening peak periods. Requires additional modification to reduce queue lengths.
Option 2B (Weston Street partial closure)	B	240	B	260	Acceptable operational performance however long queue lengths during the evening peak period. Requires additional modification to reduce queue lengths.
Option 2C (Weston Street full closure)	B	150	A	155	Acceptable operational performance and queue lengths

Option 2C (as shown in Figure 5.7) would provide the most efficient intersection operation with the shortest queues and least delay to vehicles.

Grade separation would entirely remove conflict between Greenway users and general traffic passing through the Old Canterbury Road / Weston Street / Edward Street intersection. However, provision of a shared pedestrian and cyclist crossing on the east approach would be a suitable interim option until funding is available for the grade-separated (tunnelled) crossing. The crossing would be aligned with the Weston Street on-road section of the Greenway and signalised control of pedestrian and cyclist movements would provide a safe environment for Greenway users to cross Old Canterbury Road, which carries a high volume of traffic during peak periods.

Recommendation

- Option 2C is preferred – acceptable intersection performance, acceptable queue lengths and provides the safest environment for pedestrians and cyclists on Weston Street.
- Options 2A and 2B do not provide acceptable queue lengths and should only be considered if additional modifications are proposed.
- From a traffic and safety perspective, providing grade separation at this crossing is a lower priority compared to other crossing locations given that the proposed signalised at-grade crossing is a suitable interim option.

5.3 Davis Street

Proposed options for Davis Street are shown in Figure 5.8.

Figure 5.8 : Davis Street crossing options

Options considered at Davis Street are:

- Option 1 – tunnel under Davis Street
- Option 2 – upgrade existing pedestrian crossing for cyclists (to and from 10-14 Terry Road)

At-grade crossing overview

- Sight distance is not a major issue.
- Davis Street carries a relatively low volume of traffic, with 2015 AADT of 520 vehicles eastbound and 790 vehicles westbound.
- Low traffic volumes in conjunction with traffic calming (speed hump) and the existing zebra crossing provides the basis for a suitable interim at-grade crossing option for the Greenway.
- Appropriate signage should be installed to encourage pedestrian and cyclists to use the zebra crossing if Option 2 is implemented.
- Option 2 which includes use of the driveway and car park of 10-14 Terry Road (Waratah Mills) would at minimum require bicycle logos and signage to be placed along the proposed path. Appropriate treatments may be needed to slow cyclists through the car park to reduce the risk of conflict between pedestrians and cyclists. From a traffic and safety perspective, use of the driveway would be feasible given that the car park is for residents only, with a low turnover and low travel speeds (5km/h sign-posted speed limit).
- It is noted that council's easement through Waratah Mills is located centrally within the car park and driveway. Technically, the cycle path would need to be contained within this easement. An alternative alignment for the cycle path along the southern and western boundaries of the car park and driveway has also been proposed by the landscape architects. From a safety perspective, it is considered that either option would have the same risks.
- Option 2 would require separation of pedestrians and cyclists at the crossing as legally cyclists must dismount to use a zebra crossing. Similar treatments have been adopted by City of Sydney – see Figure 5.9.
- Option 2 would require the footpaths on either side of Davis Street to be widened to ensure adequate space is provided for Greenway users using the shared path and at the crossing.
- From a traffic perspective, provision of a grade-separated crossing would be a low priority compared to other locations along the Greenway.

Figure 5.9 : Pedestrian crossing and cycleway (Central Park, Sydney)

Source: Google Street View (2018)

Recommendation

- Option 1 is preferred as it would entirely separate Greenway pedestrians and cyclists from Davis Street vehicle traffic.
- Option 2 utilises the existing pedestrian crossing which would need to be upgraded to separate pedestrians and cyclists using the facility.
- It is desirable that shared paths on either side of the road and at the crossing be widened to 3 to 4 metres[4]. This may not be achievable within the existing verge due to utilities and other street furniture. Further, on-road bicycle lanes may need to be considered.
- From a traffic and safety perspective, grade separation of this crossing (Option 1) would be a lower priority than providing grade-separated crossings at other locations given that Davis Street carries a relatively low volume of traffic and the at-grade crossing options is not considered a high risk to pedestrians and cyclists. Further, Option 2 which makes use of the 10-14 Terry Road driveway and car park would be a feasible for Greenway users due to the low parking turnover and low speed of vehicles accessing the property.

[4] Guide to Road Design Part 6A – Paths for Walking and Cycling (Austroads, 2017)

5.4 Constitution Road

Proposed options for Constitution Road are shown in Figure 5.10.

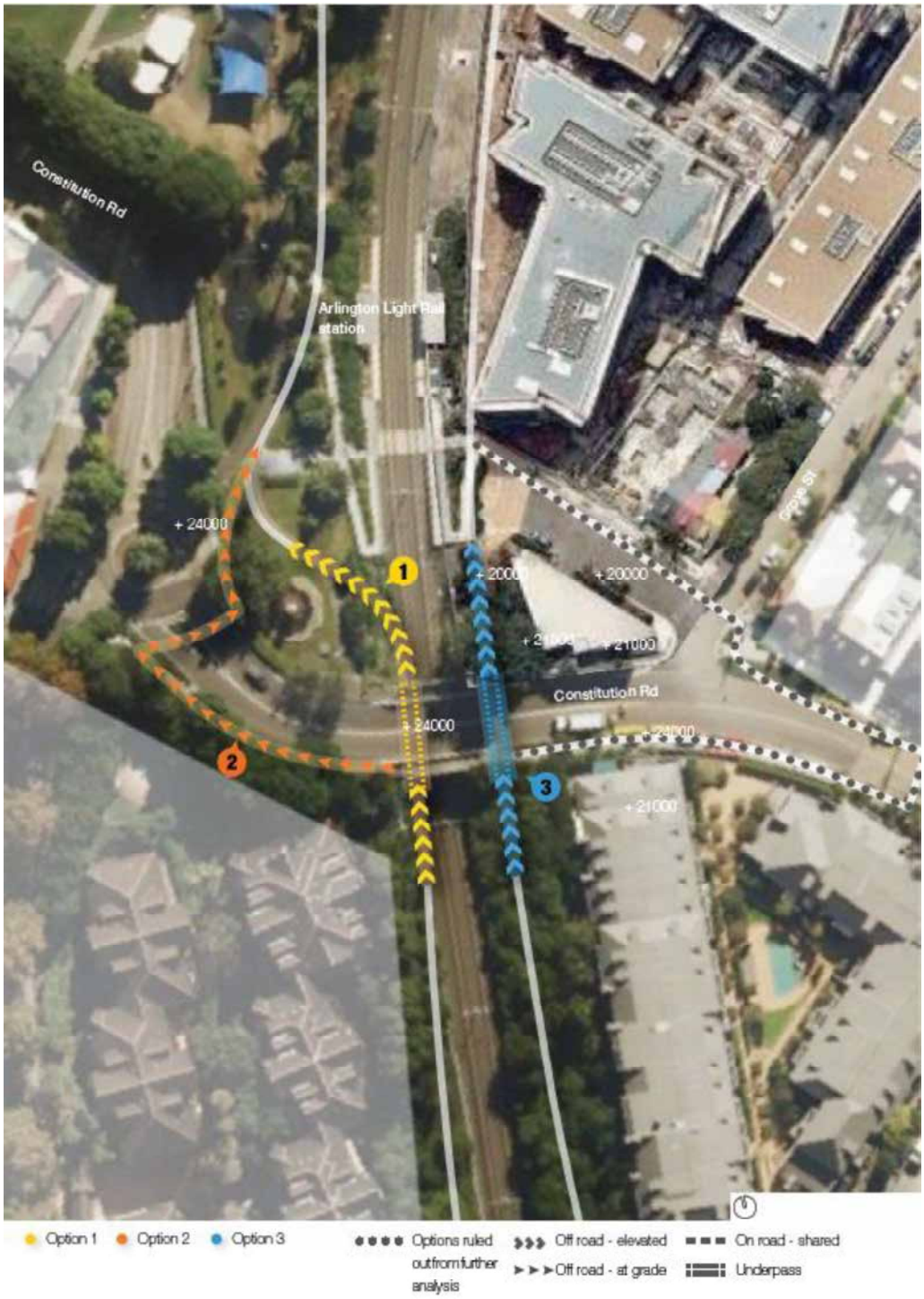


Figure 5.10 : Constitution Road crossing options

Options considered at Constitution Road are:

- Option 1 – tunnel under Constitution Road on the western side of the light rail line
- Option 2 – improvements to existing crossing
- Option 3 – tunnel under Constitution Road on the eastern side of the light rail line

At-grade crossing overview

- Due to sight distance issues, a marked pedestrian crossing and cycleway is not feasible at this crossing. Closest locations with acceptable sight distance are on Constitution Road near Denison Road (east of the light rail line) and near Union Street (west of the light rail line), both of which are far from the Greenway desire line.
- At the western side of the light rail line, an at-grade crossing at the roundabout is the most suitable location given the existing road geometry.
- 2015 AADT on Constitution Road was around 2,020 vehicles eastbound and 2,340 vehicles westbound.
- Given the existing daily traffic volumes of Constitution Road, and that a marked pedestrian crossing and cycleway is not feasible, provision of a grade-separated crossing would be a high priority compared to other locations on the Greenway.
- As an interim solution a pedestrian and cyclist refuge (at least 3 metres wide) should be provided to allow Greenway users to complete a staged crossing if required.

Recommendation

- Grade separated option a priority due to sight distance issues.
- For the interim at-grade option, need to provide a pedestrian and cyclist refuge of at least 3 metres wide at the roundabout.

5.5 New Canterbury Road

Proposed options for New Canterbury Road are shown in Figure 5.11.

Figure 5.11 : New Canterbury Road crossing options

Options considered at New Canterbury Road are:

- Option 1 – underpass under New Canterbury Road
- Option 2 – existing signalised crossing
- Option 3 – modified signalised crossing (widened or relocated crossing)

At-grade crossing overview

- Existing long cycle times encourage users to cross when it is unsafe to do so.
- Option 2 is a suitable interim at-grade crossing location provided that minor upgrades are installed to make the crossing more cycle-friendly.
- As with Marion St, although widening the crossing would provide more space for both pedestrians and cyclists and improve the desire line with Greenway, this treatment is unlikely to be approved by Roads and Maritime given that New Canterbury Road is a state road.
- There would be no loss in parking if the existing crossing is widened at its western side.

Recommendation

- Utilise existing signalised crossing and convert existing 3.5m wide footpaths to shared paths on both sides of New Canterbury Road.
- From a traffic and safety perspective, providing grade separation at this crossing is a lower priority compared to other crossing locations given that the proposed signalised at-grade crossing is a suitable interim option.

5.6 Hercules Street

Proposed options for Hercules Street are shown in Figure 5.12.

Figure 5.12 : Hercules Street crossing options

Options considered at Hercules Street are:

- Option 1 – underpass under Hercules Street
- Option 2 – existing zebra crossing and with property acquisition/dedication
- Option 3 – existing zebra crossing and without property acquisition/dedication

At-grade crossing overview

- The determining constraint on the ability to provide an at-grade crossing of Hercules Street is the poor sight lines due to the existing vertical and horizontal alignment.
- From a traffic safety perspective, a mid-block crossing in-line with the Greenway corridor is not viable given the poor sightlines.
- Road narrowing or traffic calming devices may be implemented to slow down traffic, however this is unlikely to negate the safety issues if a crossing were provided near the railway overpass.
- For both Option 2 and Option 3, due to existing driveways, there is inadequate space to widen the existing crossing to cyclists and pedestrians similar to Figure 5.9 and therefore cyclists would be required to dismount to cross.
- Option 2 and Option 3 are appropriate interim options, however Option 2 requires additional expenditure to acquire property and create a new shared path that links to the existing zebra crossing, while Option 3 does not provide a direct desire line for users of the Greenway.
- Option 3 is unlikely to meet accessibility requirements without a 95-metre long ramp from the southern side of Hercules Street bridge and into the light rail corridor.
- Grade separation under Hercules Street (Option 1) is considered a high priority.

Recommendation

- Grade separated option a priority due to sight distance issues and the requirement for cyclists to dismount to cross the road
- Of the interim at-grade options, Option 2 is preferred as it is more user friendly and provides a more direct route compared to Option 3. However, this is contingent on property dedication as part of future development.
- Explore option to reconstruct driveway adjacent to pedestrian crossing to facilitate bike crossing.

5.7 Ewart Street

Up to five potential on-road options are proposed for the Greenway between Jack Shanahan Park and Cooks River. These options are shown in Figure 5.13.

Figure 5.13 : Jack Shanahan Park to Cooks River options

As shown in Figure 5.13, Option 1 includes an at-grade crossing at Ewart Street.

At-grade crossing overview

- A roundabout currently exists at the proposed crossing location.
- Signalisation would be safer for pedestrians and cyclists.
- Traffic volumes are low at this intersection and do not meet the Roads and Maritime warrants for traffic signals. Traffic signals would require special approval from Roads and Maritime. Table 5.10 outlines the traffic demand necessary to implement a signalised intersection.
- Assuming signalisation of the intersection, shorter cycle times which can substantially improve walker and rider crossability may be feasible given that the intersection would operate in isolation under traffic signal control.

5.7.1 Warrant for traffic signals

Signalisation of an intersection is deemed necessary If traffic demand or pedestrian volume through the intersection is high, improving the operational and safety performance of the intersection. Table 5.10 shows the recommended warrants for traffic signals.

Table 5.10 : Guide for intersection signalisation

Basis for warrant	Criteria
Traffic demand	For each of four one-hour periods on an average day: The major road flow exceeds 600 vehicles per hour in each direction; and The minor road flow exceeds 200 vehicles per hour in one direction.
Continuous traffic	For each of four one-hour periods on an average day: The major road flow exceeds 900 vehicles per hour in each direction; and The minor road flow exceeds 100 vehicles per hour in one direction; and The speed of traffic on the major road or limited sight distance from the minor road causes undue delay or hazard to the minor road vehicles; and There is no other nearby traffic signal site easily accessible to the minor road vehicles.
Pedestrian safety	For each of four one-hour periods on an average day: The pedestrian flow crossing the major road exceeds 150 persons per hour; and The major road flow exceeds 600 vehicles per hour in each direction or, where there is a central median of at least 1.2 metres wide, 1,000 vehicles per hour in each direction.
Pedestrian safety – high speed road	For each of four one-hour periods on an average day: The pedestrian flow crossing the major road exceeds 150 persons per hour; and The major road flow exceeds 450 vehicles per hour in each direction or, where there is a central median of at least 1.2 metres wide, 750 vehicles per hour in each direction; and The 85th percentile speed on the major road exceeds 75 kilometres per hour.
Crashes	The intersection has been the site of an average of three or more reported tow-away or casualty traffic accidents per year over a three-year period, where the traffic accidents could have been prevented by traffic signals; and The traffic flows are at least 80 per cent of the appropriate flow warrants.

Source: Traffic signal design, section 2 – warrants (Roads and Maritime, 2008)

Existing volumes

Figure 5.14 and Figure 5.15 show the average weekday traffic profile of Ewart Street east of Terrace Road and Terrace Road north of Ewart Street, respectively.

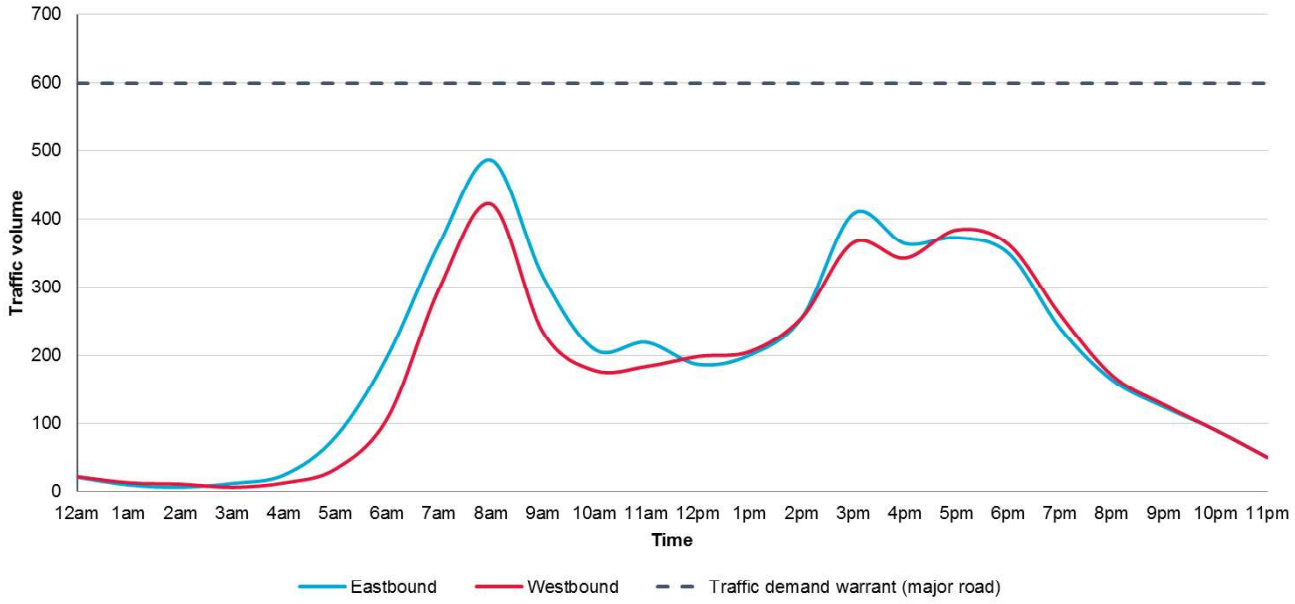


Figure 5.14 : Average weekday traffic profile of Ewart Street east of Terrace Road

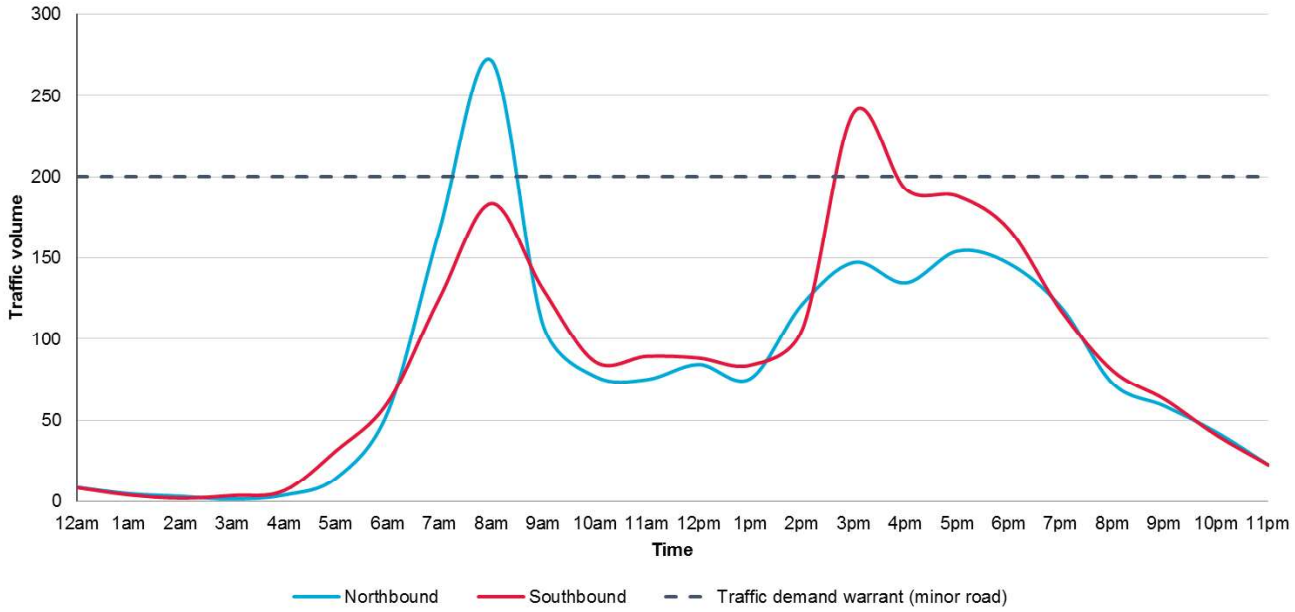


Figure 5.15 : Average weekday traffic profile of Terrace Road north of Ewart Street

Traffic volumes on Ewart Street which is the major road at the intersection does not have traffic volumes greater than 600 vehicles per hour in each direction. Terrace Road, which is the minor road experiences traffic volumes greater than 200 vehicles per hour in the northbound direction between 8am and 9am and in the southbound direction between 3pm and 4pm. Warrants to signalise the intersection based on traffic demand is not met given the low volumes of traffic on both the major and minor road.

For the warrant based on continuous traffic, Terrace Road volumes exceed 100 vehicles per hour in one direction over a four-hour period while traffic volumes on Ewart Street are substantially lower than the 900 vehicles per hour threshold. Therefore, the continuous traffic warrant is not met.

Although the warrants for signalisation based on traffic volumes are not met, signalisation may be warranted to ensure the safety of pedestrians and cyclists using the Greenway if Option 1 were implemented. In addition, the intersection facilitates crossings of two major proposed active travel routes; the Greenway corridor (north-south) and the Sydenham to Bankstown active transport corridor (east-west), both of which are likely to generate significant number of pedestrians and cyclists. Therefore, exemption from the warrant should be sought from Roads and Maritime at this location.

Future development of the Hercules Street as proposed in the Sydenham to Bankstown Strategy, will also increase traffic volumes over time, necessitating the future upgrade of the intersection.

With the implementation of traffic signals, sight distance restrictions due to the railway overbridge have been considered and adequate Stopping Sight Distance (SSD) for a 60km/h design speed can be achieved. Further, provision of Wig–Wag warning signs could be incorporated into the design to reduce the risk of a car driving into the rear of a queued vehicle. A similar treatment has been adopted by Georges River Council – see Figure 5.16.

Without traffic signals, upgrades to the roundabout would be required to accommodate the Greenway by ensuring adequate storage space (at least 3 metres) is provided at the pedestrian and cyclist refuge.

The option to provide traffic signals at the intersection of Ewart Street and Terrace Road (Option 1 assessed in Section 5.7.2) was modelled in Sidra.

The intersection concept and modelling results are presented in Section 5.7.2. Traffic counts used for the assessment is provided in Appendix E.

Figure 5.16 : Wig-wag warning sign (King Georges Road near Hurstville South Public School, Hurstville)

Source: Google Street View (2018)

5.7.2 Intersection performance

Option 1

Figure 5.17 shows the Option 1 intersection configuration modelled in Sidra

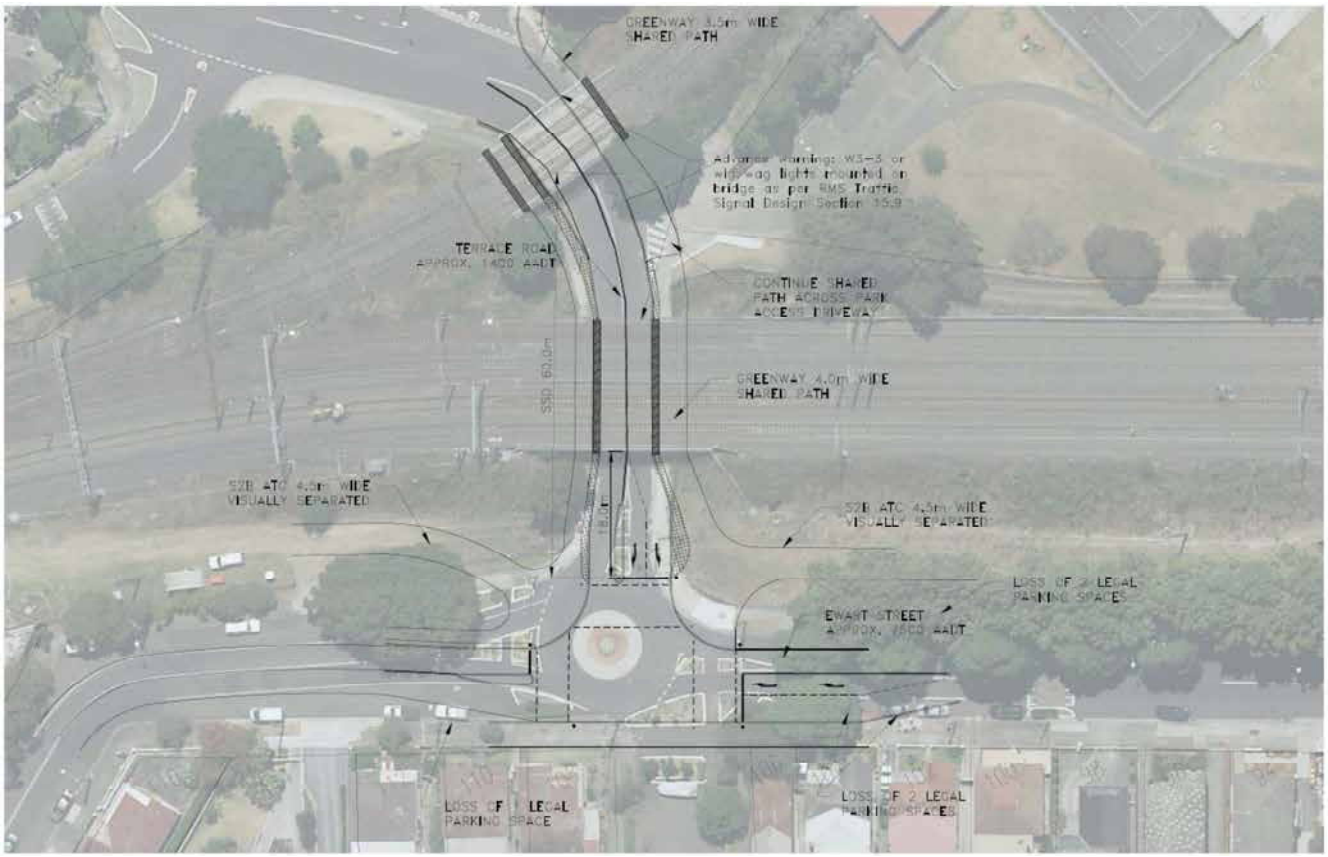


Figure 5.17 : Ewart Street signalised option

Table 5.11 shows a comparison of the intersection performance without and with Option 1.

Table 5.11 : Option 1 modelling results

Time period / approach	Existing				Option 1			
	DoS	Average delay (sec)	LoS	Queue length (m)	DoS	Average delay (sec)	LoS	Queue length (m)
Morning peak hour								
Ewart Street east approach	0.27	7	A	15	0.44	12	A	50
Terrace Road north approach	0.18	9	A	<10	0.44	52	D	55
Ewart Street west approach	0.38	6	A	15	0.28	7	A	60
Overall intersection	**0.38**	**9**	**A**	**15**	**0.44**	**17**	**B**	**60**
Evening peak hour								
Ewart Street east approach	0.26	7	A	10	0.27	17	B	55
Terrace Road north approach	0.17	8	A	<10	0.27	35	C	45
Ewart Street west approach	0.19	5	A	<10	0.20	14	A	45
Overall intersection	**0.26**	**8**	**A**	**10**	**0.27**	**20**	**B**	**55**

The intersection as a roundabout currently operates at LoS A during the morning and evening peak hour. Signalisation of the intersection and provision of right turn bays on Terrace Road and the Ewart Street east approach would result in the intersection performing at LoS B and with acceptable queue lengths during the morning and evening peak hour.

Additional modelling outputs are provided in Appendix F.

Recommendation

- Though warrants are not met, traffic signals are preferred to improve safety for all user groups, particularly given expected future rider volumes through this intersection.
- A suitable alternative to traffic signals is to upgrade the existing roundabout by ensuring adequate storage space (at least 3 metres wide) is provided at the pedestrian and cyclist refuge.

6. Summary and conclusion

Table 6.1 provides a summary of the traffic assessment of each at-grade crossing forming part of the Greenway.

Table 6.1 : At-grade crossings summary

Location	At-grade options feasibility	Interim at-grade option	Recommended option	Upgrade priority	Grade separation priority
Marion Street	• Existing signalised crossing may be appropriate however is not in line with the Greenway. • Shifting the crossing west would improve the Greenway desire line. • Signalising the Council driveways requires additional expenditure to convert the driveways to a road. • The existing crossing and proposed at-grade options with one trafficable lane on Marion Street in the westbound direction all perform at an acceptable Level of Service (LoS A and LoS B) and with acceptable queue lengths.	Existing traffic signals	Relocate traffic signals	Medium	N/A
Old Canterbury Road	• Old Canterbury Road / Weston Street / Edward Street will be signalised (committed project). • Signalising the intersection and keeping Weston Street open results in an acceptable operational performance (LoS C and LoS D), but with unacceptable queue lengths. • Signalising the intersection and partial closure of Weston Street results in an acceptable operational performance (LoS B), but with unacceptable queue lengths. • Signalising the intersection and full closure of Weston Street results in an acceptable operational performance (LoS A and LoS B) and queue lengths.	Traffic signals with full road closure at Weston Street	Grade separated crossing	Low	Medium
Davis Street	• Existing zebra crossing with some additional treatment is appropriate however does not provide a direct desire line for one option. • Davis Street traffic volumes are low.	Modify existing zebra crossing with Greenway route passing through driveway of 10-14 Terry St	Grade separated crossing	Medium	Low
Constitution Road	• Due to sight distance issues, a marked pedestrian crossing and cycleway is not feasible. • At-grade crossing is a pedestrian refuge, which requires some upgrades to accommodate the Greenway. • Pedestrian refuges not desirable for major regional cycle routes.	Upgrade pedestrian refuge	Grade separated crossing	High	High

Location	At-grade options feasibility	Interim at-grade option	Recommended option	Upgrade priority	Grade separation priority
	• Crossing location requires Greenway users to travel additional distances compared to grade-separated options.				
New Canterbury Road	• Existing signalised crossing may be appropriate however is not in line with the Greenway. • New Canterbury Road is a state road and options to widen the crossing may not be approved by Roads and Maritime.	Existing traffic signals	Grade separated crossing	Medium	Medium
Hercules Street	• There are poor sight lines on Hercules Street at potential crossing locations that are in line with the Greenway. • Suitable at-grade crossing interim option locations either do not provide a direct desire line or require additional expenditure to acquire property and construct new links.	Existing pedestrian crossing	Grade separated crossing	High	High
Ewart Street	• Warrants to signalise an intersection based on traffic volumes are not met at Ewart Street / Terrace Road. • If signalised, the intersection would perform at LoS B and with acceptable queue lengths.	Upgrade pedestrian refuge	Convert roundabout to traffic signals	High	N/A

Traffic assessment of on-road sections shows the following:

- Iron Cove to Marion Street
  - Hawthorne Parade is a designated cycle route appropriate for commuter / experienced cyclists given its existing geometry, parking and traffic volumes. Modifications to the roundabouts along the road and the addition of slow points should be implemented to improve cyclist safety. Angled parking as rear to kerb and mixed traffic with pavement logos should be maintained. Additional logos should be painted at existing slow points and the speed limit could be reduced from 50km/h to 40km/h.
  - Darley Road is designated cycle route appropriate for commuter / experienced cyclists given its existing geometry, parking and traffic volumes. A separated cycleway is recommended to improve cyclist safety and rideability.
  - Canal Road would carry low volumes of traffic and with some minor upgrades, would be suitable for recreational cyclists.
- Weston Street
  - Weston Street carries a low volume of traffic and is suitable for a mixed traffic on-road environment. At minimum, appropriate line marking, signage and wayfinding facilities should be installed.
- Jack Shanahan Park to Cooks River
  - All local roads carry a low volume of traffic and are suitable for a mixed traffic on-road environment. At minimum, appropriate line marking, signage and wayfinding facilities should be installed.
  - New traffic counts should be undertaken on Riverside Crescent and at the intersection of Wardell Road and Ewart Street to quantitatively assess the impact of the proposed left turn ban from Wardell Road northbound into Riverside Crescent.

Appendix A. Traffic count data – Marion Street

A.1 Marion Street midblock volumes

A.1.1 Eastbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Marion Street - near rail bridge
Location	Haberfield
Site No	1
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	1313	1319	1389	1178	1291	721	590		
PM Peak	609	749	680	618	655	624	605	**10304**	**9513**
0:00	16	14	19	23	22	50	63	19	30
1:00	10	14	13	8	17	23	34	12	17
2:00	6	11	12	8	15	20	35	10	15
3:00	9	9	15	12	11	19	19	11	13
4:00	36	41	46	41	48	21	25	42	37
5:00	154	189	166	160	142	86	32	162	133
6:00	727	736	792	842	772	226	94	774	598
7:00	1282	1242	1389	1139	1291	370	183	1269	985
8:00	1313	1319	1194	1178	1249	560	288	1251	1014
9:00	948	918	921	894	835	721	484	903	817
10:00	550	657	550	581	633	620	587	594	597
11:00	491	477	532	510	525	647	590	507	539
12:00	447	469	434	460	533	617	605	469	509
13:00	432	424	468	455	486	534	534	453	476
14:00	448	485	462	497	482	609	495	475	497
15:00	506	546	518	569	610	624	503	550	554
16:00	551	582	647	565	573	512	447	584	554
17:00	609	749	564	471	655	549	415	610	573
18:00	514	562	680	618	602	582	324	595	555
19:00	368	405	427	384	426	389	265	402	381
20:00	253	292	273	257	254	261	207	266	257
21:00	166	171	188	192	217	197	144	187	182
22:00	82	105	110	109	146	205	98	110	122
23:00	34	47	41	50	75	119	38	49	58
Total	9952	10464	10461	10023	10619	8561	6509	10304	9513

7-19	8091	8430	8359	7937	8474	6945	5455	8258	7670
6-22	9605	10034	10039	9612	10143	8018	6165	9887	9088
6-24	9721	10186	10190	9771	10364	8342	6301	10046	9268
0-24	9952	10464	10461	10023	10619	8561	6509	10304	9513

A.1.2 Westbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Marion Street - near rail bridge
Location	Haberfield
Site No	1
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB

Menu

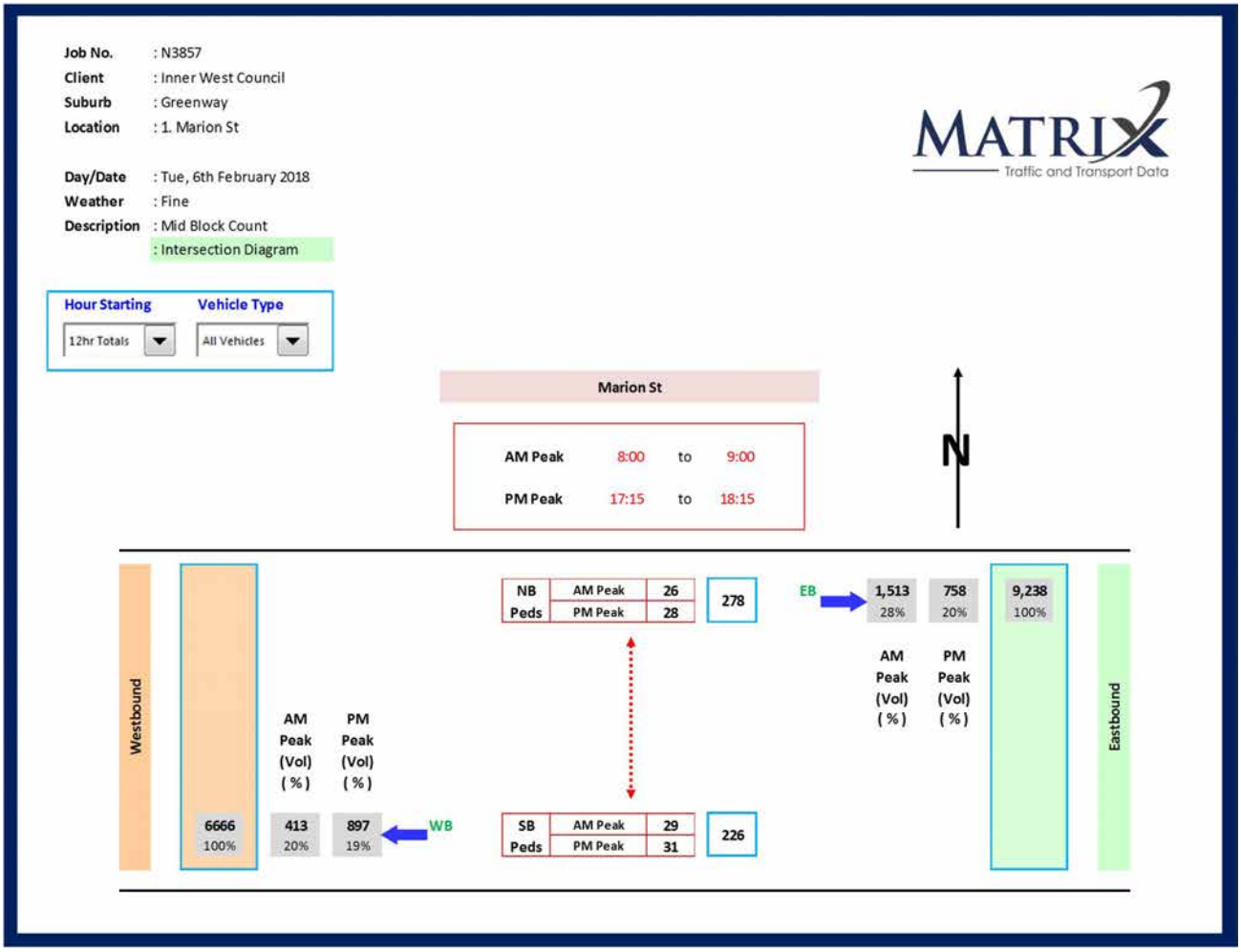
MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	464	472	473	484	504	640	546		
PM Peak	844	850	858	854	843	681	560	**8339**	**8043**
0:00	30	34	33	36	47	81	111	36	53
1:00	14	18	18	22	26	57	73	20	33
2:00	9	13	16	16	14	38	47	14	22
3:00	10	17	12	14	14	31	35	13	19
4:00	20	13	18	20	21	23	20	18	19
5:00	63	68	71	74	76	29	23	70	58
6:00	173	193	214	198	193	87	48	194	158
7:00	389	420	408	388	350	218	115	391	327
8:00	458	441	425	433	434	346	204	438	392
9:00	373	383	404	393	434	543	345	397	411
10:00	429	427	438	401	480	622	447	435	463
11:00	464	472	473	484	504	640	546	479	512
12:00	481	502	473	493	549	681	560	500	534
13:00	454	497	500	513	526	642	518	498	521
14:00	505	557	584	596	565	629	514	561	564
15:00	667	639	661	671	695	595	505	667	633
16:00	694	765	699	741	789	601	480	738	681
17:00	844	850	858	854	843	555	417	850	746
18:00	646	675	659	700	628	499	372	662	597
19:00	470	417	514	518	488	326	283	481	431
20:00	328	353	325	359	290	285	238	331	311
21:00	226	249	272	278	288	265	219	263	257
22:00	151	156	170	208	225	257	143	182	187
23:00	65	104	99	102	136	212	78	101	114
Total	7963	8263	8344	8512	8615	8262	6341	8339	8043

7-19	6404	6628	6582	6667	6797	6571	5023	6616	6382
6-22	7601	7840	7907	8020	8056	7534	5811	7885	7538
6-24	7817	8100	8176	8330	8417	8003	6032	8168	7839
0-24	7963	8263	8344	8512	8615	8262	6341	8339	8043

A.2 Marion Street intersection counts

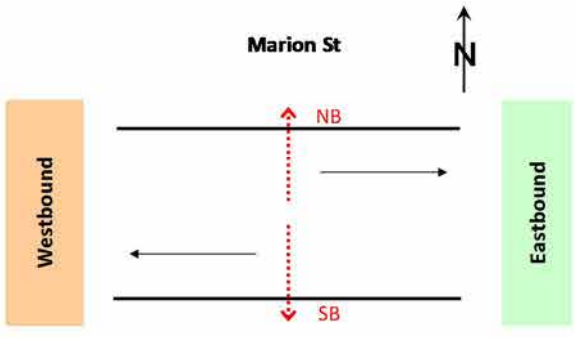
A.2.1 Peak hour volume



A.2.2 Hourly volume by approach

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 1. Marion St

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Mid Block Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

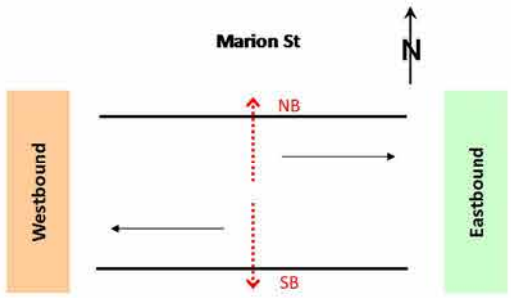
	Approach	Westbound				Eastbound				Grand Total
	Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
AM	8:00 to 9:00	393	15	5	**413**	1,480	32	1	**1,513**	**1,926**
PM	17:15 to 18:15	871	22	4	**897**	741	12	5	**758**	**1,655**

Approach			Westbound				Eastbound				Grand Total
Time Period			Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
7:00	to	8:00	356	18	2	**376**	1,343	65	3	**1,411**	**1,787**
7:15	to	8:15	377	20	3	**400**	1,436	60	3	**1,499**	**1,899**
7:30	to	8:30	370	18	3	**391**	1,472	55	4	**1,531**	**1,922**
7:45	to	8:45	382	16	3	**401**	1,456	41	3	**1,500**	**1,901**
8:00	to	9:00	393	15	5	**413**	1,480	32	1	**1,513**	**1,926**
8:15	to	9:15	360	16	6	**382**	1,434	38	1	**1,473**	**1,855**
8:30	to	9:30	382	20	6	**408**	1,374	38	0	**1,412**	**1,820**
8:45	to	9:45	364	21	5	**390**	1,319	39	0	**1,358**	**1,748**
9:00	to	10:00	347	22	3	**372**	1,201	40	0	**1,241**	**1,613**
9:15	to	10:15	378	22	2	**402**	1,082	36	0	**1,118**	**1,520**
9:30	to	10:30	372	25	3	**400**	916	35	0	**951**	**1,351**
9:45	to	10:45	390	26	3	**419**	789	36	0	**825**	**1,244**
10:00	to	11:00	396	25	3	**424**	684	36	1	**721**	**1,145**
10:15	to	11:15	386	30	2	**418**	566	33	2	**601**	**1,019**
10:30	to	11:30	408	24	2	**434**	546	30	2	**578**	**1,012**
10:45	to	11:45	422	24	1	**447**	485	30	2	**517**	**964**
11:00	to	12:00	440	27	1	**468**	455	28	1	**484**	**952**
11:15	to	12:15	457	27	1	**485**	469	24	1	**494**	**979**
11:30	to	12:30	465	28	0	**493**	438	23	1	**462**	**955**
11:45	to	12:45	465	30	1	**496**	454	20	1	**475**	**971**
12:00	to	13:00	475	28	1	**504**	462	21	1	**484**	**988**
12:15	to	13:15	493	24	1	**518**	435	21	0	**456**	**974**
12:30	to	13:30	490	27	2	**519**	435	19	1	**455**	**974**
12:45	to	13:45	504	24	1	**529**	418	16	1	**435**	**964**
13:00	to	14:00	485	25	1	**511**	398	16	2	**416**	**927**
13:15	to	14:15	452	28	1	**481**	403	13	2	**418**	**899**
13:30	to	14:30	482	24	0	**506**	407	14	2	**423**	**929**
13:45	to	14:45	485	24	0	**509**	445	15	2	**462**	**971**
14:00	to	15:00	519	22	1	**542**	454	12	1	**467**	**1,009**
14:15	to	15:15	564	21	1	**586**	500	16	1	**517**	**1,103**
14:30	to	15:30	545	21	1	**567**	529	15	0	**544**	**1,111**
14:45	to	15:45	595	21	1	**617**	530	16	2	**548**	**1,165**
15:00	to	16:00	622	22	0	**644**	539	20	3	**562**	**1,206**
15:15	to	16:15	665	25	1	**691**	508	15	3	**526**	**1,217**
15:30	to	16:30	718	24	2	**744**	502	17	4	**523**	**1,267**
15:45	to	16:45	713	25	3	**741**	538	17	2	**557**	**1,298**
16:00	to	17:00	752	24	3	**779**	578	16	1	**595**	**1,374**
16:15	to	17:15	772	16	2	**790**	645	17	1	**663**	**1,453**
16:30	to	17:30	808	18	2	**828**	671	14	1	**686**	**1,514**
16:45	to	17:45	856	17	2	**875**	676	13	2	**691**	**1,566**
17:00	to	18:00	892	17	2	**911**	714	10	3	**727**	**1,638**
17:15	to	18:15	871	22	4	**897**	741	12	5	**758**	**1,655**
17:30	to	18:30	827	25	3	**855**	716	12	4	**732**	**1,587**
17:45	to	18:45	786	28	2	**816**	669	12	4	**685**	**1,501**
18:00	to	19:00	695	25	2	**722**	603	11	3	**617**	**1,339**
12hr Totals			**6,372**	**270**	**24**	**6,666**	**8,911**	**307**	**20**	**9,238**	**15,904**

A.2.3 Hourly volume by movement

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 1. Marion St

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Mid Block Count
: Hourly Summary



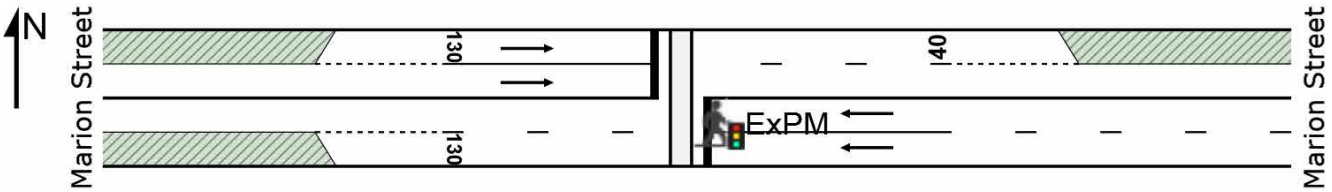
Approach	Marion St								Pedestrians		
Direction	Westbound				Eastbound						
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	NB	SB	Total
7:00 to 8:00	356	18	2	**376**	1,343	65	3	**1,411**	26	21	**47**
7:15 to 8:15	377	20	3	**400**	1,436	60	3	**1,499**	23	25	**48**
7:30 to 8:30	370	18	3	**391**	1,472	55	4	**1,531**	23	29	**52**
7:45 to 8:45	382	16	3	**401**	1,456	41	3	**1,500**	23	25	**48**
8:00 to 9:00	393	15	5	**413**	1,480	32	1	**1,513**	26	29	**55**
8:15 to 9:15	360	16	6	**382**	1,434	38	1	**1,473**	31	21	**52**
8:30 to 9:30	382	20	6	**408**	1,374	38	0	**1,412**	29	26	**55**
8:45 to 9:45	364	21	5	**390**	1,319	39	0	**1,358**	27	31	**58**
9:00 to 10:00	347	22	3	**372**	1,201	40	0	**1,241**	26	24	**50**
9:15 to 10:15	378	22	2	**402**	1,082	36	0	**1,118**	23	25	**48**
9:30 to 10:30	372	25	3	**400**	916	35	0	**951**	16	15	**31**
9:45 to 10:45	390	26	3	**419**	789	36	0	**825**	16	12	**28**
10:00 to 11:00	396	25	3	**424**	684	36	1	**721**	15	11	**26**
10:15 to 11:15	386	30	2	**418**	566	33	2	**601**	11	11	**22**
10:30 to 11:30	408	24	2	**434**	546	30	2	**578**	13	12	**25**
10:45 to 11:45	422	24	1	**447**	485	30	2	**517**	14	9	**23**
11:00 to 12:00	440	27	1	**468**	455	28	1	**484**	12	7	**19**
11:15 to 12:15	457	27	1	**485**	469	24	1	**494**	12	6	**18**
11:30 to 12:30	465	28	0	**493**	438	23	1	**462**	11	4	**15**
11:45 to 12:45	465	30	1	**496**	454	20	1	**475**	9	9	**18**
12:00 to 13:00	475	28	1	**504**	462	21	1	**484**	5	9	**14**
12:15 to 13:15	493	24	1	**518**	435	21	0	**456**	3	10	**13**
12:30 to 13:30	490	27	2	**519**	435	19	1	**455**	5	9	**14**
12:45 to 13:45	504	24	1	**529**	418	16	1	**435**	7	5	**12**
13:00 to 14:00	485	25	1	**511**	398	16	2	**416**	13	9	**22**
13:15 to 14:15	452	28	1	**481**	403	13	2	**418**	13	10	**23**
13:30 to 14:30	482	24	0	**506**	407	14	2	**423**	15	10	**25**
13:45 to 14:45	485	24	0	**509**	445	15	2	**462**	12	7	**19**
14:00 to 15:00	519	22	1	**542**	454	12	1	**467**	9	5	**14**
14:15 to 15:15	564	21	1	**586**	500	16	1	**517**	20	6	**26**
14:30 to 15:30	545	21	1	**567**	529	15	0	**544**	22	11	**33**
14:45 to 15:45	595	21	1	**617**	530	16	2	**548**	31	18	**49**
15:00 to 16:00	622	22	0	**644**	539	20	3	**562**	43	18	**61**
15:15 to 16:15	665	25	1	**691**	508	15	3	**526**	35	19	**54**
15:30 to 16:30	718	24	2	**744**	502	17	4	**523**	46	17	**63**
15:45 to 16:45	713	25	3	**741**	538	17	2	**557**	42	14	**56**
16:00 to 17:00	752	24	3	**779**	578	16	1	**595**	36	18	**54**
16:15 to 17:15	772	16	2	**790**	645	17	1	**663**	52	17	**69**
16:30 to 17:30	808	18	2	**828**	671	14	1	**686**	40	26	**66**
16:45 to 17:45	856	17	2	**875**	676	13	2	**691**	39	30	**69**
17:00 to 18:00	892	17	2	**911**	714	10	3	**727**	37	30	**67**
17:15 to 18:15	871	22	4	**897**	741	12	5	**758**	28	31	**59**
17:30 to 18:30	827	25	3	**855**	716	12	4	**732**	38	45	**83**
17:45 to 18:45	786	28	2	**816**	669	12	4	**685**	35	50	**85**
18:00 to 19:00	695	25	2	**722**	603	11	3	**617**	30	45	**75**
12hr Totals	**6,372**	**270**	**24**	**6,666**	**8,911**	**307**	**20**	**9,238**	**278**	**226**	**504**

Appendix B. Marion Street Sidra outputs

B.1 Existing model layouts

B.1.1 Morning

B.1.2 Evening



B.2 Existing model outputs

B.2.1 Morning

MOVEMENT SUMMARY

Site: AM base [Marion Street signalised crossing AM]

Marion Street signalised crossing
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Marion Street											
8	T1	408	3.7	0.187	3.6	LOS A	2.6	18.6	0.38	0.32	45.2
Approach		408	3.7	0.187	3.6	LOS A	2.6	18.6	0.38	0.32	45.2
West: Marion Street											
2	T1	1512	2.1	0.575	5.3	LOS A	11.6	82.4	0.56	0.51	43.2
Approach		1512	2.1	0.575	5.3	LOS A	11.6	82.4	0.56	0.51	43.2
All Vehicles		1920	2.4	0.575	5.0	LOS A	11.6	82.4	0.52	0.47	43.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.2.2 Evening

MOVEMENT SUMMARY

Site: PM base [Marion Street signalised crossing PM]

Marion Street signalised crossing
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

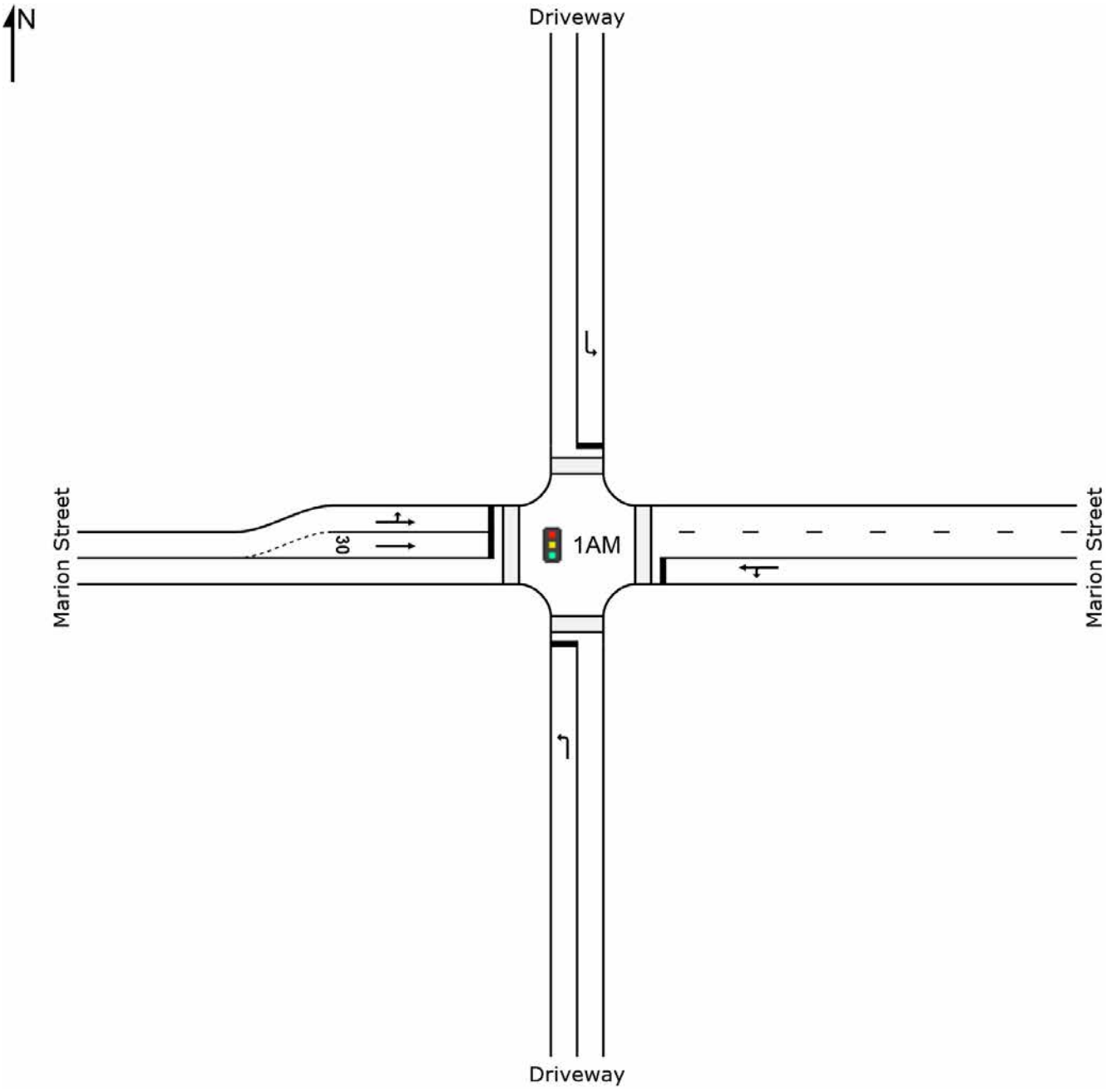
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Marion Street											
8	T1	893	2.5	0.417	4.7	LOS A	7.2	51.5	0.47	0.41	43.9
Approach		893	2.5	0.417	4.7	LOS A	7.2	51.5	0.47	0.41	43.9
West: Marion Street											
2	T1	753	1.6	0.464	4.9	LOS A	8.4	59.9	0.49	0.43	43.7
Approach		753	1.6	0.464	4.9	LOS A	8.4	59.9	0.49	0.43	43.7
All Vehicles		1646	2.1	0.464	4.8	LOS A	8.4	59.9	0.48	0.42	43.8

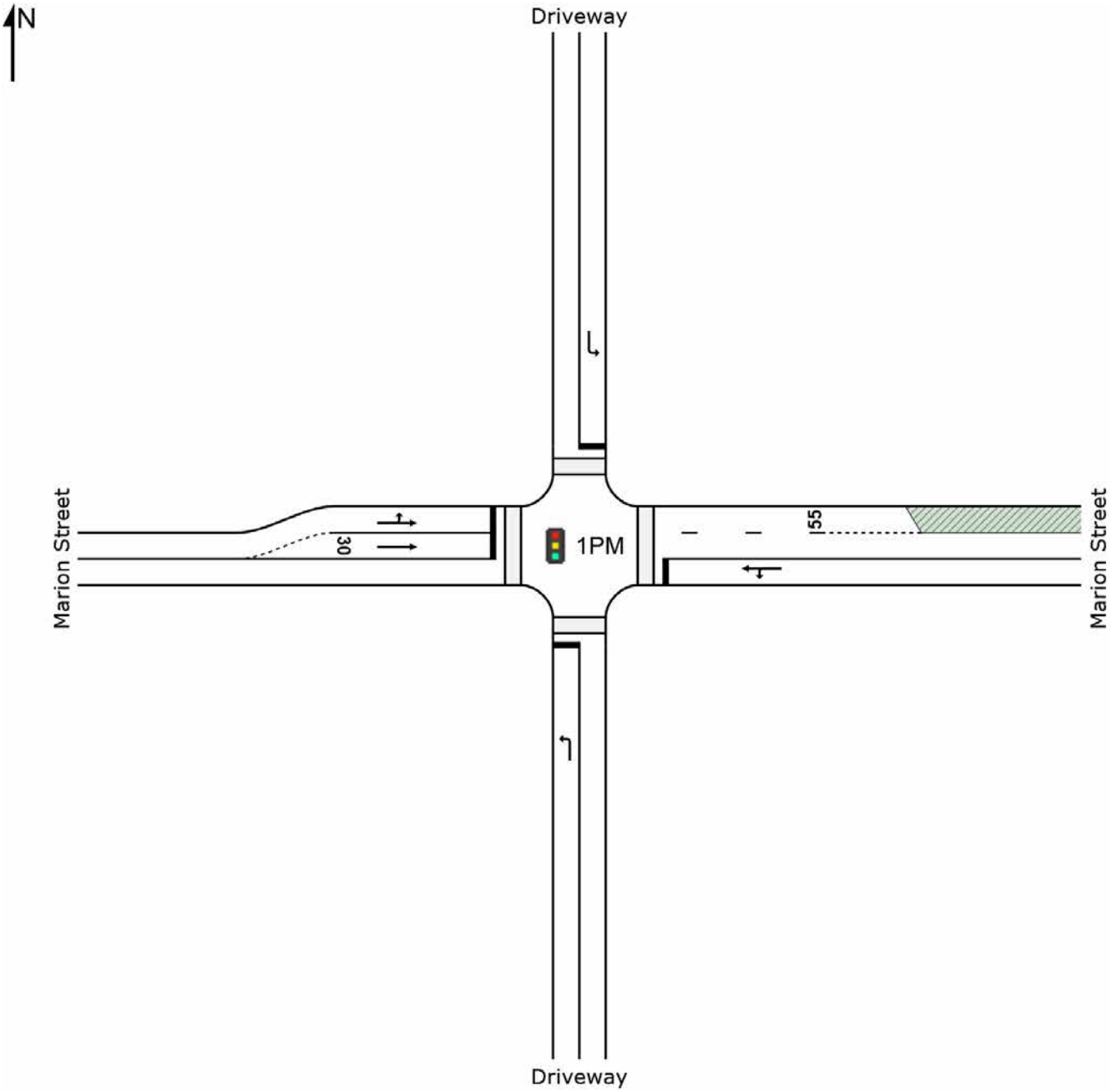
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.3 Option 1A model layouts

B.3.1 Morning



B.3.2 Evening



B.4 Option 1A model outputs

B.4.1 Morning

MOVEMENT SUMMARY

Site: 101 [Marion Street AM option 1A]

Marion Street
Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Driveway											
1	L2	6	50.0	0.263	40.1	LOS C	0.2	2.2	1.00	0.64	13.1
Approach		6	50.0	0.263	40.1	LOS C	0.2	2.2	1.00	0.64	13.1
East: Marion Street											
4	L2	6	50.0	0.312	12.4	LOS A	4.6	33.7	0.41	0.37	26.3
5	T1	408	3.7	0.312	3.7	LOS A	4.6	33.7	0.41	0.37	45.0
Approach		414	4.3	0.312	3.8	LOS A	4.6	33.7	0.41	0.37	44.8
North: Driveway											
7	L2	6	50.0	0.263	40.1	LOS C	0.2	2.2	1.00	0.64	12.3
Approach		6	50.0	0.263	40.1	LOS C	0.2	2.2	1.00	0.64	12.3
West: Marion Street											
10	L2	6	50.0	0.896	33.7	LOS C	22.1	157.7	0.54	0.80	17.9
11	T1	1512	2.1	0.896	25.0	LOS B	22.1	157.6	0.54	0.80	28.9
Approach		1518	2.3	0.896	25.0	LOS B	22.1	157.7	0.54	0.80	28.8
All Vehicles		1944	3.0	0.896	20.6	LOS B	22.1	157.7	0.51	0.70	31.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.4.2 Evening

MOVEMENT SUMMARY

Site: 101 [Marion Street PM option 1A]

Marion Street
Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

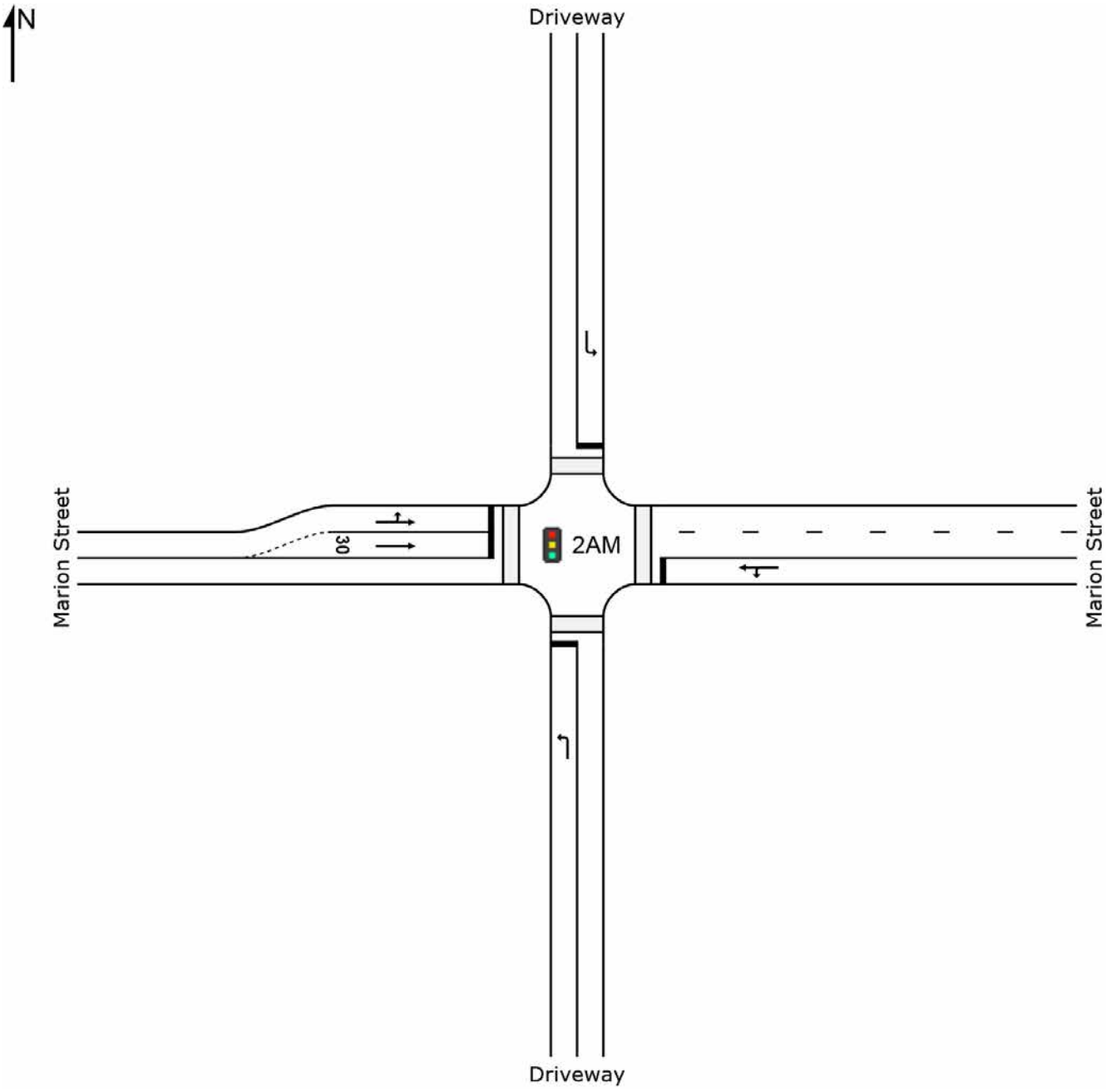
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Driveway											
1	L2	6	50.0	0.131	35.7	LOS C	0.2	2.0	0.99	0.64	13.9
Approach		6	50.0	0.131	35.7	LOS C	0.2	2.0	0.99	0.64	13.9
East: Marion Street											
4	L2	6	50.0	0.705	15.5	LOS B	16.6	119.0	0.68	0.62	24.4
5	T1	893	2.5	0.705	6.8	LOS A	16.6	119.0	0.68	0.62	41.7
Approach		899	2.8	0.705	6.9	LOS A	16.6	119.0	0.68	0.62	41.6
North: Driveway											
7	L2	6	50.0	0.131	35.7	LOS C	0.2	2.0	0.99	0.64	13.0
Approach		6	50.0	0.131	35.7	LOS C	0.2	2.0	0.99	0.64	13.0
West: Marion Street											
10	L2	6	50.0	0.146	12.7	LOS A	2.0	14.3	0.39	0.35	27.2
11	T1	753	1.6	0.457	4.8	LOS A	8.0	56.5	0.48	0.43	43.8
Approach		759	2.0	0.457	4.9	LOS A	8.0	56.5	0.48	0.43	43.6
All Vehicles		1670	2.8	0.705	6.2	LOS A	16.6	119.0	0.59	0.53	42.1

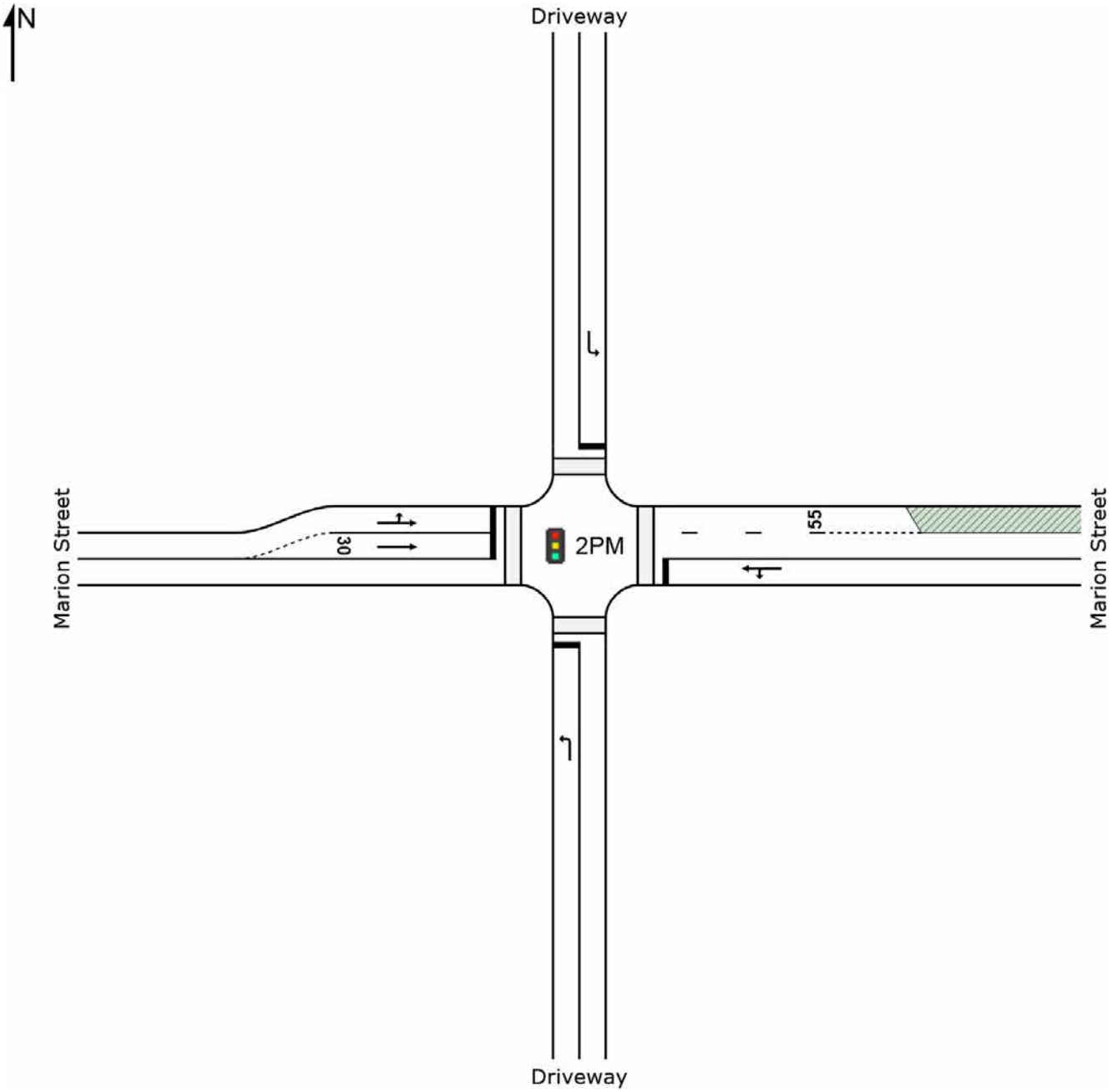
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.5 Option 1B model layouts

B.5.1 Morning



B.5.2 Evening



B.6 Option 1B model outs

B.6.1 Morning

MOVEMENT SUMMARY

Site: 101 [Marion Street AM option 1B]

Marion Street
Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Driveway											
1	L2	6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	14.7
Approach		6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	14.7
East: Marion Street											
4	L2	6	50.0	0.312	12.4	LOS A	4.6	33.7	0.41	0.37	26.3
5	T1	408	3.7	0.312	3.7	LOS A	4.6	33.7	0.41	0.37	45.0
Approach		414	4.3	0.312	3.8	LOS A	4.6	33.7	0.41	0.37	44.8
North: Driveway											
7	L2	6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	13.8
Approach		6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	13.8
West: Marion Street											
10	L2	6	50.0	0.896	33.7	LOS C	22.1	157.7	0.54	0.80	17.9
11	T1	1512	2.1	0.896	25.0	LOS B	22.1	157.6	0.54	0.80	28.9
Approach		1518	2.3	0.896	25.0	LOS B	22.1	157.7	0.54	0.80	28.8
All Vehicles		1944	3.0	0.896	20.5	LOS B	22.1	157.7	0.51	0.70	31.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.6.2 Evening

MOVEMENT SUMMARY

Site: 101 [Marion Street PM option 1B]

Marion Street
Signals - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

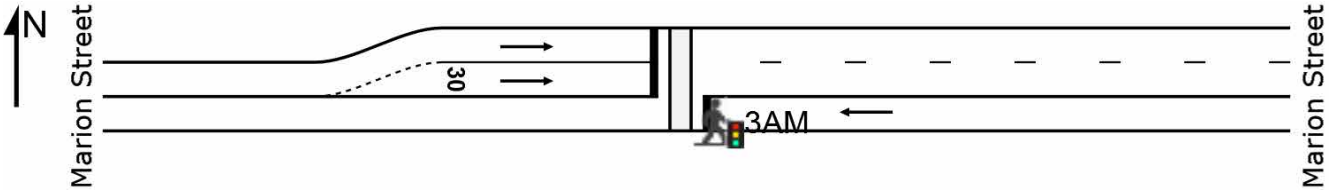
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Driveway											
1	L2	6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	14.7
Approach		6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	14.7
East: Marion Street											
4	L2	6	50.0	0.671	14.2	LOS A	14.9	106.9	0.61	0.56	25.2
5	T1	893	2.5	0.671	5.5	LOS A	14.9	106.9	0.61	0.56	43.1
Approach		899	2.8	0.671	5.5	LOS A	14.9	106.9	0.61	0.56	42.9
North: Driveway											
7	L2	6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	13.8
Approach		6	50.0	0.066	31.2	LOS C	0.2	1.8	0.96	0.63	13.8
West: Marion Street											
10	L2	6	50.0	0.137	11.9	LOS A	1.8	12.6	0.35	0.31	27.7
11	T1	753	1.6	0.427	3.9	LOS A	7.2	51.2	0.43	0.39	44.8
Approach		759	2.0	0.427	4.0	LOS A	7.2	51.2	0.43	0.39	44.7
All Vehicles		1670	2.8	0.671	5.0	LOS A	14.9	106.9	0.53	0.48	43.3

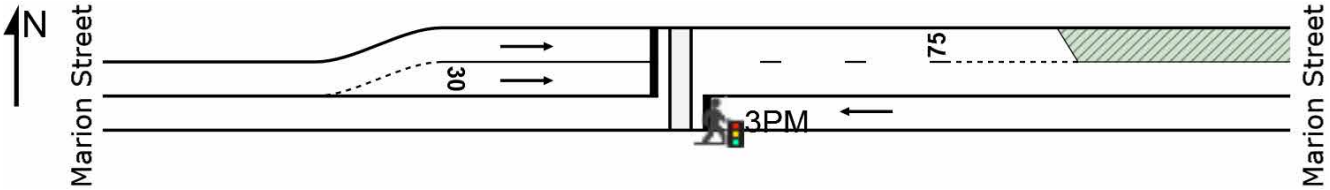
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.7 Option 1C model layouts

B.7.1 Morning



B.7.2 Evening



B.8 Option 1C model outputs

B.8.1 Morning

MOVEMENT SUMMARY

Site: 3AM [Marion Street AM option 1C]

Marion Street signalised crossing
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Marion Street											
8	T1	408	3.7	0.299	3.3	LOS A	4.3	31.0	0.39	0.34	45.6
Approach		408	3.7	0.299	3.3	LOS A	4.3	31.0	0.39	0.34	45.6
West: Marion Street											
2	T1	1512	2.1	0.839	13.5	LOS A	15.9	113.2	0.50	0.61	35.9
Approach		1512	2.1	0.839	13.5	LOS A	15.9	113.2	0.50	0.61	35.9
All Vehicles		1920	2.4	0.839	11.3	LOS A	15.9	113.2	0.48	0.55	37.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

B.8.2 Evening

MOVEMENT SUMMARY

Site: 3PM [Marion Street PM option 1C]

Marion Street signalised crossing
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Marion Street											
8	T1	893	2.5	0.649	4.9	LOS A	13.9	99.1	0.57	0.52	43.8
Approach		893	2.5	0.649	4.9	LOS A	13.9	99.1	0.57	0.52	43.8
West: Marion Street											
2	T1	753	1.6	0.387	3.4	LOS A	6.1	43.5	0.40	0.35	45.5
Approach		753	1.6	0.387	3.4	LOS A	6.1	43.5	0.40	0.35	45.5
All Vehicles		1646	2.1	0.649	4.2	LOS A	13.9	99.1	0.49	0.44	44.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix C. Traffic count data – Old Canterbury Road

C.1 Old Canterbury Road (west of Edward Street) midblock volumes

C.1.1 Eastbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - west of Edward St - EB Only
Location	Lewisham
Site No	2A
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

Hour	Day of Week								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
Starting	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	W'Day Ave	7 Day Ave
AM Peak	1103	1073	1165	1110	1143	847	753		
PM Peak	689	679	666	765	743	817	724	11734	11396
0:00	50	39	46	53	78	122	163	53	79
1:00	45	26	25	29	39	72	109	33	49
2:00	29	24	30	33	37	59	62	31	39
3:00	47	47	48	45	48	66	82	47	55
4:00	134	119	120	141	128	60	60	128	109
5:00	469	497	491	458	490	240	120	481	395
6:00	1079	1073	1144	1110	1116	509	215	1104	892
7:00	1103	967	1165	1102	1143	582	284	1096	907
8:00	995	758	1059	778	1066	762	417	931	834
9:00	906	799	871	883	860	847	653	864	831
10:00	616	682	698	677	700	814	706	675	699
11:00	555	574	567	601	664	843	753	592	651
12:00	518	564	580	530	579	813	724	554	615
13:00	468	522	531	532	533	817	630	517	576
14:00	510	545	519	547	592	702	609	543	575
15:00	578	576	652	627	724	629	595	631	626
16:00	628	602	640	634	743	695	602	649	649
17:00	689	679	666	765	693	762	643	698	700
18:00	582	672	650	665	712	708	471	656	637
19:00	468	450	479	482	533	560	379	482	479
20:00	347	322	311	352	383	412	298	343	346
21:00	240	289	290	307	310	359	266	287	294
22:00	166	188	198	211	296	324	172	212	222
23:00	102	84	107	139	191	244	91	125	137
Total	11324	11098	11887	11701	12658	12001	9104	11734	11396

7-19	8148	7940	8598	8341	9009	8974	7087	8407	8300
6-22	10282	10074	10822	10592	11351	10814	8245	10624	10311
6-24	10550	10346	11127	10942	11838	11382	8508	10961	10670
0-24	11324	11098	11887	11701	12658	12001	9104	11734	11396

C.1.2 Westbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - west of Edward St - WB Only
Location	Lewisham
Site No	2A
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	542	582	547	535	599	770	581		
PM Peak	1100	1096	1091	1026	1040	822	733	12244	11863
0:00	131	115	150	198	196	300	373	158	209
1:00	71	79	96	94	111	203	274	90	133
2:00	73	41	57	72	79	162	203	64	98
3:00	42	41	51	37	61	125	161	46	74
4:00	51	41	58	49	52	97	124	50	67
5:00	108	114	124	104	131	100	80	116	109
6:00	293	352	327	317	327	152	110	323	268
7:00	511	526	514	487	508	318	139	509	429
8:00	522	542	547	521	589	467	239	544	490
9:00	493	476	448	452	478	570	407	469	475
10:00	483	480	484	501	599	735	478	509	537
11:00	542	582	543	535	570	770	581	554	589
12:00	627	581	598	655	724	759	641	637	655
13:00	644	672	681	685	760	822	607	688	696
14:00	773	867	876	906	901	818	645	865	827
15:00	1028	1034	1065	999	978	755	684	1021	935
16:00	1038	1096	1091	1024	1015	797	733	1053	971
17:00	1100	1064	1070	1026	1040	685	703	1060	955
18:00	1011	986	873	957	925	661	595	950	858
19:00	666	744	725	766	710	574	501	722	669
20:00	504	590	581	635	495	519	475	561	543
21:00	479	474	545	604	516	535	396	524	507
22:00	357	375	455	451	498	603	328	427	438
23:00	226	266	275	319	416	571	247	300	331
Total	11773	12138	12234	12394	12679	12098	9724	12244	11863

7-19	8772	8906	8790	8748	9087	8157	6452	8861	8416
6-22	10714	11066	10968	11070	11135	9937	7934	10991	10403
6-24	11297	11707	11698	11840	12049	11111	8509	11718	11173
0-24	11773	12138	12234	12394	12679	12098	9724	12244	11863

C.2 Old Canterbury Road (east of Edward Street) midblock volumes

C.2.1 Eastbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - east of Edward St
Location	Lewisham
Site No	2B
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

Hour	Day of Week								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
Starting	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	W'Day	7 Day
AM Peak	1156	1076	1256	1175	1235	908	772	Ave	Ave
PM Peak	751	759	769	852	809	866	763	12381	11967
0:00	51	43	49	52	74	125	164	54	80
1:00	44	25	23	30	42	70	111	33	49
2:00	32	27	32	34	43	61	63	34	42
3:00	51	47	47	49	53	71	86	49	58
4:00	137	121	122	150	133	64	61	133	113
5:00	466	505	499	467	491	241	120	486	398
6:00	1106	1076	1196	1143	1133	501	216	1131	910
7:00	1156	992	1256	1175	1235	590	281	1163	955
8:00	1005	788	1112	747	1157	777	431	962	860
9:00	948	837	943	921	897	858	682	909	869
10:00	629	738	721	731	733	829	728	710	730
11:00	578	589	594	602	705	908	772	614	678
12:00	541	586	611	554	622	866	763	583	649
13:00	477	533	553	553	572	860	654	538	600
14:00	525	589	545	577	619	731	632	571	603
15:00	610	611	687	688	781	662	632	675	667
16:00	683	668	702	684	809	715	613	709	696
17:00	751	759	769	852	764	797	686	779	768
18:00	637	745	727	718	744	745	500	714	688
19:00	509	483	500	521	565	592	399	516	510
20:00	359	354	332	391	421	422	305	371	369
21:00	252	298	298	323	321	363	268	298	303
22:00	174	194	204	225	304	323	181	220	229
23:00	103	85	113	152	197	257	89	130	142
Total	11824	11693	12635	12339	13415	12428	9437	12381	11967

7-19	8540	8435	9220	8802	9638	9338	7374	8927	8764
6-22	10766	10646	11546	11180	12078	11216	8562	11243	10856
6-24	11043	10925	11863	11557	12579	11796	8832	11593	11228
0-24	11824	11693	12635	12339	13415	12428	9437	12381	11967

C.2.2 Westbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Old Canterbury Road - east of Edward St
Location	Lewisham
Site No	2B
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	574	611	621	586	648	834	622		
PM Peak	1225	1189	1167	1130	1126	862	789	13159	12715
0:00	134	117	157	196	198	301	382	160	212
1:00	73	84	100	97	112	211	280	93	137
2:00	77	44	57	74	82	162	214	67	101
3:00	43	43	52	39	61	127	164	48	76
4:00	53	41	58	51	51	104	124	51	69
5:00	118	129	133	111	138	109	83	126	117
6:00	330	392	344	347	354	168	116	353	293
7:00	553	608	569	530	542	331	158	560	470
8:00	574	596	621	578	646	483	258	603	537
9:00	522	528	500	487	520	649	457	511	523
10:00	521	503	522	535	648	793	517	546	577
11:00	574	611	583	586	615	834	622	594	632
12:00	660	623	642	693	770	835	706	678	704
13:00	685	703	715	725	807	862	655	727	736
14:00	818	901	903	954	970	856	700	909	872
15:00	1117	1129	1158	1068	1074	803	743	1109	1013
16:00	1131	1176	1167	1130	1119	845	789	1145	1051
17:00	1225	1189	1166	1126	1126	738	753	1166	1046
18:00	1065	1058	955	1047	1030	700	638	1031	928
19:00	720	789	771	829	770	609	523	776	716
20:00	528	631	623	694	542	552	507	604	582
21:00	492	490	560	627	535	545	411	541	523
22:00	377	397	474	474	523	616	343	449	458
23:00	235	277	286	328	435	587	251	312	343
Total	12625	13059	13116	13326	13668	12820	10394	13159	12715

7-19	9445	9625	9501	9459	9867	8729	6996	9579	9089
6-22	11515	11927	11799	11956	12068	10603	8553	11853	11203
6-24	12127	12601	12559	12758	13026	11806	9147	12614	12003
0-24	12625	13059	13116	13326	13668	12820	10394	13159	12715

C.3 Edward Street midblock volumes

C.3.1 Northbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Edward Street - north of Old Canterbury Road
Location	Lewisham
Site No	2C
Start Date	6-Feb-18
Description	Volume Summary
Direction	NB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	88	95	99	95	105	127	82		
PM Peak	155	157	138	162	156	164	98	1454	1390
0:00	7	3	9	3	7	11	7	6	7
1:00	4	6	4	7	2	10	4	5	5
2:00	5	2	2	4	4	4	15	3	5
3:00	0	2	5	1	0	6	4	2	3
4:00	4	4	2	4	3	8	2	3	4
5:00	20	28	20	10	17	9	2	19	15
6:00	53	73	65	68	66	39	12	65	54
7:00	78	90	80	77	60	39	16	77	63
8:00	88	95	99	86	105	60	33	95	81
9:00	68	78	84	95	80	111	64	81	83
10:00	56	57	84	74	85	118	66	71	77
11:00	66	61	72	69	65	127	82	67	77
12:00	71	61	58	72	69	164	90	66	84
13:00	59	70	63	71	70	116	71	67	74
14:00	62	69	70	93	78	73	81	74	75
15:00	132	131	130	114	142	74	78	130	114
16:00	119	112	130	145	142	92	98	130	120
17:00	155	157	134	135	128	95	83	142	127
18:00	102	139	138	162	156	84	63	139	121
19:00	74	67	61	97	82	72	40	76	70
20:00	51	57	62	64	59	49	44	59	55
21:00	27	35	44	44	27	43	20	35	34
22:00	21	32	22	39	32	27	18	29	27
23:00	15	6	12	14	20	27	10	13	15
Total	1337	1435	1450	1548	1499	1458	1003	1454	1390

7-19	1056	1120	1142	1193	1180	1153	825	1138	1096
6-22	1261	1352	1374	1466	1414	1356	941	1373	1309
6-24	1297	1390	1408	1519	1466	1410	969	1416	1351
0-24	1337	1435	1450	1548	1499	1458	1003	1454	1390

C.3.2 Southbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Edward Street - north of Old Canterbury Road
Location	Lewisham
Site No	2C
Start Date	6-Feb-18
Description	Volume Summary
Direction	SB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	135	149	143	149	139	137	55		
PM Peak	117	132	145	119	130	154	80	1357	1265
0:00	5	3	3	2	5	17	8	4	6
1:00	1	1	2	4	4	5	5	2	3
2:00	4	5	4	6	5	6	5	5	5
3:00	3	1	6	3	5	9	6	4	5
4:00	3	3	4	5	6	6	1	4	4
5:00	12	14	13	8	12	7	0	12	9
6:00	69	77	109	83	82	35	9	84	66
7:00	100	149	128	112	110	41	14	120	93
8:00	135	131	143	149	139	45	28	139	110
9:00	82	123	106	103	78	56	49	98	85
10:00	40	87	62	47	58	78	55	59	61
11:00	60	48	49	41	68	137	55	53	65
12:00	55	47	54	59	65	154	68	56	72
13:00	34	52	54	53	63	108	64	51	61
14:00	43	69	63	63	67	73	63	61	63
15:00	83	73	77	91	109	58	67	87	80
16:00	99	103	108	95	114	72	69	104	94
17:00	117	109	145	119	130	81	80	124	112
18:00	111	132	127	103	103	76	63	115	102
19:00	68	65	50	73	72	67	46	66	63
20:00	37	43	46	51	56	39	30	47	43
21:00	29	28	36	31	35	31	19	32	30
22:00	11	16	17	22	26	16	14	18	17
23:00	11	8	11	21	12	27	7	13	14
Total	1212	1387	1417	1344	1424	1244	825	1357	1265

7-19	959	1123	1116	1035	1104	979	675	1067	999
6-22	1162	1336	1357	1273	1349	1151	779	1295	1201
6-24	1184	1360	1385	1316	1387	1194	800	1326	1232
0-24	1212	1387	1417	1344	1424	1244	825	1357	1265

C.4 Weston Street midblock volumes

C.4.1 Northbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Weston Street - south of Old Canterbury Road
Location	Lewisham
Site No	2D
Start Date	6-Feb-18
Description	Volume Summary
Direction	NB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	21	12	13	2	4	13	12		
PM Peak	9	9	14	16	11	15	12	100	109
0:00	0	2	1	0	1	2	2	1	1
1:00	0	1	0	1	1	2	1	1	1
2:00	0	0	1	0	0	2	0	0	0
3:00	0	0	1	1	0	2	0	0	1
4:00	2	0	1	2	2	1	2	1	1
5:00	4	4	5	2	3	0	0	4	3
6:00	4	6	7	0	4	7	4	4	5
7:00	14	10	9	0	0	6	2	7	6
8:00	9	10	13	0	0	13	5	6	7
9:00	6	11	8	0	0	6	12	5	6
10:00	3	12	5	0	0	11	8	4	6
11:00	21	9	8	0	0	7	6	8	7
12:00	8	8	3	0	0	13	12	4	6
13:00	4	7	5	0	0	9	4	3	4
14:00	3	8	0	0	0	6	6	2	3
15:00	9	8	1	10	0	15	10	6	8
16:00	8	8	7	9	0	9	6	6	7
17:00	9	8	6	16	11	9	7	10	9
18:00	6	9	8	8	10	9	7	8	8
19:00	3	5	14	12	10	9	7	9	9
20:00	0	3	3	8	3	7	4	3	4
21:00	2	5	2	5	4	4	1	4	3
22:00	1	5	1	4	3	2	1	3	2
23:00	0	0	1	2	2	1	2	1	1
Total	116	139	110	80	54	152	109	100	109
7-19	100	108	73	43	21	113	85	69	78
6-22	109	127	99	68	42	140	101	89	98
6-24	110	132	101	74	47	143	104	93	102
0-24	116	139	110	80	54	152	109	100	109

C.4.2 Southbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Weston Street - south of Old Canterbury Road
Location	Lewisham
Site No	2D
Start Date	6-Feb-18
Description	Volume Summary
Direction	SB

Menu

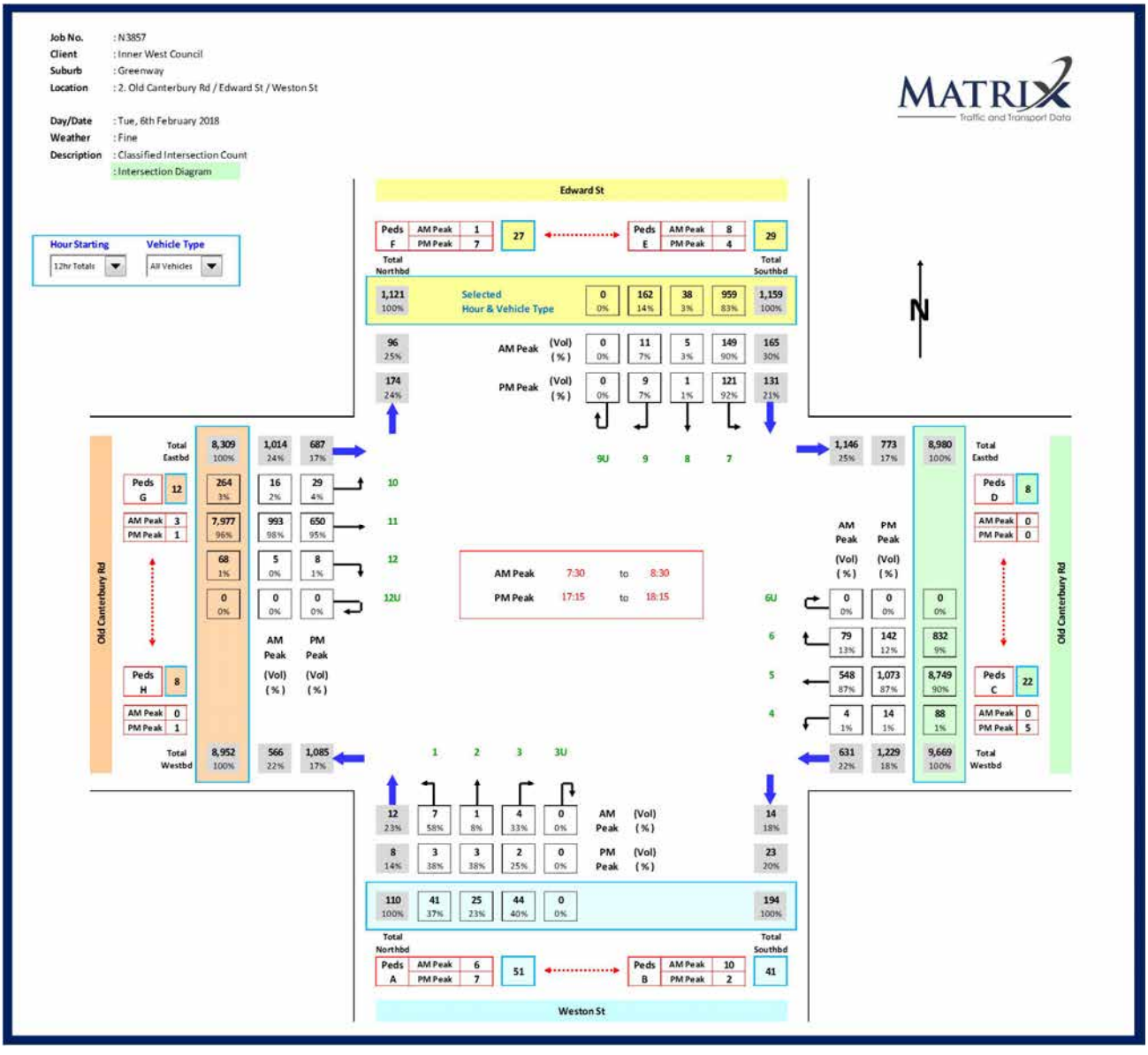
MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	16	21	17	2	8	20	14		
PM Peak	29	24	20	25	22	31	17	180	188
0:00	1	0	2	0	4	5	6	1	3
1:00	0	1	1	1	3	4	7	1	2
2:00	0	1	0	2	1	2	0	1	1
3:00	0	0	0	0	1	1	1	0	0
4:00	1	0	0	0	1	0	1	0	0
5:00	1	1	5	2	2	2	0	2	2
6:00	16	13	14	1	8	15	2	10	10
7:00	13	16	17	0	0	4	5	9	8
8:00	11	21	13	0	0	8	3	9	8
9:00	6	16	10	0	0	9	14	6	8
10:00	12	9	6	0	0	18	5	5	7
11:00	13	19	11	0	0	20	8	9	10
12:00	17	13	9	0	0	31	12	8	12
13:00	10	6	15	0	0	16	17	6	9
14:00	13	10	4	0	0	10	8	5	6
15:00	19	24	2	12	0	12	17	11	12
16:00	29	22	19	22	0	17	13	18	17
17:00	16	20	20	25	22	19	11	21	19
18:00	16	17	18	23	17	11	17	18	17
19:00	5	11	19	16	18	8	7	14	12
20:00	0	6	7	13	9	11	11	7	8
21:00	4	10	4	4	6	6	7	6	6
22:00	6	4	9	4	11	4	3	7	6
23:00	3	5	3	4	5	4	2	4	4
Total	212	245	208	129	108	237	177	180	188

7-19	175	193	144	82	39	175	130	127	134
6-22	200	233	188	116	80	215	157	163	170
6-24	209	242	200	124	96	223	162	174	179
0-24	212	245	208	129	108	237	177	180	188

C.5 Old Canterbury Road / Weston Street / Edward Street intersection counts

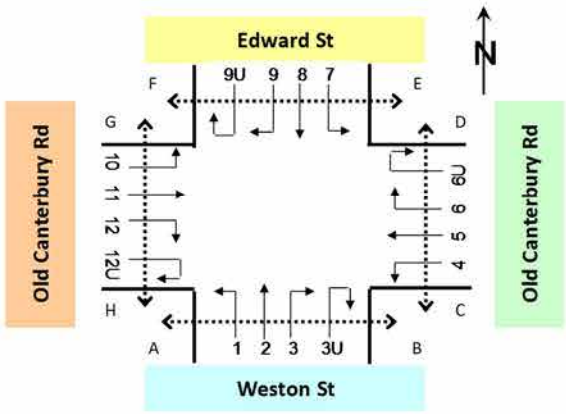
C.5.1 Peak hour volume



C.5.2 Hourly volume by approach

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 2. Old Canterbury Rd / Edward St / Weston St

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

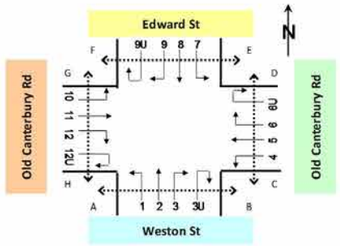
Approach	Weston St				Old Canterbury Rd				Edward St				Old Canterbury Rd				Grand Total
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
AM 7:30 to 8:30	8	4	0	**12**	602	27	2	**631**	157	6	2	**165**	968	39	7	**1,014**	**1,822**
PM 17:15 to 18:15	7	0	1	**8**	1,205	21	3	**1,229**	130	1	0	**131**	682	4	1	**687**	**2,055**

Time Period	Weston St				Old Canterbury Rd				Edward St				Old Canterbury Rd				Grand Total
	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
7:00 to 8:00	8	1	0	**9**	553	26	2	**581**	137	6	2	**145**	1,016	42	4	**1,062**	**1,797**
7:15 to 8:15	7	3	0	**10**	570	24	2	**596**	155	7	2	**164**	986	40	6	**1,032**	**1,802**
7:30 to 8:30	8	4	0	**12**	602	27	2	**631**	157	6	2	**165**	968	39	7	**1,014**	**1,822**
7:45 to 8:45	4	3	0	**7**	588	27	2	**617**	151	5	2	**158**	937	31	11	**979**	**1,761**
8:00 to 9:00	7	3	0	**10**	581	31	2	**614**	139	5	0	**144**	905	29	9	**943**	**1,711**
8:15 to 9:15	9	1	0	**10**	560	28	2	**590**	120	6	0	**126**	903	31	7	**941**	**1,667**
8:30 to 9:30	7	0	0	**7**	527	32	2	**561**	120	5	0	**125**	876	29	5	**910**	**1,603**
8:45 to 9:45	10	0	0	**10**	522	33	5	**560**	108	7	1	**116**	863	32	2	**897**	**1,583**
9:00 to 10:00	10	0	1	**11**	480	34	4	**518**	110	13	1	**124**	834	35	2	**871**	**1,524**
9:15 to 10:15	10	0	1	**11**	466	38	3	**507**	109	13	2	**124**	755	35	2	**792**	**1,434**
9:30 to 10:30	11	0	1	**12**	487	34	3	**524**	92	16	5	**113**	714	37	3	**754**	**1,403**
9:45 to 10:45	11	0	2	**13**	476	35	0	**511**	77	14	4	**95**	670	34	1	**705**	**1,324**
10:00 to 11:00	11	0	1	**12**	470	33	0	**503**	75	8	4	**87**	653	35	1	**689**	**1,291**
10:15 to 11:15	12	0	1	**13**	487	31	0	**518**	69	6	3	**78**	625	33	2	**660**	**1,269**
10:30 to 11:30	13	1	3	**17**	487	38	0	**525**	62	5	0	**67**	583	31	1	**615**	**1,224**
10:45 to 11:45	10	1	2	**13**	503	52	0	**555**	57	4	0	**61**	579	37	1	**617**	**1,246**
11:00 to 12:00	7	2	2	**11**	562	48	0	**610**	45	3	0	**48**	556	34	1	**591**	**1,260**
11:15 to 12:15	4	2	2	**8**	559	48	0	**607**	42	4	2	**48**	560	36	1	**597**	**1,260**
11:30 to 12:30	3	1	0	**4**	569	45	0	**614**	46	3	2	**51**	575	36	2	**613**	**1,282**
11:45 to 12:45	6	1	0	**7**	575	36	0	**611**	53	2	2	**57**	548	28	2	**578**	**1,253**
12:00 to 13:00	9	0	0	**9**	570	43	0	**613**	51	3	3	**57**	527	28	2	**557**	**1,236**
12:15 to 13:15	8	0	0	**8**	598	46	0	**644**	45	2	1	**48**	516	23	1	**540**	**1,240**
12:30 to 13:30	9	0	0	**9**	625	46	0	**671**	52	1	1	**54**	501	24	1	**526**	**1,260**
12:45 to 13:45	9	1	0	**10**	658	43	0	**701**	52	1	1	**54**	495	27	1	**523**	**1,288**
13:00 to 14:00	6	1	0	**7**	670	40	0	**710**	53	0	0	**53**	500	25	2	**527**	**1,297**
13:15 to 14:15	8	1	0	**9**	710	38	0	**748**	59	0	0	**59**	487	29	2	**518**	**1,334**
13:30 to 14:30	7	1	0	**8**	743	33	0	**776**	52	1	0	**53**	479	29	1	**509**	**1,346**
13:45 to 14:45	5	0	0	**5**	795	32	0	**827**	60	1	0	**61**	490	27	1	**518**	**1,411**
14:00 to 15:00	6	1	0	**7**	864	30	0	**894**	68	4	0	**72**	513	29	0	**542**	**1,515**
14:15 to 15:15	5	1	0	**6**	897	40	0	**937**	69	5	0	**74**	557	23	0	**580**	**1,597**
14:30 to 15:30	6	1	0	**7**	969	45	0	**1,014**	79	4	0	**83**	567	25	0	**592**	**1,696**
14:45 to 15:45	7	1	0	**8**	1,019	47	1	**1,067**	69	4	0	**73**	575	25	0	**600**	**1,748**
15:00 to 16:00	9	0	0	**9**	1,095	47	2	**1,144**	70	3	0	**73**	551	26	0	**577**	**1,803**
15:15 to 16:15	10	1	0	**11**	1,154	37	2	**1,193**	83	2	0	**85**	547	30	0	**577**	**1,866**
15:30 to 16:30	10	1	0	**11**	1,173	32	2	**1,207**	81	3	0	**84**	554	26	0	**580**	**1,882**
15:45 to 16:45	9	1	0	**10**	1,201	31	1	**1,233**	98	3	0	**101**	555	23	0	**578**	**1,922**
16:00 to 17:00	7	1	0	**8**	1,164	26	1	**1,191**	103	2	0	**105**	590	17	0	**607**	**1,911**
16:15 to 17:15	9	0	0	**9**	1,173	29	1	**1,203**	95	2	0	**97**	606	14	1	**621**	**1,930**
16:30 to 17:30	7	0	0	**7**	1,204	28	2	**1,234**	110	1	0	**111**	634	10	1	**645**	**1,997**
16:45 to 17:45	8	0	0	**8**	1,176	24	3	**1,203**	113	1	0	**114**	651	8	2	**661**	**1,986**
17:00 to 18:00	9	0	0	**9**	1,185	25	2	**1,212**	116	1	0	**117**	673	7	2	**682**	**2,020**
17:15 to 18:15	7	0	1	**8**	1,205	21	3	**1,229**	130	1	0	**131**	682	4	1	**687**	**2,055**
17:30 to 18:30	7	0	1	**8**	1,125	17	2	**1,144**	134	2	0	**136**	675	4	2	**681**	**1,969**
17:45 to 18:45	8	0	1	**9**	1,131	16	2	**1,149**	130	2	0	**132**	701	5	1	**707**	**1,997**
18:00 to 19:00	7	0	1	**8**	1,062	15	2	**1,079**	132	1	1	**134**	654	6	1	**661**	**1,882**
12hr Totals	**96**	**9**	**5**	**110**	**9,256**	**398**	**15**	**9,669**	**1,099**	**49**	**11**	**1,159**	**7,972**	**313**	**24**	**8,309**	**19,247**

C.5.3 Hourly volume by movement

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 2. Old Canterbury Rd / Edward St / Weston St

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



MATRIX Traffic and Transport Data

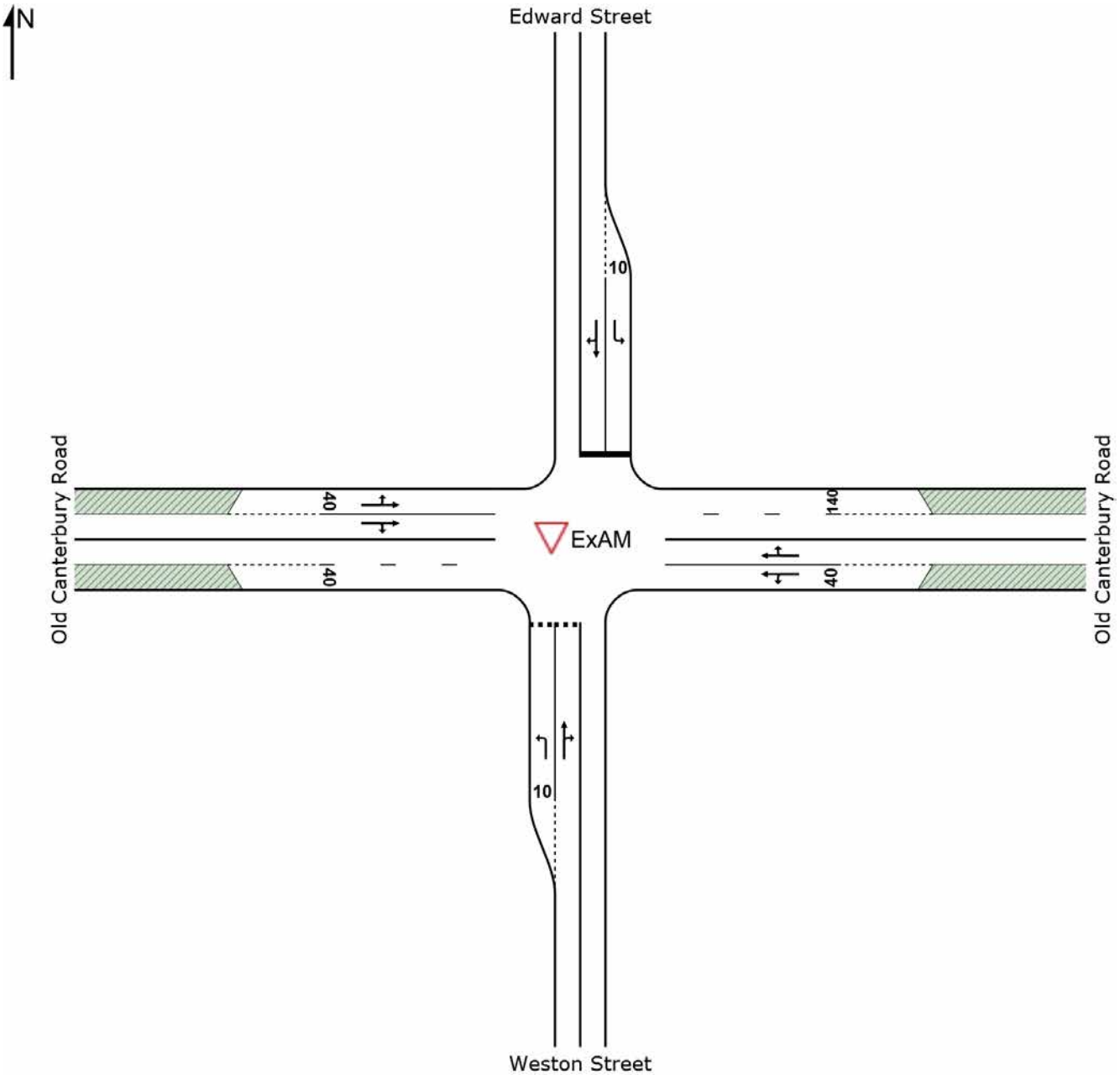
Approach	Weston St																Old Canterbury Rd															
Direction	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
7:00 to 8:00	5	1	0	**6**	0	0	0	**0**	3	0	0	**3**	0	0	0	**0**	3	0	1	**4**	492	23	0	**515**	58	3	1	**62**	0	0	0	**0**
7:15 to 8:15	6	2	0	**8**	0	1	0	**1**	1	0	0	**1**	0	0	0	**0**	2	0	1	**3**	499	22	1	**522**	69	2	0	**71**	0	0	0	**0**
7:30 to 8:30	5	2	0	**7**	0	1	0	**1**	3	1	0	**4**	0	0	0	**0**	2	1	1	**4**	522	25	1	**548**	78	1	0	**79**	0	0	0	**0**
7:45 to 8:45	2	1	0	**3**	0	1	0	**1**	2	1	0	**3**	0	0	0	**0**	1	1	1	**3**	515	25	1	**541**	72	1	0	**73**	0	0	0	**0**
8:00 to 9:00	3	1	0	**4**	1	1	0	**2**	3	1	0	**4**	0	0	0	**0**	1	1	0	**2**	507	30	1	**538**	73	0	1	**74**	0	0	0	**0**
8:15 to 9:15	3	0	0	**3**	1	0	0	**1**	5	1	0	**6**	0	0	0	**0**	5	1	1	**7**	491	27	0	**518**	64	0	1	**65**	0	0	0	**0**
8:30 to 9:30	2	0	0	**2**	1	0	0	**1**	4	0	0	**4**	0	0	0	**0**	5	0	1	**6**	464	31	0	**495**	58	1	1	**60**	0	0	0	**0**
8:45 to 9:45	3	0	0	**3**	1	0	0	**1**	6	0	0	**6**	0	0	0	**0**	6	0	1	**7**	462	32	3	**497**	54	1	1	**56**	0	0	0	**0**
9:00 to 10:00	4	0	0	**4**	0	0	1	**1**	6	0	0	**6**	0	0	0	**0**	7	0	1	**8**	425	33	3	**461**	48	1	0	**49**	0	0	0	**0**
9:15 to 10:15	4	0	0	**4**	0	0	1	**1**	6	0	0	**6**	0	0	0	**0**	4	0	0	**4**	415	35	3	**453**	47	3	0	**50**	0	0	0	**0**
9:30 to 10:30	5	0	0	**5**	1	0	1	**2**	5	0	0	**5**	0	0	0	**0**	4	0	0	**4**	439	32	3	**474**	44	2	0	**46**	0	0	0	**0**
9:45 to 10:45	4	0	0	**4**	2	0	1	**3**	5	0	1	**6**	0	0	0	**0**	3	0	0	**3**	433	33	0	**466**	40	2	0	**42**	0	0	0	**0**
10:00 to 11:00	2	0	0	**2**	2	0	0	**2**	7	0	1	**8**	0	0	0	**0**	2	0	0	**2**	431	30	0	**461**	37	3	0	**40**	0	0	0	**0**
10:15 to 11:15	2	0	0	**2**	3	0	0	**3**	7	0	1	**8**	0	0	0	**0**	3	0	0	**3**	452	30	0	**482**	32	1	0	**33**	0	0	0	**0**
10:30 to 11:30	2	1	0	**3**	2	0	2	**4**	9	0	1	**10**	0	0	0	**0**	4	2	0	**6**	454	34	0	**488**	29	2	0	**31**	0	0	0	**0**
10:45 to 11:45	2	1	0	**3**	1	0	2	**3**	7	0	0	**7**	0	0	0	**0**	6	2	0	**8**	467	45	0	**512**	30	5	0	**35**	0	0	0	**0**
11:00 to 12:00	2	1	0	**3**	1	0	2	**3**	4	1	0	**5**	0	0	0	**0**	5	2	0	**7**	523	42	0	**565**	34	4	0	**38**	0	0	0	**0**
11:15 to 12:15	1	1	0	**2**	1	0	2	**3**	2	1	0	**3**	0	0	0	**0**	4	2	0	**6**	519	42	0	**561**	36	4	0	**40**	0	0	0	**0**
11:30 to 12:30	1	0	0	**1**	2	0	0	**2**	0	1	0	**1**	0	0	0	**0**	5	0	0	**5**	524	42	0	**566**	40	3	0	**43**	0	0	0	**0**
11:45 to 12:45	1	0	0	**1**	3	0	0	**3**	2	1	0	**3**	0	0	0	**0**	7	0	0	**7**	529	35	0	**564**	39	1	0	**40**	0	0	0	**0**
12:00 to 13:00	1	0	0	**1**	5	0	0	**5**	3	0	0	**3**	0	0	0	**0**	7	0	0	**7**	519	42	0	**561**	44	1	0	**45**	0	0	0	**0**
12:15 to 13:15	1	0	0	**1**	4	0	0	**4**	3	0	0	**3**	0	0	0	**0**	6	0	0	**6**	547	45	0	**592**	45	1	0	**46**	0	0	0	**0**
12:30 to 13:30	0	0	0	**0**	4	0	0	**4**	5	0	0	**5**	0	0	0	**0**	4	0	0	**4**	579	44	0	**623**	42	2	0	**44**	0	0	0	**0**
12:45 to 13:45	0	0	0	**0**	5	0	0	**5**	4	1	0	**5**	0	0	0	**0**	2	0	0	**2**	617	41	0	**658**	39	2	0	**41**	0	0	0	**0**
13:00 to 14:00	0	0	0	**0**	3	0	0	**3**	3	1	0	**4**	0	0	0	**0**	2	0	0	**2**	629	38	0	**667**	39	2	0	**41**	0	0	0	**0**
13:15 to 14:15	1	0	0	**1**	3	0	0	**3**	4	1	0	**5**	0	0	0	**0**	3	0	0	**3**	663	36	0	**699**	44	2	0	**46**	0	0	0	**0**
13:30 to 14:30	2	0	0	**2**	3	0	0	**3**	2	1	0	**3**	0	0	0	**0**	4	0	0	**4**	693	31	0	**724**	46	2	0	**48**	0	0	0	**0**
13:45 to 14:45	2	0	0	**2**	2	0	0	**2**	1	0	0	**1**	0	0	0	**0**	4	0	0	**4**	740	31	0	**771**	51	1	0	**52**	0	0	0	**0**
14:00 to 15:00	2	0	0	**2**	3	0	0	**3**	1	1	0	**2**	0	0	0	**0**	6	0	0	**6**	811	29	0	**840**	47	1	0	**48**	0	0	0	**0**
14:15 to 15:15	2	0	0	**2**	3	0	0	**3**	0	1	0	**1**	0	0	0	**0**	5	0	0	**5**	843	37	0	**880**	49	3	0	**52**	0	0	0	**0**
14:30 to 15:30	3	0	0	**3**	3	0	0	**3**	0	1	0	**1**	0	0	0	**0**	7	0	0	**7**	898	43	0	**941**	64	2	0	**66**	0	0	0	**0**
14:45 to 15:45	4	0	0	**4**	2	0	0	**2**	1	1	0	**2**	0	0	0	**0**	11	0	0	**11**	927	44	1	**972**	81	3	0	**84**	0	0	0	**0**
15:00 to 16:00	5	0	0	**5**	1	0	0	**1**	3	0	0	**3**	0	0	0	**0**	13	0	0	**13**	979	43	2	**1,024**	103	4	0	**107**	0	0	0	**0**
15:15 to 16:15	4	1	0	**5**	1	0	0	**1**	5	0	0	**5**	0	0	0	**0**	17	1	0	**18**	1,028	34	2	**1,064**	109	2	0	**111**	0	0	0	**0**
15:30 to 16:30	4	1	0	**5**	1	0	0	**1**	5	0	0	**5**	0	0	0	**0**	18	1	0	**19**	1,042	29	2	**1,073**	113	2	0	**115**	0	0	0	**0**
15:45 to 16:45	3	1	0	**4**	1	0	0	**1**	5	0	0	**5**	0	0	0	**0**	17	1	0	**18**	1,077	29	1	**1,107**	107	1	0	**108**	0	0	0	**0**
16:00 to 17:00	3	1	0	**4**	1	0	0	**1**	3	0	0	**3**	0	0	0	**0**	16	1	0	**17**	1,058	25	1	**1,084**	90	0	0	**90**	0	0	0	**0**
16:15 to 17:15	6	0	0	**6**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	14	0	0	**14**	1,065	29	1	**1,095**	94	0	0	**94**	0	0	0	**0**
16:30 to 17:30	5	0	0	**5**	0	0	0	**0**	2	0	0	**2**	0	0	0	**0**	13	0	0	**13**	1,084	28	2	**1,114**	107	0	0	**107**	0	0	0	**0**
16:45 to 17:45	5	0	0	**5**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	10	0	0	**10**	1,056	24	3	**1,083**	110	0	0	**110**	0	0	0	**0**
17:00 to 18:00	6	0	0	**6**	1	0	0	**1**	2	0	0	**2**	0	0	0	**0**	9	0	0	**9**	1,043	25	2	**1,070**	133	0	0	**133**	0	0	0	**0**
17:15 to 18:15	3	0	0	**3**	2	0	1	**3**	2	0	0	**2**	0	0	0	**0**	13	0	1	**14**	1,050	21	2	**1,073**	142	0	0	**142**	0	0	0	**0**
17:30 to 18:30	3	0	0	**3**	2	0	1	**3**	2	0	0	**2**	0	0	0	**0**	11	0	1	**12**	988	17	1	**1,006**	126	0	0	**126**	0	0	0	**0**
17:45 to 18:45	5	0	0	**5**	2	0	1	**3**	1	0	0	**1**	0	0	0	**0**	10	0	1	**11**	990	16	1	**1,007**	131	0	0	**131**	0	0	0	**0**
18:00 to 19:00	4	0	0	**4**	2	0	1	**3**	1	0	0	**1**	0	0	0	**0**	10	0	1	**11**	947	15	1	**963**	105	0	0	**105**	0	0	0	**0**
12hr Totals	**37**	**4**	**0**	**41**	**20**	**1**	**4**	**25**	**39**	**4**	**1**	**44**	**0**	**0**	**0**	**0**	**81**	**4**	**3**	**88**	**8,364**	**375**	**10**	**8,749**	**811**	**19**	**2**	**832**	**0**	**0**	**0**	**0**

Approach	Edward St																Old Canterbury Rd																Crossing Pedestrians								
Direction	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)												
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	A	B	C	D	E	F	G	H	Total
7:00 to 8:00	127	2	1	130	5	0	1	6	5	4	0	9	0	0	0	0	24	1	0	25	986	40	4	1,030	6	1	0	7	0	0	0	0	7	12	0	5	7	3	5	0	39
7:15 to 8:15	145	3	1	149	5	0	1	6	5	4	0	9	0	0	0	0	16	0	1	17	967	39	5	1,011	3	1	0	4	0	0	0	0	6	10	0	1	6	3	4	0	30
7:30 to 8:30	146	2	1	149	4	0	1	5	7	4	0	11	0	0	0	0	13	0	3	16	950	39	4	993	5	0	0	5	0	0	0	0	6	10	0	0	8	1	3	0	28
7:45 to 8:45	140	2	1	143	6	0	1	7	5	3	0	8	0	0	0	0	13	1	5	19	918	30	6	954	6	0	0	6	0	0	0	0	3	8	0	0	6	0	0	0	17
8:00 to 9:00	125	3	0	128	8	0	0	8	6	2	0	8	0	0	0	0	10	1	5	16	887	28	4	919	8	0	0	8	0	0	0	0	1	6	0	0	5	0	0	0	12
8:15 to 9:15	106	3	0	109	7	0	0	7	7	3	0	10	0	0	0	0	16	1	4	21	874	30	3	907	13	0	0	13	0	0	0	0	5	6	0	1	5	0	0	0	17
8:30 to 9:30	106	3	0	109	6	0	0	6	8	2	0	10	0	0	0	0	24	2	2	28	841	27	3	871	11	0	0	11	0	0	0	0	5	6	0	1	3	0	0	0	15
8:45 to 9:45	95	4	0	99	5	0	1	6	8	3	0	11	0	0	0	0	26	1	0	27	827	31	1	859	10	0	1	11	0	0	0	0	5	9	0	1	7	0	1	1	24
9:00 to 10:00	99	9	0	108	2	0	1	3	9	4	0	13	0	0	0	0	28	1	0	29	798	34	1	833	8	0	1	9	0	0	0	0	5	7	2	1	4	0	1	1	21
9:15 to 10:15	98	10	0	108	3	0	2	5	8	3	0	11	0	0	0	0	26	2	0	28	726	33	1	760	3	0	1	4	0	0	0	0	0	5	2	0	4	0	1	1	13
9:30 to 10:30	81	11	0	92	3	0	2	5	8	5	3	16	0	0	0	0	21	1	1	23	691	36	1	728	2	0	1	3	0	0	0	0	0	5	2	1	5	0	1	1	15
9:45 to 10:45	67	11	0	78	2	0	1	3	8	3	3	14	0	0	0	0	19	1	1	21	648	33	0	681	3	0	0	3	0	0	0	0	0	3	2	1	1	2	0	1	10
10:00 to 11:00	61	5	0	66	2	0	1	3	12	3	3	18	0	0	0	0	16	1	1	18	634	33	0	667	3	1	0	4	0	0	0	0	1	3	0	1	1	2	0	1	9
10:15 to 11:15	56	3	0	59	0	0	0	0	13	3	3	19	0	0	0	0	14	0	1	15	608	32	1	641	3	1	0	4	0	0	0	0	3	2	0	1	1	2	1	1	11
10:30 to 11:30	50	3	0	53	1	0	0	1	11	2	0	13	0	0	0	0	16	0	0	16	562	30	1	593	5	1	0	6	0	0	0	0	3	2	0	0	0	3	2	2	12
10:45 to 11:45	42	1	0	43	3	0	0	3	12	3	0	15	0	0	0	0	15	0	0	15	561	35	1	597	3	2	0	5	0	0	0	0	3	0	0	0	0	3	2	1	9
11:00 to 12:00	33	1	0	34	3	0	0	3	9	2	0	11	0	0	0	0	22	0	0	22	529	33	1	563	5	1	0	6	0	0	0	0	2	0	1	0	1	3	2	1	10
11:15 to 12:15	27	1	0	28	6	0	2	8	9	3	0	12	0	0	0	0	20	0	0	20	535	35	1	571	5	1	0	6	0	0	0	0	0	0	1	0	1	3	1	2	8
11:30 to 12:30	33	0	0	33	5	0	2	7	8	3	0	11	0	0	0	0	13	0	1	14	557	35	1	593	5	1	0	6	0	0	0	0	0	1	1	0	1	2	0	1	6
11:45 to 12:45	42	0	0	42	3	0	2	5	8	2	0	10	0	0	0	0	14	0	1	15	528	28	1	557	6	0	0	6	0	0	0	0	0	1	1	0	1	0	0	2	5
12:00 to 13:00	41	1	1	43	3	0	2	5	7	2	0	9	0	0	0	0	10	0	1	11	513	28	1	542	4	0	0	4	0	0	0	0	0	2	1	0	0	0	0	2	5
12:15 to 13:15	39	1	1	41	0	0	0	0	6	1	0	7	0	0	0	0	13	0	1	14	500	23	0	523	3	0	0	3	0	0	0	0	0	2	1	1	0	1	0	1	6
12:30 to 13:30	43	1	1	45	0	0	0	0	9	0	0	9	0	0	0	0	17	1	0	18	481	23	1	505	3	0	0	3	0	0	0	0	0	1	1	1	0	2	0	1	6
12:45 to 13:45	42	1	1	44	0	0	0	0	10	0	0	10	0	0	0	0	20	2	0	22	472	25	1	498	3	0	0	3	0	0	0	0	0	1	1	1	0	3	0	1	7
13:00 to 14:00	41	0	0	41	2	0	0	2	10	0	0	10	0	0	0	0	28	2	0	30	469	23	2	494	3	0	0	3	0	0	0	0	2	0	1	1	0	3	1	1	9
13:15 to 14:15	45	0	0	45	2	0	0	2	12	0	0	12	0	0	0	0	24	3	0	27	460	26	2	488	3	0	0	3	0	0	0	0	3	0	1	0	0	2	1	1	8
13:30 to 14:30	41	1	0	42	2	0	0	2	9	0	0	9	0	0	0	0	22	2	0	24	455	26	1	482	2	1	0	3	0	0	0	0	4	1	1	0	0	1	1	2	10
13:45 to 14:45	47	1	0	48	2	0	0	2	11	0	0	11	0	0	0	0	20	1	0	21	468	25	1	494	2	1	0	3	0	0	0	0	4	1	1	0	0	0	1	1	8
14:00 to 15:00	53	2	0	55	0	0	0	0	15	2	0	17	0	0	0	0	14	2	0	16	497	26	0	523	2	1	0	3	0	0	0	0	3	1	1	0	1	1	0	1	8
14:15 to 15:15	52	3	0	55	0	0	0	0	17	2	0	19	0	0	0	0	17	1	0	18	537	21	0	558	3	1	0	4	0	0	0	0	4	3	4	0	2	1	0	1	15
14:30 to 15:30	56	2	0	58	3	0	0	3	20	2	0	22	0	0	0	0	20	1	0	21	545	23	0	568	2	1	0	3	0	0	0	0	10	2	5	0	2	3	0	0	22
14:45 to 15:45	47	2	0	49	4	0	0	4	18	2	0	20	0	0	0	0	24	1	0	25	549	23	0	572	2	1	0	3	0	0	0	0	12	4	6	0	3	6	0	0	31
15:00 to 16:00	50	3	0	53	4	0	0	4	16	0	0	16	0	0	0	0	21	0	0	21	527	25	0	552	3	1	0	4	0	0	0	0	11	5	6	0	2	6	0	0	30
15:15 to 16:15	60	2	0	62	4	0	0	4	19	0	0	19	0	0	0	0	21	0	0	21	523	29	0	552	3	1	0	4	0	0	0	0	11	4	3	0	2	6	0	0	26
15:30 to 16:30	63	2	0	65	1	0	0	1	17	1	0	18	0	0	0	0	15	1	0	16	535	25	0	560	4	0	0	4	0	0	0	0	4	4	3	0	2	5	0	0	18
15:45 to 16:45	78	2	0	80	2	0	0	2	18	1	0	19	0	0	0	0	15	1	0	16	537	22	0	559	3	0	0	3	0	0	0	0	4	3	2	0	1	2	0	0	12
16:00 to 17:00	82	0	0	82	2	0	0	2	19	2	0	21	0	0	0	0	14	1	0	15	572	16	0	588	4	0	0	4	0	0	0	0	7	2	1	0	1	1	0	0	12
16:15 to 17:15	78	0	0	78	2	0	0	2	15	2	0	17	0	0	0	0	15	1	1	17	585	13	0	598	6	0	0	6	0	0	0	0	7	1	4	0	2	2	0	0	16
16:30 to 17:30	92	0	0	92	3	0	0	3	15	1	0	16	0	0	0	0	21	0	1	22	605	10	0	615	8	0	0	8	0	0	0	0	8	1	3	0	5	3	0	1	21
16:45 to 17:45	99	0	0	99	1	0	0	1	13	1	0	14	0	0	0	0	18	0	2	20	625	8	0	633	8	0	0	8	0	0	0	0	9	2	8	0	6	8	1	1	35
17:00 to 18:00	105	0	0	105	1	0	0	1	10	1	0	11	0	0	0	0	25	0	2	27	640	7	0	647	8	0	0	8	0	0	0	0	6	2	8	0	6	8	1	1	32
17:15 to 18:15	121	0	0	121	1	0	0	1	8	1	0	9	0	0	0	0	28	0	1	29	646	4	0	650	8	0	0	8	0	0	0	0	7	2	5	0	4	7	1	1	27
17:30 to 18:30	122	0	0	122	0	0	0	0	12	2	0	14	0	0	0	0	26	0	1	27	642	4	0	646	7	0	1	8	0	0	0	0	7	3	5	0	1	5	3	0	24
17:45 to 18:45	117	0	0	117	1	0	0	1	12	2	0	14	0	0	0	0	36	1	0	37	657	4	0	661	8	0	1	9	0	0	0	0	4	1	1	0	0	0	2	0	8
18:00 to 19:00	113	0	1	114	1	0	0	1	18	1	0	19	0	0	0	0	33	1	0	34	614	5	0	619	7	0	1	8	0	0	0	0	6	1	1	0	1	0	2	0	11
12hr Totals	930	26	3	959	33	0	5	38	136	23	3	162	0	0	0	0	245	10	9	264	7,666	298	13	7,977	61	5	2	68	0	0	0	0	51	41	22	8	29	27	12	8	198

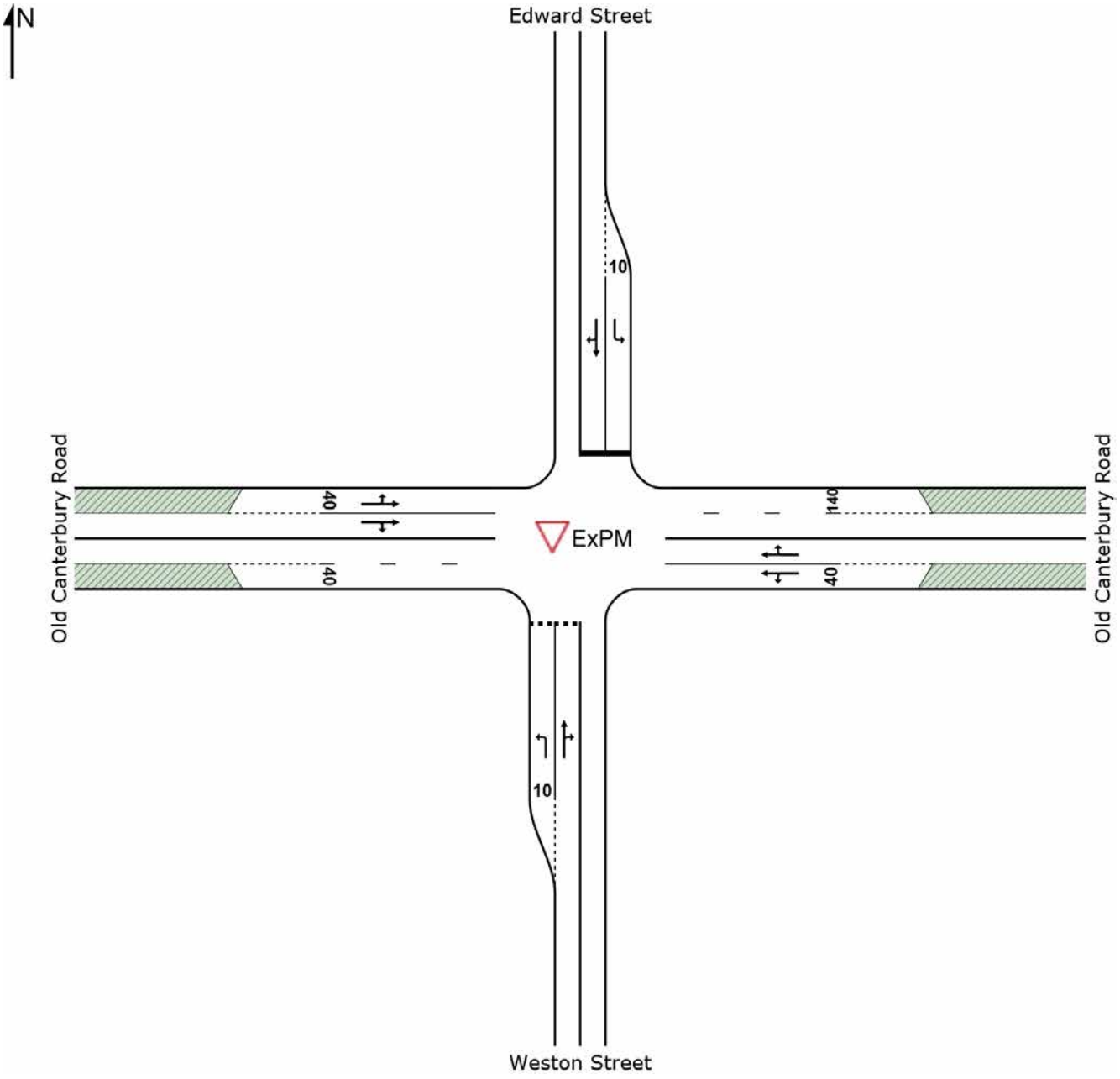
Appendix D. Old Canterbury Road Sidra outputs

D.1 Existing model layouts (with and without development)

D.1.1 Morning



D.1.2 Evening


N
Edward Street
10
Old Canterbury Road
40
ExPM
140
40
Old Canterbury Road
10
Weston Street

D.2 Existing model outputs (without development)

D.2.1 Morning

MOVEMENT SUMMARY

Site: ExAM [Old Canterbury Road / Weston Street / Edward Street AM (no development)]

Old Canterbury Road / Weston Street / Edward Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	7	28.6	0.007	5.8	LOS A	0.0	0.2	0.30	0.51	44.2
2	T1	2	50.0	0.122	47.1	LOS D	0.4	3.2	0.96	0.98	20.9
3	R2	4	25.0	0.122	92.8	LOS F	0.4	3.2	0.96	0.98	19.9
Approach		13	30.8	0.122	38.9	LOS C	0.4	3.2	0.60	0.73	28.6
East: Old Canterbury Road											
4	L2	3	33.3	0.104	4.9	LOS A	0.0	0.0	0.00	0.01	48.5
5	T1	547	4.6	0.380	3.9	LOS A	3.1	22.8	0.36	0.11	44.0
6	R2	79	1.3	0.380	16.1	LOS B	3.1	22.8	0.55	0.16	41.1
Approach		629	4.3	0.380	5.4	NA	3.1	22.8	0.38	0.11	43.6
North: Edward Street											
7	L2	148	1.4	0.205	10.5	LOS A	0.8	5.5	0.51	0.96	39.9
8	T1	4	0.0	0.380	64.7	LOS E	1.2	9.9	0.98	1.04	15.3
9	R2	11	36.4	0.380	153.8	LOS F	1.2	9.9	0.98	1.04	12.3
Approach		163	3.7	0.380	21.5	LOS B	1.2	9.9	0.55	0.97	32.9
West: Old Canterbury Road											
10	L2	13	0.0	0.228	4.6	LOS A	0.0	0.0	0.00	0.02	49.0
11	T1	989	3.9	0.306	0.1	LOS A	0.1	0.7	0.01	0.01	49.8
12	R2	5	0.0	0.306	8.8	LOS A	0.1	0.7	0.02	0.00	49.2
Approach		1007	3.9	0.306	0.2	NA	0.1	0.7	0.01	0.01	49.8
All Vehicles		1812	4.2	0.380	4.2	NA	3.1	22.8	0.19	0.14	45.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.2.2 Evening

MOVEMENT SUMMARY

Site: ExPM [Old Canterbury Road / Weston Street / Edward Street PM (no development)]

Old Canterbury Road / Weston Street / Edward Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	3	0.0	0.003	5.8	LOS A	0.0	0.1	0.36	0.52	44.5
2	T1	2	0.0	0.098	44.5	LOS D	0.3	1.9	0.97	0.99	19.5
3	R2	2	0.0	0.098	132.2	LOS F	0.3	1.9	0.97	0.99	18.4
Approach		7	0.0	0.098	53.0	LOS D	0.3	1.9	0.71	0.79	25.2
East: Old Canterbury Road											
4	L2	13	0.0	0.166	4.6	LOS A	0.0	0.0	0.00	0.02	49.1
5	T1	1071	2.0	0.606	2.5	LOS A	5.3	37.9	0.33	0.10	45.6
6	R2	142	0.0	0.606	13.2	LOS A	5.3	37.9	0.46	0.14	43.7
Approach		1226	1.7	0.606	3.7	NA	5.3	37.9	0.34	0.11	45.4
North: Edward Street											
7	L2	121	0.0	0.137	9.1	LOS A	0.5	3.6	0.39	0.90	40.8
8	T1	1	0.0	0.517	181.6	LOS F	1.5	11.2	0.99	1.03	8.0
9	R2	9	11.1	0.517	311.3	LOS F	1.5	11.2	0.99	1.03	6.2
Approach		131	0.8	0.517	31.1	LOS C	1.5	11.2	0.44	0.91	28.3
West: Old Canterbury Road											
10	L2	28	0.0	0.159	4.6	LOS A	0.0	0.0	0.00	0.05	48.7
11	T1	650	0.6	0.214	0.5	LOS A	0.4	3.0	0.05	0.03	48.8
12	R2	8	0.0	0.214	17.1	LOS B	0.4	3.0	0.09	0.01	48.2
Approach		686	0.6	0.214	0.9	NA	0.4	3.0	0.05	0.03	48.8
All Vehicles		2050	1.3	0.606	4.7	NA	5.3	37.9	0.25	0.14	44.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.3 Existing model outputs (with development)

D.3.1 Morning

MOVEMENT SUMMARY

Site: ExAM [Old Canterbury Road / Weston Street / Edward Street AM (with development)]

Old Canterbury Road / Weston Street / Edward Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Weston Street											
1	L2	7	28.6	0.008	6.0	LOS A	0.0	0.2	0.33	0.52	44.1
2	T1	2	50.0	0.181	61.9	LOS E	0.5	4.6	0.98	0.99	16.1
3	R2	4	25.0	0.181	145.6	LOS F	0.5	4.6	0.98	0.99	15.2
Approach		13	30.8	0.181	57.5	LOS E	0.5	4.6	0.63	0.74	23.9
East: Old Canterbury Road											
4	L2	3	33.3	0.123	4.9	LOS A	0.0	0.0	0.00	0.01	48.5
5	T1	566	4.4	0.450	5.1	LOS A	4.3	31.2	0.41	0.14	42.7
6	R2	106	0.9	0.450	17.6	LOS B	4.3	31.2	0.69	0.24	38.8
Approach		675	4.0	0.450	7.1	NA	4.3	31.2	0.45	0.16	42.1
North: Edward Street											
7	L2	247	0.8	0.339	11.2	LOS A	1.6	11.4	0.55	1.02	39.4
8	T1	4	0.0	1.056	355.3	LOS F	9.2	68.7	1.00	1.75	6.2
9	R2	47	8.5	1.056	406.2	LOS F	9.2	68.7	1.00	1.75	4.7
Approach		298	2.0	1.056	78.1	LOS F	9.2	68.7	0.63	1.15	17.2
West: Old Canterbury Road											
10	L2	29	0.0	0.235	4.6	LOS A	0.0	0.0	0.00	0.04	48.8
11	T1	1006	3.9	0.316	0.1	LOS A	0.1	0.8	0.01	0.02	49.7
12	R2	5	0.0	0.316	9.0	LOS A	0.1	0.8	0.02	0.00	49.2
Approach		1040	3.8	0.316	0.2	NA	0.1	0.8	0.01	0.02	49.7
All Vehicles		2026	3.8	1.056	14.3	NA	9.2	68.7	0.25	0.24	36.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.3.2 Evening

MOVEMENT SUMMARY

Site: ExPM [Old Canterbury Road / Weston Street / Edward Street PM (with development)]

Old Canterbury Road / Weston Street / Edward Street
Giveway / Yield (Two-Way)

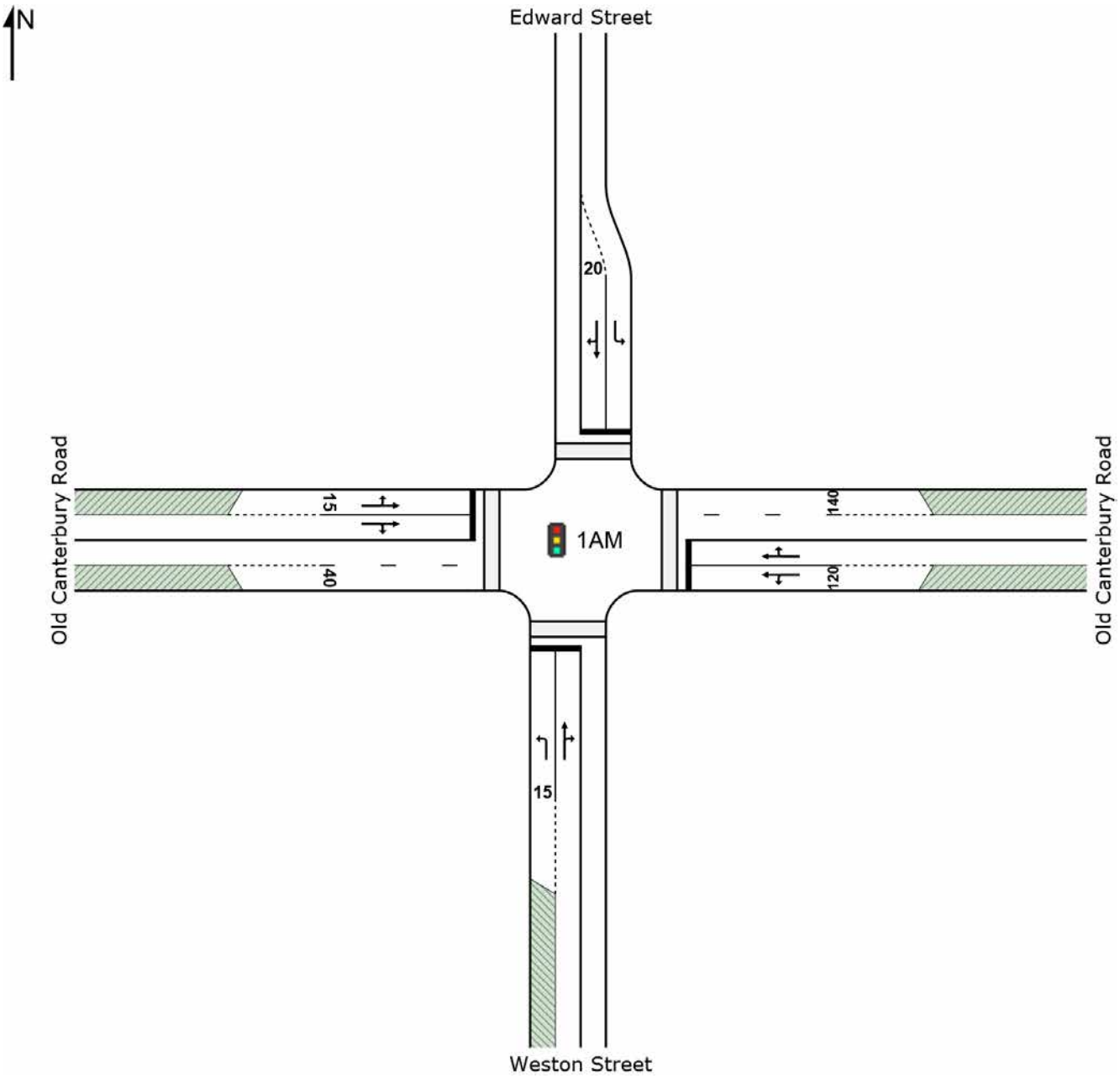
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	3	0.0	0.003	6.0	LOS A	0.0	0.1	0.38	0.53	44.4
2	T1	2	0.0	0.159	60.9	LOS E	0.4	2.9	0.98	0.99	14.2
3	R2	2	0.0	0.159	224.8	LOS F	0.4	2.9	0.98	0.99	13.3
Approach		7	0.0	0.159	84.2	LOS F	0.4	2.9	0.73	0.80	19.5
East: Old Canterbury Road											
4	L2	13	0.0	0.188	4.6	LOS A	0.0	0.0	0.00	0.02	49.1
5	T1	1084	1.9	0.688	4.0	LOS A	8.5	60.0	0.45	0.16	43.7
6	R2	194	0.0	0.688	15.5	LOS B	8.5	60.0	0.66	0.22	41.1
Approach		1291	1.6	0.688	5.7	NA	8.5	60.0	0.47	0.17	43.3
North: Edward Street											
7	L2	225	0.0	0.252	9.2	LOS A	1.0	7.3	0.42	0.91	40.8
8	T1	1	0.0	2.042	2140.1	LOS F	27.9	200.4	1.00	2.28	1.2
9	R2	34	2.9	2.042	2268.9	LOS F	27.9	200.4	1.00	2.28	0.9
Approach		260	0.4	2.042	312.9	LOS F	27.9	200.4	0.50	1.09	5.7
West: Old Canterbury Road											
10	L2	59	0.0	0.172	4.6	LOS A	0.0	0.0	0.00	0.10	48.2
11	T1	674	0.6	0.231	0.6	LOS A	0.4	3.1	0.05	0.05	48.6
12	R2	8	0.0	0.231	17.6	LOS B	0.4	3.1	0.08	0.01	48.2
Approach		741	0.5	0.231	1.1	NA	0.4	3.1	0.05	0.05	48.6
All Vehicles		2299	1.1	2.042	39.2	NA	27.9	200.4	0.34	0.24	24.7

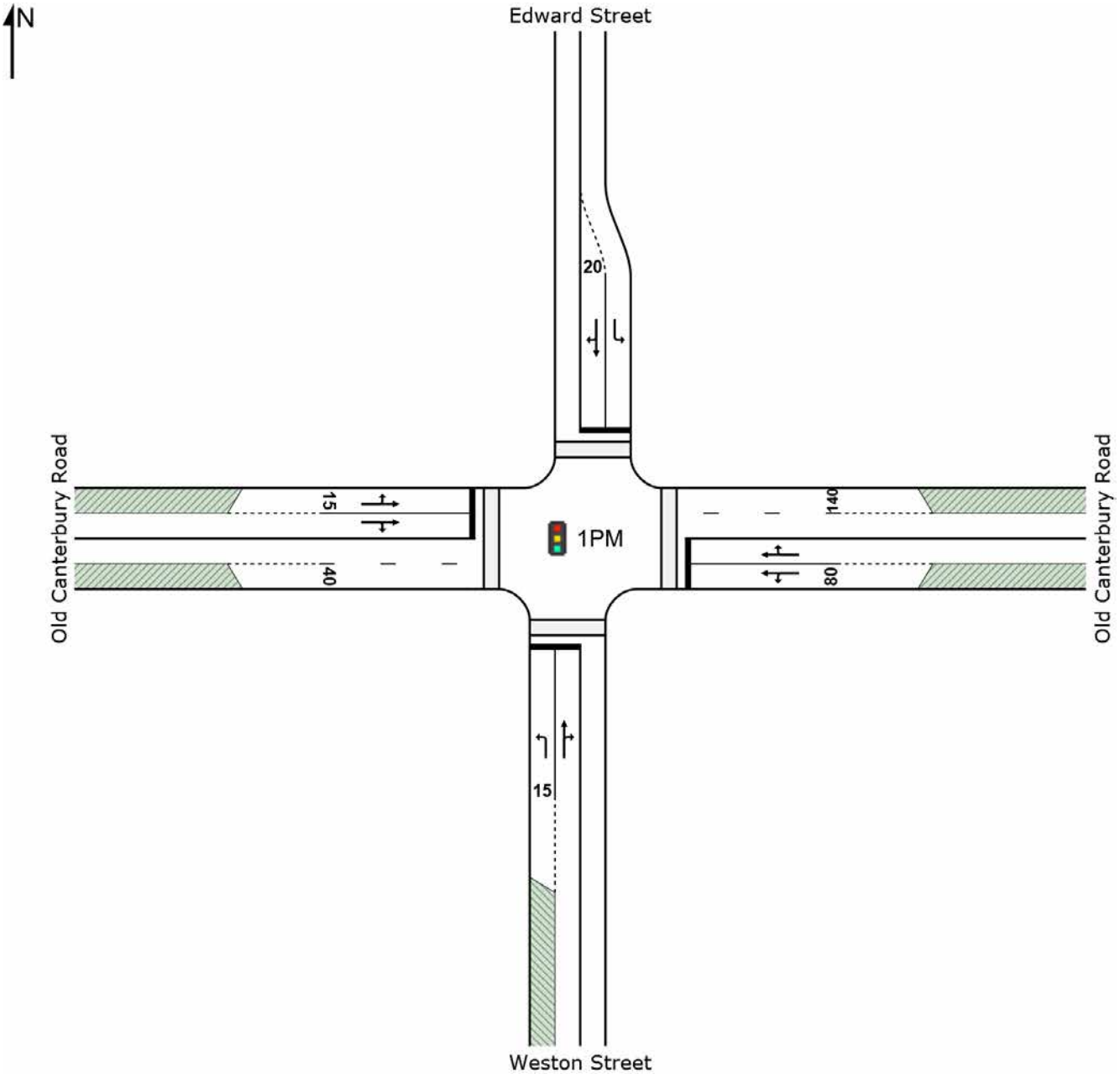
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.4 Option 2A model layouts

D.4.1 Morning



D.4.2 Evening


N
Edward Street
20
Old Canterbury Road
15
40
1PM
140
80
Old Canterbury Road
15
Weston Street

D.5 Option 2A model outputs

D.5.1 Morning

MOVEMENT SUMMARY

Site: 1AM [Old Canterbury Road / Weston Street / Edward Street AM option 2A]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	7	28.6	0.091	67.1	LOS E	0.4	3.6	0.98	0.66	22.2
2	T1	2	50.0	0.078	62.2	LOS E	0.4	3.2	0.98	0.65	23.1
3	R2	4	25.0	0.078	67.0	LOS E	0.4	3.2	0.98	0.65	21.8
Approach		13	30.8	0.091	66.3	LOS E	0.4	3.6	0.98	0.66	22.2
East: Old Canterbury Road											
4	L2	3	33.3	0.249	15.4	LOS B	7.5	54.4	0.47	0.41	40.6
5	T1	566	4.4	0.909	36.8	LOS C	28.5	205.6	0.73	0.78	25.1
6	R2	106	0.9	0.909	69.1	LOS E	28.5	205.6	1.00	1.16	18.7
Approach		675	4.0	0.909	41.8	LOS C	28.5	205.6	0.77	0.83	23.8
North: Edward Street											
7	L2	247	0.8	0.871	66.8	LOS E	15.9	112.2	1.00	0.98	18.6
8	T1	4	0.0	0.165	45.7	LOS D	2.6	19.1	0.89	0.73	26.5
9	R2	47	8.5	0.165	50.4	LOS D	2.6	19.1	0.89	0.73	22.5
Approach		298	2.0	0.871	63.9	LOS E	15.9	112.2	0.98	0.94	19.3
West: Old Canterbury Road											
10	L2	29	0.0	0.665	15.0	LOS B	7.3	52.7	0.47	0.43	39.1
11	T1	1006	3.9	0.894	26.6	LOS B	38.0	275.0	0.66	0.69	29.2
12	R2	5	0.0	0.894	36.8	LOS C	38.0	275.0	0.72	0.78	31.1
Approach		1040	3.8	0.894	26.4	LOS B	38.0	275.0	0.65	0.68	29.5
All Vehicles		2026	3.8	0.909	37.3	LOS C	38.0	275.0	0.74	0.77	25.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.5.2 Evening

MOVEMENT SUMMARY

Site: 1PM [Old Canterbury Road / Weston Street / Edward Street PM option 2A]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

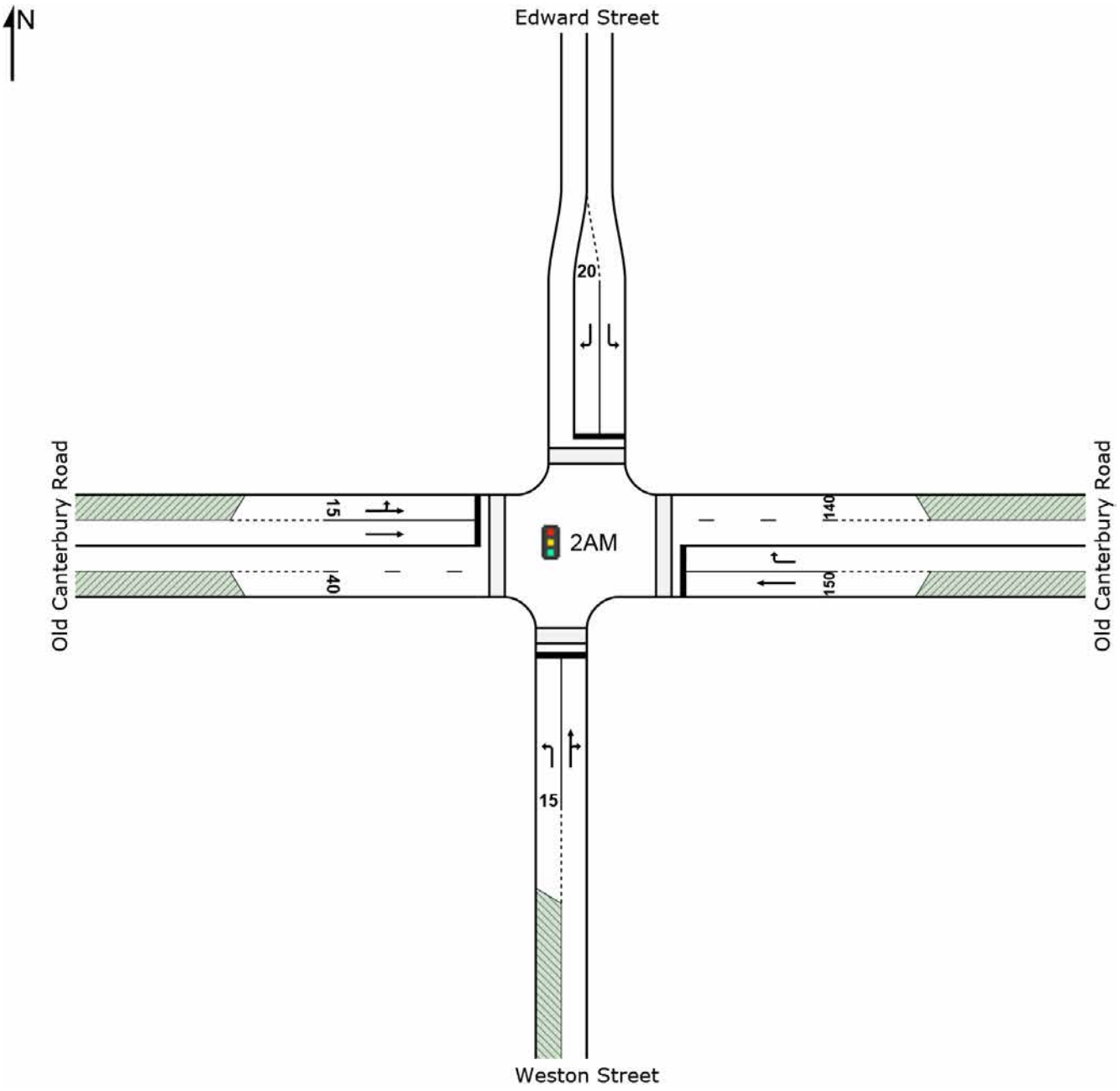
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	3	0.0	0.032	65.3	LOS E	0.2	1.2	0.97	0.62	22.6
2	T1	2	0.0	0.042	60.8	LOS E	0.2	1.6	0.97	0.63	23.6
3	R2	2	0.0	0.042	65.4	LOS E	0.2	1.6	0.97	0.63	22.4
Approach		7	0.0	0.042	64.1	LOS E	0.2	1.6	0.97	0.63	22.8
East: Old Canterbury Road											
4	L2	13	0.0	0.266	9.5	LOS A	6.8	48.7	0.34	0.31	45.0
5	T1	1084	1.9	0.974	53.8	LOS D	67.3	477.3	0.77	1.04	20.4
6	R2	194	0.0	0.974	83.8	LOS F	67.3	477.3	1.00	1.42	16.5
Approach		1291	1.6	0.974	57.9	LOS E	67.3	477.3	0.80	1.09	19.8
North: Edward Street											
7	L2	225	0.0	0.430	28.0	LOS B	8.2	57.1	0.83	0.78	29.1
8	T1	1	0.0	0.384	63.7	LOS E	2.1	15.3	1.00	0.73	22.6
9	R2	34	2.9	0.384	68.3	LOS E	2.1	15.3	1.00	0.73	18.9
Approach		260	0.4	0.430	33.4	LOS C	8.2	57.1	0.86	0.77	27.1
West: Old Canterbury Road											
10	L2	59	0.0	0.707	29.2	LOS C	10.4	72.8	0.69	0.64	30.7
11	T1	674	0.6	0.951	58.6	LOS E	35.4	249.2	0.82	1.01	19.5
12	R2	8	0.0	0.951	78.2	LOS F	35.4	249.2	0.87	1.17	21.1
Approach		741	0.5	0.951	56.5	LOS E	35.4	249.2	0.81	0.98	20.2
All Vehicles		2299	1.1	0.974	54.7	LOS D	67.3	477.3	0.81	1.02	20.6

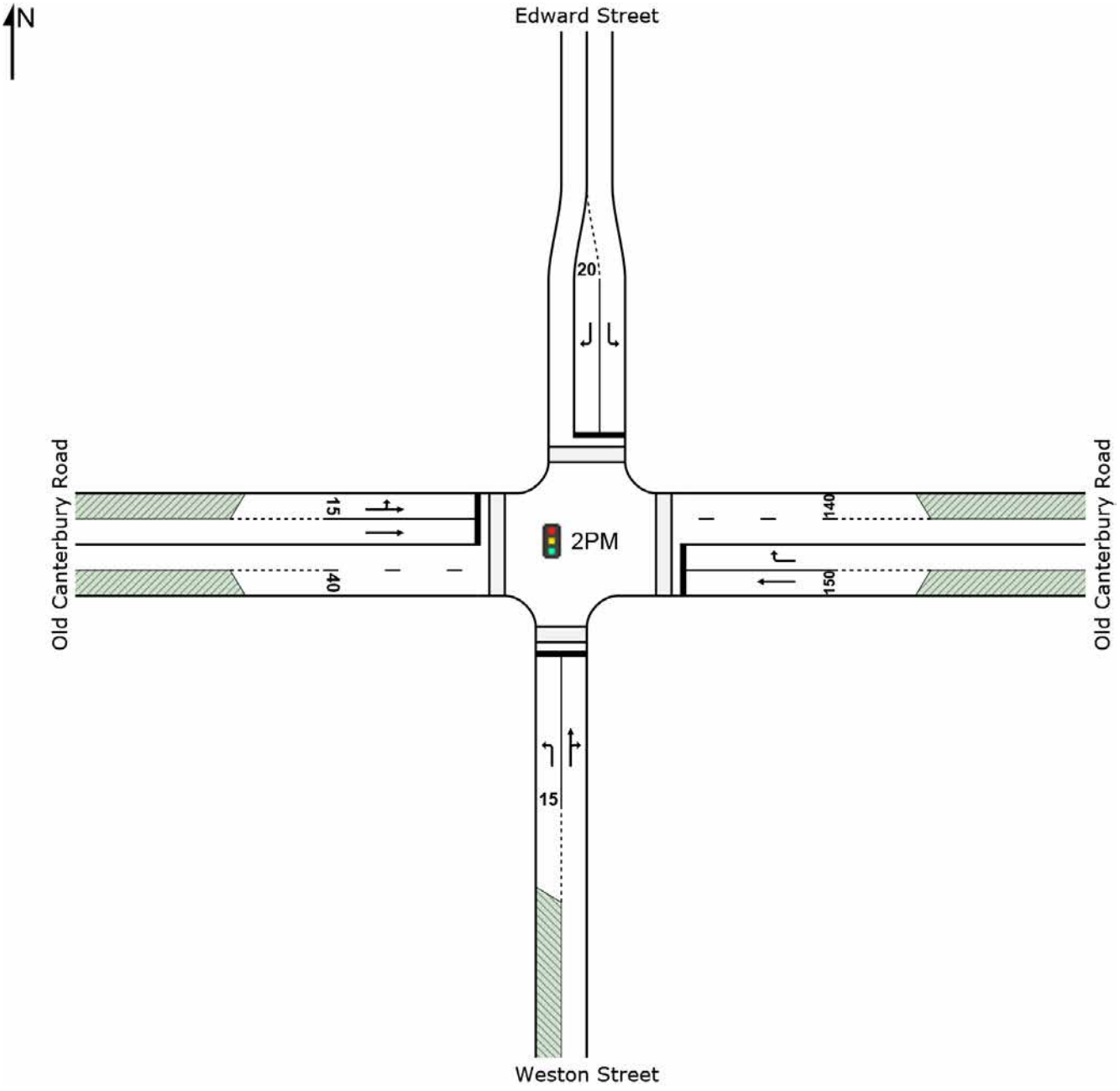
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.6 Option 2B model layouts

D.6.1 Morning



D.6.2 Evening


N
Edward Street
20
Old Canterbury Road
15
40
2PM
140
150
Old Canterbury Road
15
Weston Street

D.7 Option 2B model outs

D.7.1 Morning

MOVEMENT SUMMARY

Site: 2AM [Old Canterbury Road / Weston Street / Edward Street AM option 2B]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	7	28.6	0.091	67.1	LOS E	0.4	3.6	0.98	0.66	22.2
2	T1	2	50.0	0.078	62.2	LOS E	0.4	3.2	0.98	0.65	23.1
3	R2	4	25.0	0.078	67.0	LOS E	0.4	3.2	0.98	0.65	21.7
Approach		13	30.8	0.091	66.3	LOS E	0.4	3.6	0.98	0.66	22.2
East: Old Canterbury Road											
5	T1	569	4.6	0.487	13.3	LOS A	17.9	130.4	0.59	0.53	36.9
6	R2	106	0.9	0.580	40.2	LOS C	5.3	37.6	0.86	0.81	24.7
Approach		675	4.0	0.580	17.5	LOS B	17.9	130.4	0.63	0.58	34.1
North: Edward Street											
7	L2	247	0.8	0.831	61.8	LOS E	15.1	106.7	1.00	0.94	19.5
9	R2	51	7.8	0.158	49.4	LOS D	2.5	18.9	0.88	0.74	22.7
Approach		298	2.0	0.831	59.7	LOS E	15.1	106.7	0.98	0.90	20.0
West: Old Canterbury Road											
10	L2	29	0.0	0.640	15.4	LOS B	6.8	49.0	0.48	0.43	38.9
11	T1	1006	3.9	0.861	20.3	LOS B	33.5	242.2	0.65	0.64	32.4
Approach		1035	3.8	0.861	20.2	LOS B	33.5	242.2	0.64	0.63	32.6
All Vehicles		2021	3.8	0.861	25.4	LOS B	33.5	242.2	0.69	0.65	30.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.7.2 Evening

MOVEMENT SUMMARY

Site: 2PM [Old Canterbury Road / Weston Street / Edward Street PM option 2B]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

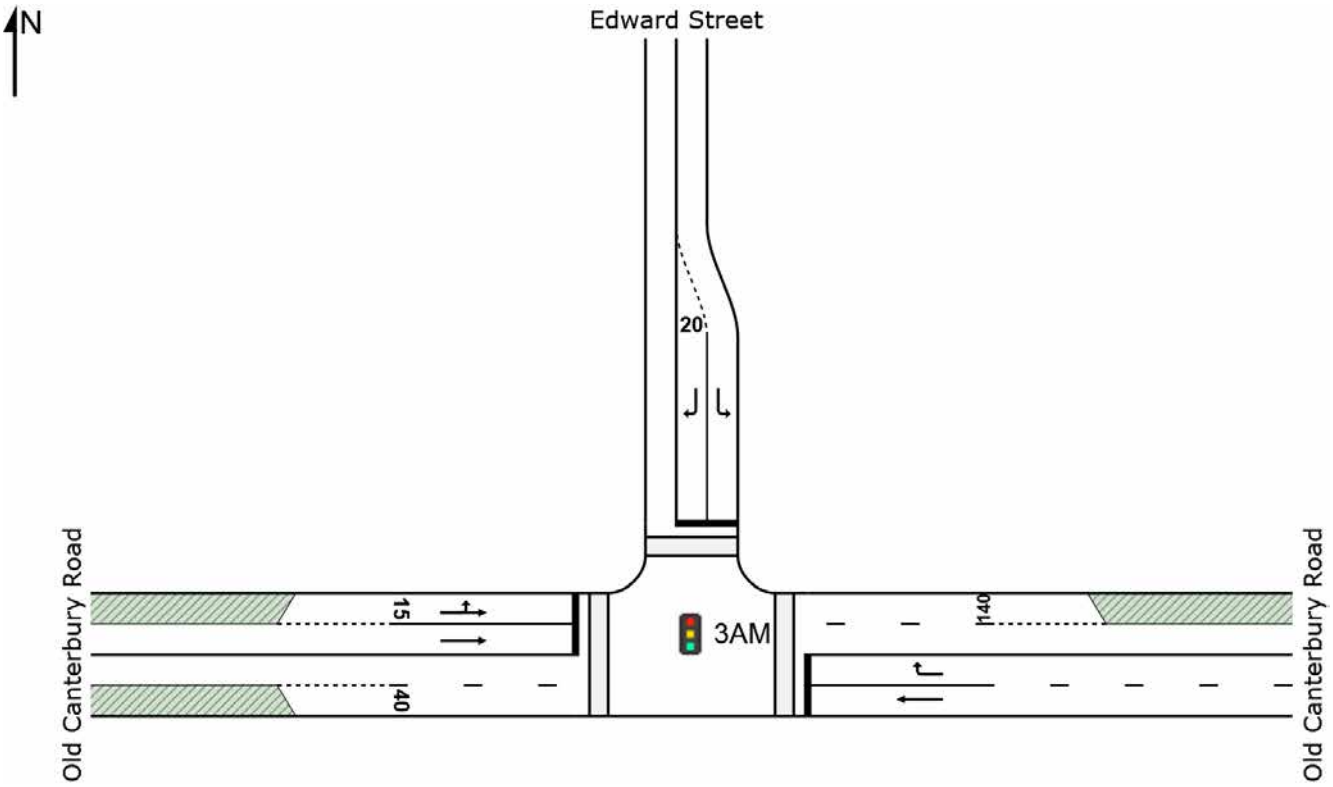
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Weston Street											
1	L2	3	0.0	0.032	65.3	LOS E	0.2	1.2	0.97	0.62	22.6
2	T1	2	0.0	0.042	60.8	LOS E	0.2	1.6	0.97	0.63	23.6
3	R2	2	0.0	0.042	65.4	LOS E	0.2	1.6	0.97	0.63	22.4
Approach		7	0.0	0.042	64.1	LOS E	0.2	1.6	0.97	0.63	22.8
East: Old Canterbury Road											
5	T1	1097	1.9	0.815	9.2	LOS A	36.5	260.0	0.63	0.60	40.2
6	R2	194	0.0	0.336	19.4	LOS B	6.4	45.0	0.64	0.74	33.3
Approach		1291	1.6	0.815	10.7	LOS A	36.5	260.0	0.64	0.62	38.9
North: Edward Street											
7	L2	225	0.0	0.624	37.4	LOS C	9.9	69.0	0.95	0.81	25.6
9	R2	35	2.9	0.385	68.3	LOS E	2.1	15.3	1.00	0.73	18.8
Approach		260	0.4	0.624	41.6	LOS C	9.9	69.0	0.96	0.80	24.4
West: Old Canterbury Road											
10	L2	59	0.0	0.491	19.7	LOS B	7.0	49.3	0.56	0.53	35.6
11	T1	674	0.6	0.660	17.2	LOS B	17.7	124.7	0.64	0.57	34.1
Approach		733	0.5	0.660	17.4	LOS B	17.7	124.7	0.63	0.57	34.3
All Vehicles		2291	1.1	0.815	16.5	LOS B	36.5	260.0	0.67	0.62	34.8

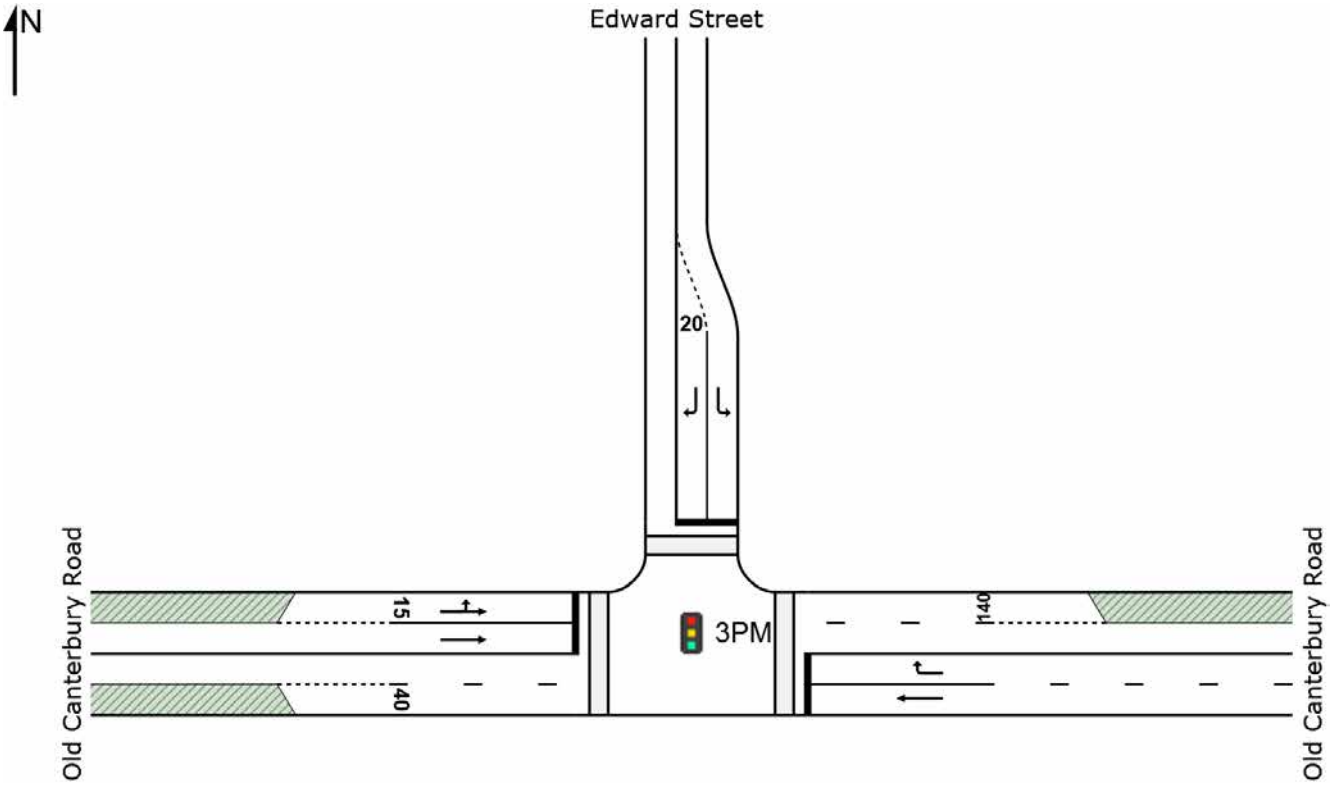
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.8 Option 2C model layouts

D.8.1 Morning



D.8.2 Evening


N
Edward Street
20
Old Canterbury Road
15
40
3PM
140
Old Canterbury Road

D.9 Option 2C model outputs

D.9.1 Morning

MOVEMENT SUMMARY

Site: 3AM [Old Canterbury Road / Weston Street / Edward Street AM option 2C]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Old Canterbury Road											
5	T1	569	4.6	0.429	8.1	LOS A	14.0	101.7	0.46	0.42	41.1
6	R2	106	0.9	0.446	25.0	LOS B	4.1	28.7	0.67	0.75	30.4
Approach		675	4.0	0.446	10.8	LOS A	14.0	101.7	0.50	0.47	38.9
North: Edward Street											
7	L2	247	0.8	0.761	55.7	LOS D	14.1	99.6	0.98	0.88	20.7
9	R2	51	7.8	0.145	47.4	LOS D	2.5	18.5	0.86	0.73	23.2
Approach		298	2.0	0.761	54.3	LOS D	14.1	99.6	0.96	0.85	21.1
West: Old Canterbury Road											
10	L2	31	3.2	0.558	11.4	LOS A	6.3	45.6	0.38	0.36	42.0
11	T1	1010	4.0	0.750	8.6	LOS A	20.5	148.6	0.49	0.45	40.6
Approach		1041	3.9	0.750	8.7	LOS A	20.5	148.6	0.49	0.45	40.7
All Vehicles		2014	3.7	0.761	16.1	LOS B	20.5	148.6	0.56	0.51	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D.9.2 Evening

MOVEMENT SUMMARY

Site: 3PM [Old Canterbury Road / Weston Street / Edward Street PM option 2C]

Old Canterbury Road / Weston Street / Edward Street
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Old Canterbury Road											
5	T1	1097	1.9	0.670	3.3	LOS A	21.9	155.5	0.38	0.36	46.0
6	R2	194	0.0	0.282	11.6	LOS A	4.4	30.9	0.46	0.69	38.1
Approach		1291	1.6	0.670	4.6	LOS A	21.9	155.5	0.39	0.41	44.5
North: Edward Street											
7	L2	225	0.0	0.483	42.3	LOS C	10.8	75.3	0.87	0.80	24.1
9	R2	35	2.9	0.385	68.3	LOS E	2.1	15.3	1.00	0.73	18.8
Approach		260	0.4	0.483	45.8	LOS D	10.8	75.3	0.88	0.79	23.2
West: Old Canterbury Road											
10	L2	61	0.0	0.423	15.3	LOS B	6.5	45.4	0.47	0.47	38.5
11	T1	676	0.6	0.569	11.9	LOS A	14.1	99.1	0.53	0.48	37.8
Approach		737	0.5	0.569	12.2	LOS A	14.1	99.1	0.52	0.48	37.8
All Vehicles		2288	1.1	0.670	11.7	LOS A	21.9	155.5	0.49	0.47	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix E. Traffic count data – Ewart Street

E.1 Ewart Street (west of Terrace Road) midblock volumes

E.1.1 Eastbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Ewart Street - west of Terrace Road
Location	Dulwich Hill
Site No	3A
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

Hour	Day of Week								
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
Starting	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	W'Day Ave	7 Day Ave
AM Peak	304	354	342	342	348	259	169		
PM Peak	216	225	234	247	236	263	179	**3023**	**2877**
0:00	17	14	13	23	13	24	35	16	20
1:00	9	7	7	6	9	22	31	8	13
2:00	4	5	5	5	4	17	16	5	8
3:00	10	9	9	10	9	14	19	9	11
4:00	23	19	25	17	19	18	10	21	19
5:00	57	59	46	45	60	34	23	53	46
6:00	152	158	144	153	145	66	39	150	122
7:00	239	276	252	271	267	110	53	261	210
8:00	304	354	342	342	348	168	75	338	276
9:00	202	240	198	199	186	209	133	205	195
10:00	137	151	126	143	156	259	169	143	163
11:00	138	150	134	148	171	234	166	148	163
12:00	111	111	132	120	123	263	179	119	148
13:00	122	107	138	128	150	207	166	129	145
14:00	144	191	184	173	163	212	137	171	172
15:00	216	184	234	214	219	184	137	213	198
16:00	191	195	210	216	226	158	135	208	190
17:00	210	225	216	247	236	146	151	227	204
18:00	209	205	193	204	208	165	129	204	188
19:00	111	143	155	145	152	125	83	141	131
20:00	81	86	111	92	112	110	89	96	97
21:00	67	64	79	68	82	63	60	72	69
22:00	54	40	51	65	66	59	52	55	55
23:00	20	21	29	41	41	42	26	30	31
Total	2828	3014	3033	3075	3165	2909	2113	3023	2877

7-19	2223	2389	2359	2405	2453	2315	1630	2366	2253
6-22	2634	2840	2848	2863	2944	2679	1901	2826	2673
6-24	2708	2901	2928	2969	3051	2780	1979	2911	2759
0-24	2828	3014	3033	3075	3165	2909	2113	3023	2877

E.1.2 Westbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Ewart Street - west of Terrace Road
Location	Dulwich Hill
Site No	3A
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	222	172	193	167	198	224	129		
PM Peak	266	276	277	269	286	217	171	2760	2624
0:00	20	17	18	16	13	33	39	17	22
1:00	5	9	16	7	12	16	24	10	13
2:00	8	10	12	8	4	14	14	8	10
3:00	3	4	1	5	9	13	7	4	6
4:00	8	8	18	9	8	9	8	10	10
5:00	29	25	19	23	25	15	9	24	21
6:00	71	64	60	67	68	34	18	66	55
7:00	152	147	151	163	147	62	30	152	122
8:00	222	172	193	167	198	140	69	190	166
9:00	180	143	138	145	148	180	85	151	146
10:00	147	121	99	107	124	216	121	120	134
11:00	123	129	129	106	147	224	129	127	141
12:00	146	141	119	132	135	217	160	135	150
13:00	155	135	134	116	171	206	171	142	155
14:00	143	148	162	174	149	206	151	155	162
15:00	266	246	277	252	283	195	151	265	239
16:00	239	251	246	243	261	136	132	248	215
17:00	261	276	264	234	286	145	161	264	232
18:00	230	225	219	269	244	160	146	237	213
19:00	147	148	141	186	189	116	97	162	146
20:00	79	121	102	138	116	111	80	111	107
21:00	70	80	87	82	71	60	69	78	74
22:00	44	36	51	56	74	79	42	52	55
23:00	25	19	41	35	32	40	26	30	31
Total	2773	2675	2697	2740	2914	2627	1939	2760	2624

7-19	2264	2134	2131	2108	2293	2087	1506	2186	2075
6-22	2631	2547	2521	2581	2737	2408	1770	2603	2456
6-24	2700	2602	2613	2672	2843	2527	1838	2686	2542
0-24	2773	2675	2697	2740	2914	2627	1939	2760	2624

E.2 Ewart Street (east of Terrace Road) midblock volumes

E.2.1 Eastbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Ewart Street - east of Terrace Road
Location	Dulwich Hill
Site No	3C
Start Date	6-Feb-18
Description	Volume Summary
Direction	EB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	470	470	473	505	515	382	269		
PM Peak	415	373	423	406	461	397	284	4768	4538
0:00	23	25	18	28	14	42	63	22	30
1:00	11	9	6	11	13	26	43	10	17
2:00	6	7	8	5	7	26	23	7	12
3:00	13	13	12	11	13	17	20	12	14
4:00	29	23	30	21	22	20	16	25	23
5:00	93	86	81	68	80	52	41	82	72
6:00	193	212	195	207	196	105	55	201	166
7:00	345	383	362	363	374	131	70	365	290
8:00	470	470	473	505	515	242	121	487	399
9:00	300	353	324	319	285	307	210	316	300
10:00	195	218	201	209	224	382	255	209	241
11:00	206	215	211	219	248	370	269	220	248
12:00	185	172	190	183	208	397	284	188	231
13:00	181	180	203	197	246	374	233	201	231
14:00	224	275	272	266	242	320	198	256	257
15:00	415	359	423	384	461	292	227	408	366
16:00	353	335	361	392	382	253	232	365	330
17:00	337	373	367	406	384	252	249	373	338
18:00	342	349	350	353	357	278	209	350	320
19:00	195	242	266	246	251	202	148	240	221
20:00	147	163	186	154	174	183	146	165	165
21:00	106	119	133	135	132	126	105	125	122
22:00	91	70	83	102	108	107	84	91	92
23:00	34	35	44	65	74	79	43	50	53
Total	4494	4686	4799	4849	5010	4583	3344	4768	4538

7-19	3553	3682	3737	3796	3926	3598	2557	3739	3550
6-22	4194	4418	4517	4538	4679	4214	3011	4469	4224
6-24	4319	4523	4644	4705	4861	4400	3138	4610	4370
0-24	4494	4686	4799	4849	5010	4583	3344	4768	4538

E.2.2 Westbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Ewart Street - east of Terrace Road
Location	Dulwich Hill
Site No	3C
Start Date	6-Feb-18
Description	Volume Summary
Direction	WB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week Mon 12-Feb	Tue 6-Feb	Wed 7-Feb	Thu 8-Feb	Fri 9-Feb	Sat 10-Feb	Sun 11-Feb	W'Day Ave	7 Day Ave
AM Peak	456	408	399	406	439	352	204		
PM Peak	385	387	392	409	405	327	260	**4340**	**4134**
0:00	25	24	20	22	20	47	57	22	31
1:00	8	12	17	12	17	20	37	13	18
2:00	10	11	17	10	8	26	22	11	15
3:00	4	6	5	6	11	15	14	6	9
4:00	10	12	20	11	12	12	12	13	13
5:00	35	30	34	34	36	19	16	34	29
6:00	113	100	109	113	110	54	26	109	89
7:00	310	299	304	304	279	89	53	299	234
8:00	456	408	399	406	439	202	107	422	345
9:00	266	230	217	225	233	273	149	234	228
10:00	203	190	165	167	166	315	196	178	200
11:00	188	178	186	170	199	352	204	184	211
12:00	228	182	184	196	204	327	235	199	222
13:00	209	182	202	196	241	325	260	206	231
14:00	238	243	241	293	262	310	241	255	261
15:00	372	346	361	351	397	300	241	365	338
16:00	319	337	354	338	365	226	211	343	307
17:00	385	387	392	351	405	251	256	384	347
18:00	334	355	337	409	378	269	233	363	331
19:00	232	250	257	279	278	191	162	259	236
20:00	125	187	173	196	174	211	139	171	172
21:00	113	124	146	140	117	107	115	128	123
22:00	81	68	92	87	124	121	75	90	93
23:00	32	39	62	55	63	72	42	50	52
Total	4296	4200	4294	4371	4538	4134	3103	4340	4134

7-19	3508	3337	3342	3406	3568	3239	2386	3432	3255
6-22	4091	3998	4027	4134	4247	3802	2828	4099	3875
6-24	4204	4105	4181	4276	4434	3995	2945	4240	4020
0-24	4296	4200	4294	4371	4538	4134	3103	4340	4134

E.3 Terrace Road midblock volumes

E.3.1 Northbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Terrace Road - north of Ewart St
Location	Dulwich Hill
Site No	3B
Start Date	6-Feb-18
Description	Volume Summary
Direction	NB

Menu

MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	272	280	253	273	279	171	97		
PM Peak	171	146	159	152	165	145	120	1972	1879
0:00	10	10	6	8	9	17	22	9	12
1:00	4	4	5	6	5	9	16	5	7
2:00	2	2	5	3	4	12	9	3	5
3:00	2	1	3	1	1	4	8	2	3
4:00	2	6	5	3	4	4	4	4	4
5:00	8	17	18	15	14	9	7	14	13
6:00	56	51	61	52	55	26	11	55	45
7:00	185	171	174	168	140	46	29	168	130
8:00	272	280	253	273	279	85	42	271	212
9:00	106	117	94	107	118	115	78	108	105
10:00	77	83	81	82	63	122	94	77	86
11:00	75	69	73	81	78	171	97	75	92
12:00	99	65	83	87	88	142	94	84	94
13:00	67	66	72	91	83	137	113	76	90
14:00	120	110	106	139	132	135	120	121	123
15:00	156	138	137	140	165	145	109	147	141
16:00	120	131	137	136	149	94	104	135	124
17:00	171	143	159	152	146	121	115	154	144
18:00	121	146	152	148	165	138	109	146	140
19:00	106	122	128	115	127	86	76	120	109
20:00	60	76	84	77	66	112	65	73	77
21:00	51	47	69	67	60	52	51	59	57
22:00	40	34	47	36	56	48	36	43	42
23:00	10	22	27	21	33	39	16	23	24
Total	1920	1911	1979	2008	2040	1869	1425	1972	1879

7-19	1569	1519	1521	1604	1606	1451	1104	1564	1482
6-22	1842	1815	1863	1915	1914	1727	1307	1870	1769
6-24	1892	1871	1937	1972	2003	1814	1359	1935	1835
0-24	1920	1911	1979	2008	2040	1869	1425	1972	1879

E.3.2 Southbound

Job No	N3857 - Marion Street
Client	Inner West Council
Site	Terrace Road - north of Ewart St
Location	Dulwich Hill
Site No	3B
Start Date	6-Feb-18
Description	Volume Summary
Direction	SB

Menu

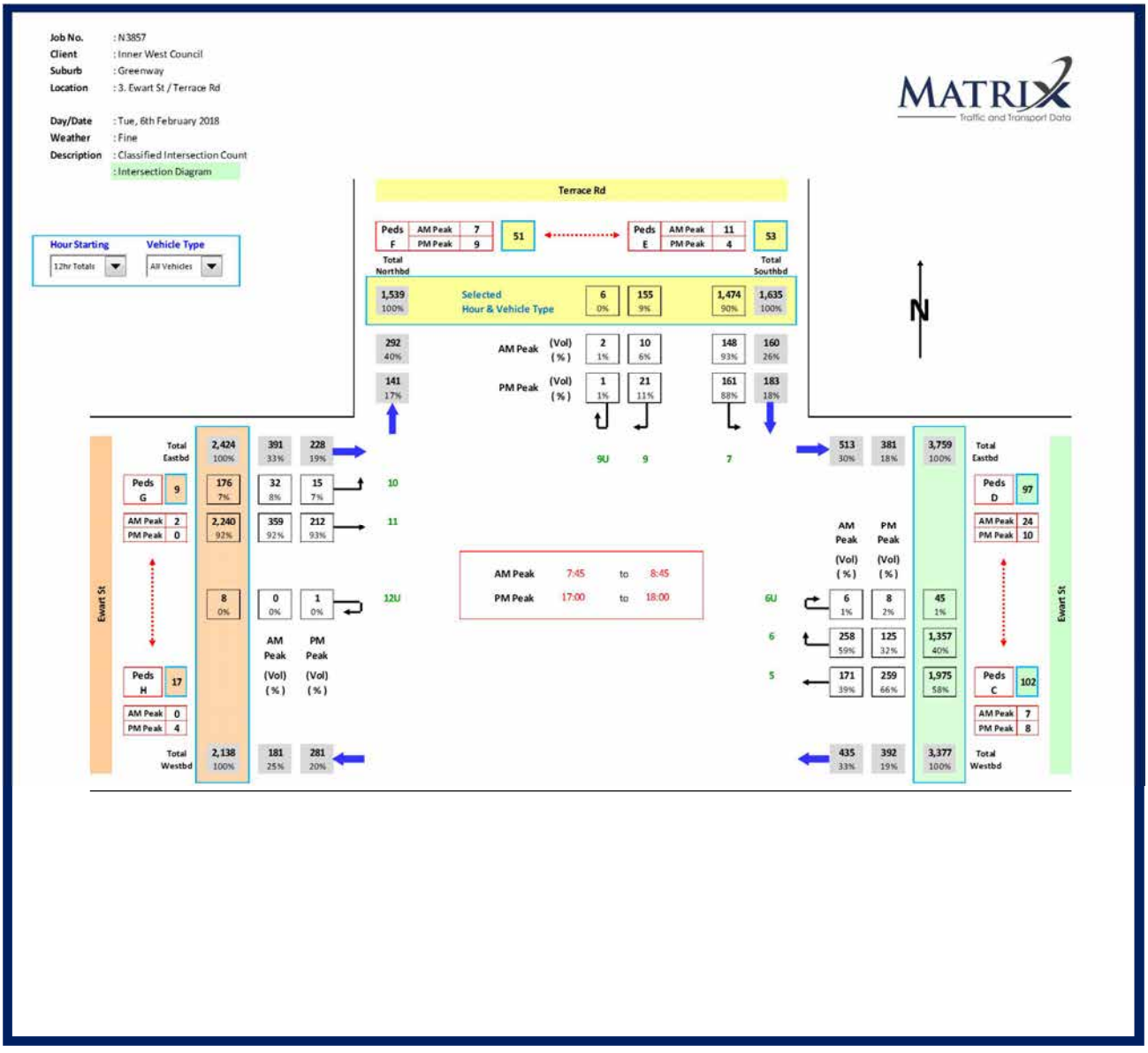
MATRIX Traffic and Transport Data

Hour Starting	Day of Week							W'Day Ave	7 Day Ave
	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	12-Feb	6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb		
AM Peak	195	156	184	189	194	178	127		
PM Peak	244	217	235	222	282	184	128	**2121**	**2016**
0:00	7	13	8	8	5	20	31	8	13
1:00	3	4	5	4	3	8	18	4	6
2:00	2	2	2	0	3	8	10	2	4
3:00	4	4	3	2	4	4	4	3	4
4:00	5	7	8	6	6	3	5	6	6
5:00	36	34	33	28	24	22	19	31	28
6:00	57	66	65	59	58	43	19	61	52
7:00	127	130	133	124	113	35	25	125	98
8:00	195	156	184	189	194	99	48	184	152
9:00	114	138	136	138	127	106	87	131	121
10:00	70	92	87	92	90	142	104	86	97
11:00	83	82	96	89	97	178	127	89	107
12:00	85	82	84	86	105	171	128	88	106
13:00	69	86	79	82	104	184	98	84	100
14:00	103	98	112	113	103	146	94	106	110
15:00	244	217	235	222	282	137	108	240	206
16:00	193	174	182	211	202	110	117	192	170
17:00	173	184	195	198	191	120	112	188	168
18:00	145	166	187	158	182	134	98	168	153
19:00	101	120	124	116	126	92	81	117	109
20:00	73	89	87	79	74	77	68	80	78
21:00	49	58	63	80	64	65	48	63	61
22:00	40	36	36	44	47	56	34	41	42
23:00	15	18	20	24	35	46	20	22	25
Total	1993	2056	2164	2152	2239	2006	1503	2121	2016

7-19	1601	1605	1710	1702	1790	1562	1146	1682	1588
6-22	1881	1938	2049	2036	2112	1839	1362	2003	1888
6-24	1936	1992	2105	2104	2194	1941	1416	2066	1955
0-24	1993	2056	2164	2152	2239	2006	1503	2121	2016

E.4 Ewart Street / Terrace Road intersection counts

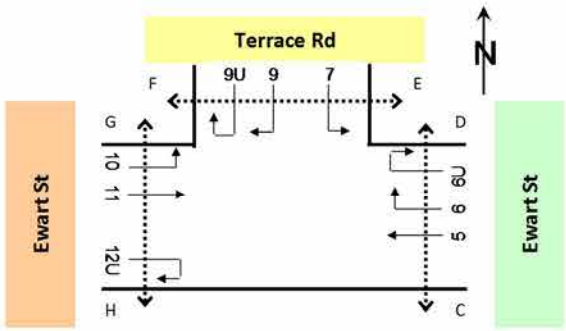
E.4.1 Peak hour volume



E.4.2 Hourly volume by approach

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 3. Ewart St / Terrace Rd

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary



MATRIX Traffic and Transport Data

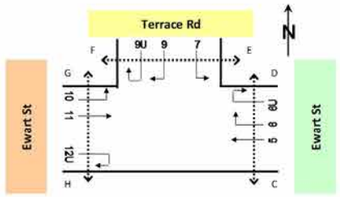
Approach		Ewart St				Terrace Rd				Ewart St				Grand Total
	Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
AM	7:45 to 8:45	428	3	4	**435**	155	4	1	**160**	381	9	1	**391**	**986**
PM	17:00 to 18:00	383	4	5	**392**	177	1	5	**183**	224	3	1	**228**	**803**

Approach		Ewart St				Terrace Rd				Ewart St				Grand Total
	Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	
7:00	to 8:00	285	5	2	**292**	123	4	2	**129**	268	6	2	**276**	**697**
7:15	to 8:15	332	5	4	**341**	139	5	1	**145**	299	5	1	**305**	**791**
7:30	to 8:30	390	3	3	**396**	154	5	2	**161**	347	7	1	**355**	**912**
7:45	to 8:45	428	3	4	**435**	155	4	1	**160**	381	9	1	**391**	**986**
8:00	to 9:00	417	6	4	**427**	160	1	1	**162**	358	6	1	**365**	**954**
8:15	to 9:15	393	8	2	**403**	161	0	2	**163**	354	6	2	**362**	**928**
8:30	to 9:30	319	8	2	**329**	157	1	1	**159**	303	6	1	**310**	**798**
8:45	to 9:45	246	8	0	**254**	152	1	2	**155**	254	4	1	**259**	**668**
9:00	to 10:00	225	8	0	**233**	138	1	2	**141**	250	4	1	**255**	**629**
9:15	to 10:15	206	5	0	**211**	123	1	2	**126**	209	5	0	**214**	**551**
9:30	to 10:30	212	4	0	**216**	114	1	3	**118**	194	3	0	**197**	**531**
9:45	to 10:45	201	4	0	**205**	99	2	3	**104**	176	3	0	**179**	**488**
10:00	to 11:00	190	2	1	**193**	92	3	4	**99**	149	3	0	**152**	**444**
10:15	to 11:15	175	3	1	**179**	86	3	3	**92**	139	2	0	**141**	**412**
10:30	to 11:30	171	3	1	**175**	76	3	2	**81**	142	2	0	**144**	**400**
10:45	to 11:45	184	3	1	**188**	77	2	3	**82**	149	2	1	**152**	**422**
11:00	to 12:00	176	2	0	**178**	80	2	2	**84**	145	3	1	**149**	**411**
11:15	to 12:15	172	2	0	**174**	78	2	2	**82**	135	3	1	**139**	**395**
11:30	to 12:30	180	3	0	**183**	86	1	2	**89**	120	3	1	**124**	**396**
11:45	to 12:45	183	3	0	**186**	78	2	1	**81**	114	2	0	**116**	**383**
12:00	to 13:00	182	4	0	**186**	79	2	1	**82**	108	2	0	**110**	**378**
12:15	to 13:15	183	3	1	**187**	87	2	1	**90**	118	2	1	**121**	**398**
12:30	to 13:30	170	5	2	**177**	81	2	1	**84**	112	1	1	**114**	**375**
12:45	to 13:45	169	4	2	**175**	84	1	0	**85**	115	1	1	**117**	**377**
13:00	to 14:00	181	3	2	**186**	85	0	0	**85**	107	0	1	**108**	**379**
13:15	to 14:15	192	4	1	**197**	84	1	0	**85**	113	0	0	**113**	**395**
13:30	to 14:30	204	1	0	**205**	84	1	0	**85**	144	0	0	**144**	**434**
13:45	to 14:45	215	3	0	**218**	89	1	2	**92**	151	1	0	**152**	**462**
14:00	to 15:00	233	3	0	**236**	100	1	2	**103**	190	1	0	**191**	**530**
14:15	to 15:15	261	2	0	**263**	104	0	2	**106**	203	1	1	**205**	**574**
14:30	to 15:30	315	2	0	**317**	156	1	2	**159**	189	1	1	**191**	**667**
14:45	to 15:45	338	0	1	**339**	208	1	0	**209**	188	0	1	**189**	**737**
15:00	to 16:00	350	2	1	**353**	215	2	0	**217**	171	1	2	**174**	**744**
15:15	to 16:15	359	4	1	**364**	235	2	0	**237**	179	3	1	**183**	**784**
15:30	to 16:30	332	6	3	**341**	209	1	0	**210**	181	3	1	**185**	**736**
15:45	to 16:45	333	6	2	**341**	185	1	0	**186**	189	4	1	**194**	**721**
16:00	to 17:00	336	4	2	**342**	178	0	0	**178**	205	3	2	**210**	**730**
16:15	to 17:15	340	2	4	**346**	164	1	1	**166**	201	2	2	**205**	**717**
16:30	to 17:30	362	2	2	**366**	164	1	3	**168**	232	2	3	**237**	**771**
16:45	to 17:45	357	4	4	**365**	166	1	4	**171**	232	1	3	**236**	**772**
17:00	to 18:00	383	4	5	**392**	177	1	5	**183**	224	3	1	**228**	**803**
17:15	to 18:15	382	6	6	**394**	182	0	6	**188**	217	3	1	**221**	**803**
17:30	to 18:30	373	4	6	**383**	186	1	7	**194**	205	3	0	**208**	**785**
17:45	to 18:45	377	2	4	**383**	179	1	9	**189**	202	3	0	**205**	**777**
18:00	to 19:00	354	2	3	**359**	162	1	9	**172**	205	1	0	**206**	**737**
12hr Totals		**3,312**	**45**	**20**	**3,377**	**1,589**	**18**	**28**	**1,635**	**2,380**	**33**	**11**	**2,424**	**7,436**

E.4.3 Hourly volume by movement

Job No. : N3857
Client : Inner West Council
Suburb : Greenway
Location : 3. Ewart St / Terrace Rd

Day/Date : Tue, 6th February 2018
Weather : Fine
Description : Classified Intersection Count
: Hourly Summary



MATRIX Traffic and Transport Data

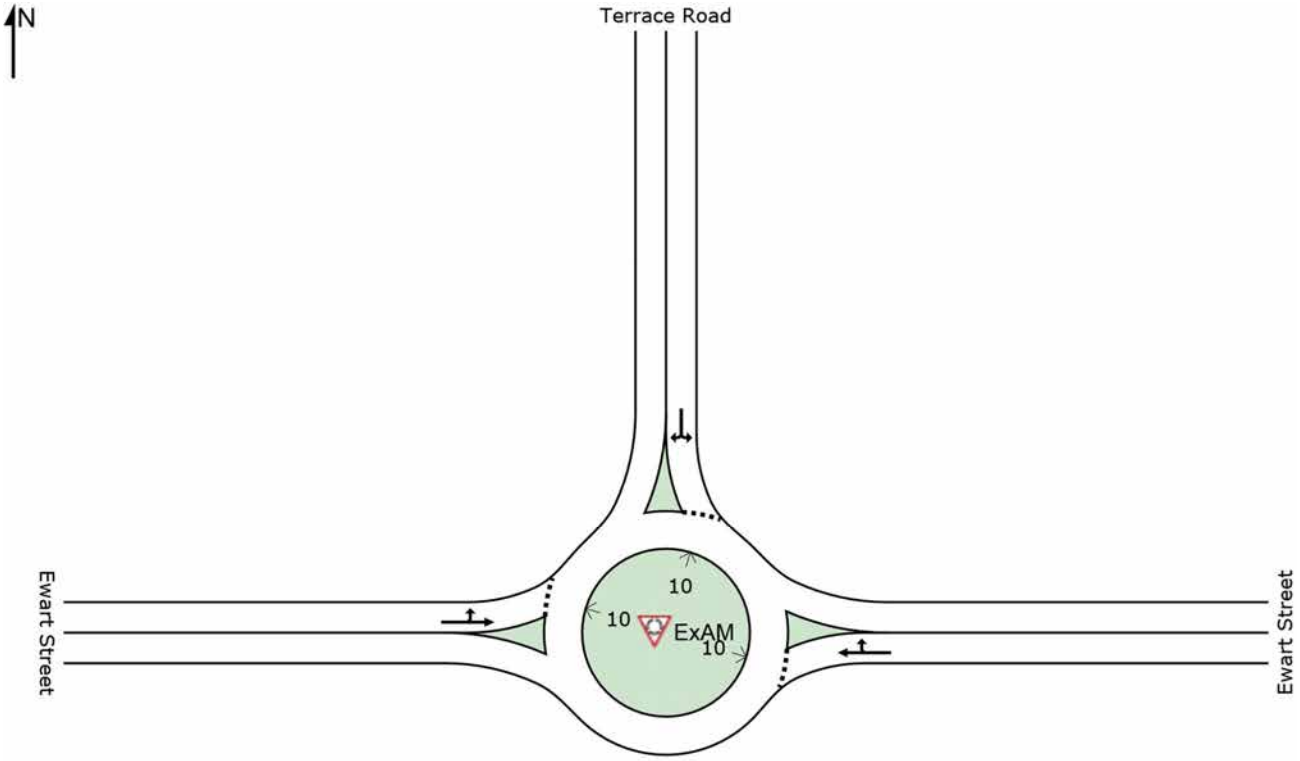
Approach		Ewart St											
Direction		Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
Time Period		Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total
7:00	8:00	132	3	1	**136**	150	2	1	**153**	3	0	0	**3**
7:15	8:15	143	3	1	**147**	186	2	3	**191**	3	0	0	**3**
7:30	8:30	169	2	0	**171**	216	1	3	**220**	5	0	0	**5**
7:45	8:45	168	2	1	**171**	254	1	3	**258**	6	0	0	**6**
8:00	9:00	164	3	1	**168**	249	3	3	**255**	4	0	0	**4**
8:15	9:15	164	4	1	**169**	224	4	1	**229**	5	0	0	**5**
8:30	9:30	144	5	1	**150**	172	3	1	**176**	3	0	0	**3**
8:45	9:45	128	5	0	**133**	116	3	0	**119**	2	0	0	**2**
9:00	10:00	128	5	0	**133**	95	3	0	**98**	2	0	0	**2**
9:15	10:15	120	3	0	**123**	82	2	0	**84**	4	0	0	**4**
9:30	10:30	124	2	0	**126**	84	2	0	**86**	4	0	0	**4**
9:45	10:45	118	1	0	**119**	79	3	0	**82**	4	0	0	**4**
10:00	11:00	112	0	0	**112**	70	2	1	**73**	8	0	0	**8**
10:15	11:15	112	1	0	**113**	58	2	1	**61**	5	0	0	**5**
10:30	11:30	111	1	0	**112**	55	2	1	**58**	5	0	0	**5**
10:45	11:45	124	1	0	**125**	55	2	1	**58**	5	0	0	**5**
11:00	12:00	118	1	0	**119**	56	1	0	**57**	2	0	0	**2**
11:15	12:15	112	1	0	**113**	57	1	0	**58**	3	0	0	**3**
11:30	12:30	115	2	0	**117**	62	1	0	**63**	3	0	0	**3**
11:45	12:45	118	3	0	**121**	61	0	0	**61**	4	0	0	**4**
12:00	13:00	120	3	0	**123**	58	1	0	**59**	4	0	0	**4**
12:15	13:15	119	2	0	**121**	60	1	1	**62**	4	0	0	**4**
12:30	13:30	114	4	1	**119**	51	1	1	**53**	5	0	0	**5**
12:45	13:45	118	3	1	**122**	48	1	1	**50**	3	0	0	**3**
13:00	14:00	121	3	1	**125**	57	0	1	**58**	3	0	0	**3**
13:15	14:15	127	3	1	**131**	63	1	0	**64**	2	0	0	**2**
13:30	14:30	134	0	0	**134**	69	1	0	**70**	1	0	0	**1**
13:45	14:45	133	0	0	**133**	81	2	0	**83**	1	1	0	**2**
14:00	15:00	140	0	0	**140**	93	2	0	**95**	0	1	0	**1**
14:15	15:15	158	0	0	**158**	103	1	0	**104**	0	1	0	**1**
14:30	15:30	193	0	0	**193**	122	1	0	**123**	0	1	0	**1**
14:45	15:45	210	0	0	**210**	128	0	1	**129**	0	0	0	**0**
15:00	16:00	226	1	0	**227**	123	1	1	**125**	1	0	0	**1**
15:15	16:15	235	2	0	**237**	121	2	1	**124**	3	0	0	**3**
15:30	16:30	210	4	1	**215**	119	2	2	**123**	3	0	0	**3**
15:45	16:45	218	4	1	**223**	111	2	1	**114**	4	0	0	**4**
16:00	17:00	221	3	1	**225**	111	1	1	**113**	4	0	0	**4**
16:15	17:15	220	2	2	**224**	117	0	2	**119**	3	0	0	**3**
16:30	17:30	246	2	1	**249**	112	0	1	**113**	4	0	0	**4**
16:45	17:45	238	4	1	**243**	115	0	3	**118**	4	0	0	**4**
17:00	18:00	254	4	1	**259**	121	0	4	**125**	8	0	0	**8**
17:15	18:15	251	6	0	**257**	122	0	6	**128**	9	0	0	**9**
17:30	18:30	233	4	0	**237**	131	0	6	**137**	9	0	0	**9**
17:45	18:45	230	2	0	**232**	139	0	4	**143**	8	0	0	**8**
18:00	19:00	206	2	0	**208**	143	0	3	**146**	5	0	0	**5**
12hr Totals		**1,942**	**28**	**5**	**1,975**	**1,326**	**16**	**15**	**1,357**	**44**	**1**	**0**	**45**

Approach	Terrace Rd												Ewart St												Crossing Pedestrians						
Direction	Direction 7 (Left Turn)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12U (U Turn)										
Time Period	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	Lights	Heavies	Cyclists	Total	C	D	E	F	G	H	Total
7:00 to 8:00	115	4	2	121	8	0	0	8	0	0	0	0	12	1	0	13	256	5	2	263	0	0	0	0	4	11	9	2	1	0	27
7:15 to 8:15	134	5	1	140	5	0	0	5	0	0	0	0	15	1	0	16	284	4	1	289	0	0	0	0	5	17	11	4	0	0	37
7:30 to 8:30	145	5	2	152	9	0	0	9	0	0	0	0	23	1	0	24	324	6	1	331	0	0	0	0	7	22	13	6	1	0	49
7:45 to 8:45	143	4	1	148	10	0	0	10	2	0	0	2	31	1	0	32	350	8	1	359	0	0	0	0	7	24	11	7	2	0	51
8:00 to 9:00	146	1	1	148	12	0	0	12	2	0	0	2	32	0	0	32	326	6	1	333	0	0	0	0	6	28	11	6	2	0	53
8:15 to 9:15	144	0	2	146	15	0	0	15	2	0	0	2	39	0	1	40	314	6	1	321	1	0	0	1	6	22	10	4	2	0	44
8:30 to 9:30	144	1	1	146	11	0	0	11	2	0	0	2	35	0	1	36	267	6	0	273	1	0	0	1	3	16	7	3	1	0	30
8:45 to 9:45	140	1	2	143	12	0	0	12	0	0	0	0	26	1	1	28	227	3	0	230	1	0	0	1	5	11	6	2	0	0	24
9:00 to 10:00	130	1	2	133	8	0	0	8	0	0	0	0	22	1	1	24	226	3	0	229	2	0	0	2	7	3	6	1	0	0	17
9:15 to 10:15	114	1	2	117	9	0	0	9	0	0	0	0	13	1	0	14	194	4	0	198	2	0	0	2	6	7	5	1	0	0	19
9:30 to 10:30	101	1	3	105	12	0	0	12	1	0	0	1	7	1	0	8	185	2	0	187	2	0	0	2	5	4	7	2	0	0	18
9:45 to 10:45	87	2	3	92	11	0	0	11	1	0	0	1	9	0	0	9	164	3	0	167	3	0	0	3	3	4	7	2	0	0	16
10:00 to 11:00	78	3	4	85	13	0	0	13	1	0	0	1	10	0	0	10	137	3	0	140	2	0	0	2	0	4	5	2	0	0	11
10:15 to 11:15	74	3	3	80	11	0	0	11	1	0	0	1	7	0	0	7	131	2	0	133	1	0	0	1	0	1	6	3	0	0	10
10:30 to 11:30	69	2	2	73	7	1	0	8	0	0	0	0	7	0	0	7	134	2	0	136	1	0	0	1	2	1	4	2	0	0	9
10:45 to 11:45	73	1	3	77	4	1	0	5	0	0	0	0	9	0	0	9	139	2	1	142	1	0	0	1	3	3	4	3	0	0	13
11:00 to 12:00	76	1	2	79	4	1	0	5	0	0	0	0	9	1	0	10	135	2	1	138	1	0	0	1	3	3	3	5	0	0	14
11:15 to 12:15	73	1	2	76	5	1	0	6	0	0	0	0	11	1	0	12	123	2	1	126	1	0	0	1	4	2	1	4	0	0	11
11:30 to 12:30	78	1	2	81	8	0	0	8	0	0	0	0	12	1	0	13	107	2	1	110	1	0	0	1	2	2	1	3	0	0	8
11:45 to 12:45	68	2	1	71	9	0	0	9	1	0	0	1	9	1	0	10	105	1	0	106	0	0	0	0	4	1	0	2	0	0	7
12:00 to 13:00	67	2	1	70	11	0	0	11	1	0	0	1	8	0	0	8	100	2	0	102	0	0	0	0	5	1	0	1	0	0	7
12:15 to 13:15	75	2	1	78	11	0	0	11	1	0	0	1	8	0	1	9	110	2	0	112	0	0	0	0	4	1	0	2	0	0	7
12:30 to 13:30	72	2	1	75	8	0	0	8	1	0	0	1	7	0	1	8	105	1	0	106	0	0	0	0	4	1	0	2	0	0	7
12:45 to 13:45	75	1	0	76	9	0	0	9	0	0	0	0	5	0	1	6	109	1	0	110	1	0	0	1	2	1	1	2	0	0	6
13:00 to 14:00	74	0	0	74	10	0	0	10	1	0	0	1	5	0	1	6	101	0	0	101	1	0	0	1	2	1	1	1	0	0	5
13:15 to 14:15	75	1	0	76	8	0	0	8	1	0	0	1	4	0	0	4	108	0	0	108	1	0	0	1	3	25	1	0	3	3	35
13:30 to 14:30	74	1	0	75	9	0	0	9	1	0	0	1	8	0	0	8	135	0	0	135	1	0	0	1	5	25	1	1	3	4	39
13:45 to 14:45	78	1	2	81	10	0	0	10	1	0	0	1	10	1	0	11	141	0	0	141	0	0	0	0	6	25	1	4	3	4	43
14:00 to 15:00	93	1	2	96	7	0	0	7	0	0	0	0	13	1	0	14	177	0	0	177	0	0	0	0	14	26	3	7	3	5	58
14:15 to 15:15	96	0	2	98	8	0	0	8	0	0	0	0	20	1	0	21	182	0	1	183	1	0	0	1	17	5	4	8	0	2	36
14:30 to 15:30	143	1	2	146	13	0	0	13	0	0	0	0	16	1	0	17	172	0	1	173	1	0	0	1	20	9	4	9	0	1	43
14:45 to 15:45	191	1	0	192	17	0	0	17	0	0	0	0	16	0	0	16	171	0	1	172	1	0	0	1	27	8	4	8	0	1	48
15:00 to 16:00	196	1	0	197	19	1	0	20	0	0	0	0	15	0	1	16	155	1	1	157	1	0	0	1	25	7	3	5	0	0	40
15:15 to 16:15	210	1	0	211	25	1	0	26	0	0	0	0	10	0	1	11	169	3	0	172	0	0	0	0	23	4	2	5	1	0	35
15:30 to 16:30	186	0	0	186	23	1	0	24	0	0	0	0	16	0	1	17	165	3	0	168	0	0	0	0	22	1	2	4	1	0	30
15:45 to 16:45	162	0	0	162	23	1	0	24	0	0	0	0	17	0	1	18	172	4	0	176	0	0	0	0	17	1	3	3	1	2	27
16:00 to 17:00	152	0	0	152	26	0	0	26	0	0	0	0	15	0	2	17	190	3	0	193	0	0	0	0	16	1	2	6	1	3	29
16:15 to 17:15	144	1	1	146	20	0	0	20	0	0	0	0	14	0	2	16	187	2	0	189	0	0	0	0	15	3	2	6	0	3	29
16:30 to 17:30	141	1	3	145	22	0	0	22	1	0	0	1	10	0	3	13	221	2	0	223	1	0	0	1	11	3	5	6	0	4	29
16:45 to 17:45	145	1	4	150	20	0	0	20	1	0	0	1	12	0	3	15	219	1	0	220	1	0	0	1	10	9	4	8	0	2	33
17:00 to 18:00	156	1	4	161	20	0	1	21	1	0	0	1	14	0	1	15	209	3	0	212	1	0	0	1	8	10	4	9	0	4	35
17:15 to 18:15	159	0	5	164	22	0	1	23	1	0	0	1	14	0	1	15	202	3	0	205	1	0	0	1	9	9	7	11	0	5	41
17:30 to 18:30	167	1	6	174	19	0	1	20	0	0	0	0	13	0	0	13	192	3	0	195	0	0	0	0	11	9	7	12	2	7	48
17:45 to 18:45	159	1	8	168	20	0	1	21	0	0	0	0	12	0	0	12	190	3	0	193	0	0	0	0	14	3	6	10	2	8	43
18:00 to 19:00	148	1	9	158	14	0	0	14	0	0	0	0	11	0	0	11	194	1	0	195	0	0	0	0	12	2	6	6	2	5	33
12hr Totals	1,431	16	27	1,474	152	2	1	155	6	0	0	6	166	4	6	176	2,206	29	5	2,240	8	0	0	8	102	97	53	51	9	17	329

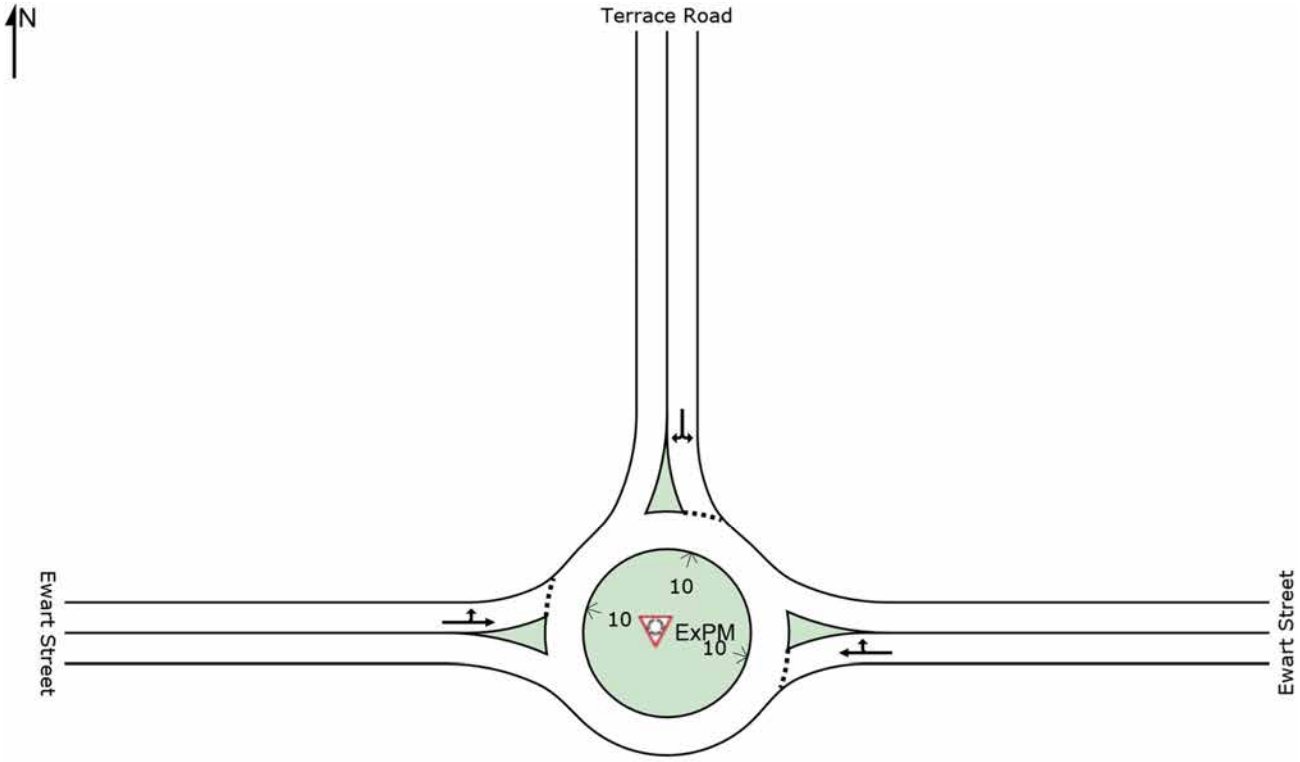
Appendix F. Ewart Street Sidra outputs

F.1 Existing model layouts

F.1.1 Morning



F.1.2 Evening



F.2 Existing model outputs

F.2.1 Morning

MOVEMENT SUMMARY

Site: ExAM [Ewart Street / Terrace Road AM existing]

Ewart Street / Terrace Road
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ewart Street											
5	T1	170	1.2	0.270	3.6	LOS A	1.9	13.3	0.09	0.55	44.2
6	R2	255	0.4	0.270	6.8	LOS A	1.9	13.3	0.09	0.55	45.7
Approach		425	0.7	0.270	5.5	LOS A	1.9	13.3	0.09	0.55	45.2
North: Terrace Road											
7	L2	147	2.7	0.178	6.0	LOS A	1.0	7.2	0.56	0.65	44.8
9	R2	10	0.0	0.178	9.0	LOS A	1.0	7.2	0.56	0.65	45.2
Approach		157	2.5	0.178	6.2	LOS A	1.0	7.2	0.56	0.65	44.8
West: Ewart Street											
10	L2	32	3.1	0.383	5.7	LOS A	2.4	17.1	0.52	0.59	44.7
11	T1	358	2.2	0.383	5.5	LOS A	2.4	17.1	0.52	0.59	43.9
Approach		390	2.3	0.383	5.5	LOS A	2.4	17.1	0.52	0.59	44.0
All Vehicles		972	1.6	0.383	5.6	LOS A	2.4	17.1	0.34	0.58	44.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

F.2.2 Evening

MOVEMENT SUMMARY

Site: ExPM [Ewart Street / Terrace Road PM existing]

Ewart Street / Terrace Road
Roundabout

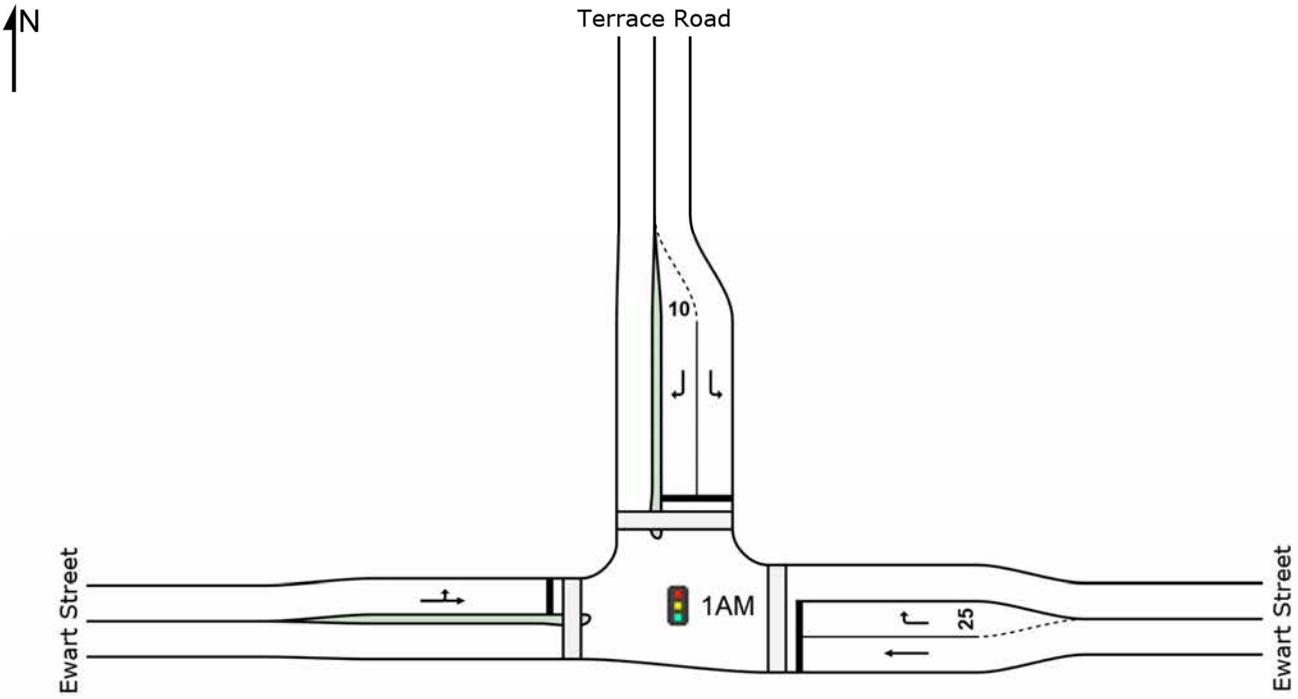
Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ewart Street											
5	T1	258	1.6	0.255	3.7	LOS A	1.7	11.7	0.12	0.49	44.8
6	R2	121	0.0	0.255	6.8	LOS A	1.7	11.7	0.12	0.49	46.2
Approach		379	1.1	0.255	4.7	LOS A	1.7	11.7	0.12	0.49	45.4
North: Terrace Road											
7	L2	157	0.6	0.171	5.1	LOS A	0.9	6.5	0.42	0.57	45.2
9	R2	20	0.0	0.171	8.0	LOS A	0.9	6.5	0.42	0.57	45.6
Approach		177	0.6	0.171	5.4	LOS A	0.9	6.5	0.42	0.57	45.2
West: Ewart Street											
10	L2	14	0.0	0.194	4.5	LOS A	1.0	7.4	0.31	0.46	45.5
11	T1	212	1.4	0.194	4.3	LOS A	1.0	7.4	0.31	0.46	44.9
Approach		226	1.3	0.194	4.3	LOS A	1.0	7.4	0.31	0.46	44.9
All Vehicles		782	1.0	0.255	4.7	LOS A	1.7	11.7	0.24	0.50	45.2

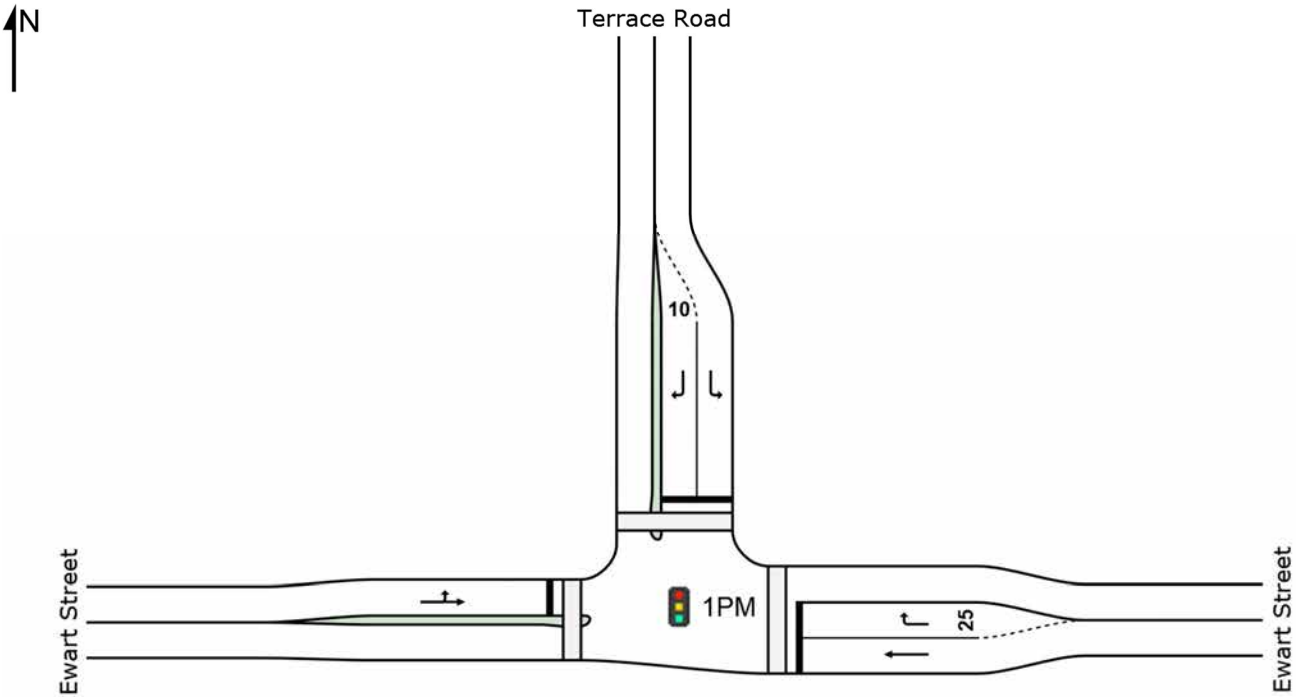
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

F.3 Option 1 model layouts

F.3.1 Morning



F.3.2 Evening



F.4 Option 1 model outputs

F.4.1 Morning

MOVEMENT SUMMARY

Site: 1AM [Ewart Street / Terrace Road AM option 1]

Ewart Street / Terrace Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ewart Street											
5	T1	170	1.2	0.121	6.2	LOS A	3.2	22.4	0.35	0.29	43.7
6	R2	255	0.4	0.440	16.4	LOS B	7.4	52.2	0.53	0.72	39.4
Approach		425	0.7	0.440	12.3	LOS A	7.4	52.2	0.46	0.55	40.6
North: Terrace Road											
7	L2	147	2.7	0.444	51.9	LOS D	7.7	55.4	0.93	0.79	27.2
9	R2	10	0.0	0.026	45.7	LOS D	0.5	3.3	0.83	0.67	28.1
Approach		157	2.5	0.444	51.5	LOS D	7.7	55.4	0.93	0.78	27.3
West: Ewart Street											
10	L2	32	3.1	0.281	11.7	LOS A	8.3	59.4	0.40	0.38	44.0
11	T1	358	2.2	0.281	7.1	LOS A	8.3	59.4	0.40	0.38	42.6
Approach		390	2.3	0.281	7.4	LOS A	8.3	59.4	0.40	0.38	42.8
All Vehicles		972	1.6	0.444	16.7	LOS B	8.3	59.4	0.51	0.52	37.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

F.4.2 Evening

MOVEMENT SUMMARY

Site: 1PM [Ewart Street / Terrace Road PM option 1]

Ewart Street / Terrace Road
Signals - Fixed Time Isolated Cycle Time = 120 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Ewart Street											
5	T1	258	1.6	0.271	14.2	LOS A	7.5	53.2	0.54	0.46	37.6
6	R2	121	0.0	0.203	21.9	LOS B	3.9	27.1	0.58	0.71	36.8
Approach		379	1.1	0.271	16.6	LOS B	7.5	53.2	0.55	0.54	37.3
North: Terrace Road											
7	L2	157	0.6	0.265	35.6	LOS C	6.6	46.6	0.77	0.75	31.7
9	R2	20	0.0	0.030	32.3	LOS C	0.8	5.3	0.69	0.67	32.1
Approach		177	0.6	0.265	35.2	LOS C	6.6	46.6	0.76	0.74	31.8
West: Ewart Street											
10	L2	14	0.0	0.203	18.5	LOS B	6.4	45.6	0.53	0.47	40.1
11	T1	212	1.4	0.203	13.9	LOS A	6.4	45.6	0.53	0.47	37.6
Approach		226	1.3	0.203	14.2	LOS A	6.4	45.6	0.53	0.47	37.8
All Vehicles		782	1.0	0.271	20.1	LOS B	7.5	53.2	0.59	0.56	35.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.