The new external retail, commercial & medical distribution for the EPFTC will affect the volume of vehicles on routes taken to and from the town centre. A comparison of the previous and revised trips by external zone is shown in **Table 4**.

Table 4 Comparison of previous and revised EPFTC external retail, commercial & medical trips

External Road Network Zone	Previous (2010) Assumptions				Revised (2015) Assumptions			
	Entering (veh)		Exiting (veh)		Entering (veh)		Exiting (veh)	
	AM	PM	AM	PM	AM	PM	AM	PM
North	48	95	11	8	132	270	35	36
East	104	207	24	18	9	19	2	3
South	16	32	4	3	14	29	4	4
West	9	17	2	2	42	85	11	11

Source: AECOM, 2016

In the revised plan, there is a notable decrease in vehicles travelling from the east which have been redistributed to travelling from the north and west. This will be reflected in increased volumes on Bernera Road as well as more vehicles travelling eastbound and fewer westbound on Campbelltown Road.

3.0 Network assumptions

3.1 Original TMAP and previous VISSIM modelling

To assess traffic impacts of the Edmondson Park South concept plan on the local road network, the original TMAP included network modelling in both the microsimulation package VISSIM, as well as detailed intersection performances using SIDRA Intersections.

The following key intersections were assessed in both the SIDRA and VISSIM models:

1) Campbelltown Road / Bernera Road (formerly Campbelltown Road / Macdonald Road);
2) Campbelltown Road / Soldiers Parade (formerly Campbelltown Road / Town Centre Main Street);
3) Campbelltown Road / East Town Centre Street;
4) Bernera Road / Primary School South (formerly Macdonald Road / Primary School Access Road);
5) Bernera Road / Soldiers Parade (formerly Croatia Avenue / Macdonald Road / Town Centre Main Street);
6) Bernera Road / High School North (formerly Macdonald Road / High School Access Road);
7) Bernera Road / Henderson Road (formerly Macdonald Road / Station South Access Road); and
8) Soldiers Parade / Henderson Road (formerly Croatia Avenue / Station South Access Road).

The extent of the VISSIM network is bordered roughly by Croatia Avenue to the north and Macdonald Road to the south. The model extent is illustrated in **Figure 3-1** with intersections labelled in the sequence listed above.

Figure 3-1 Original Edmondson Park VISSIM Model

Source: AECOM, 2016

3.2 Revised EPFTC Master Plan

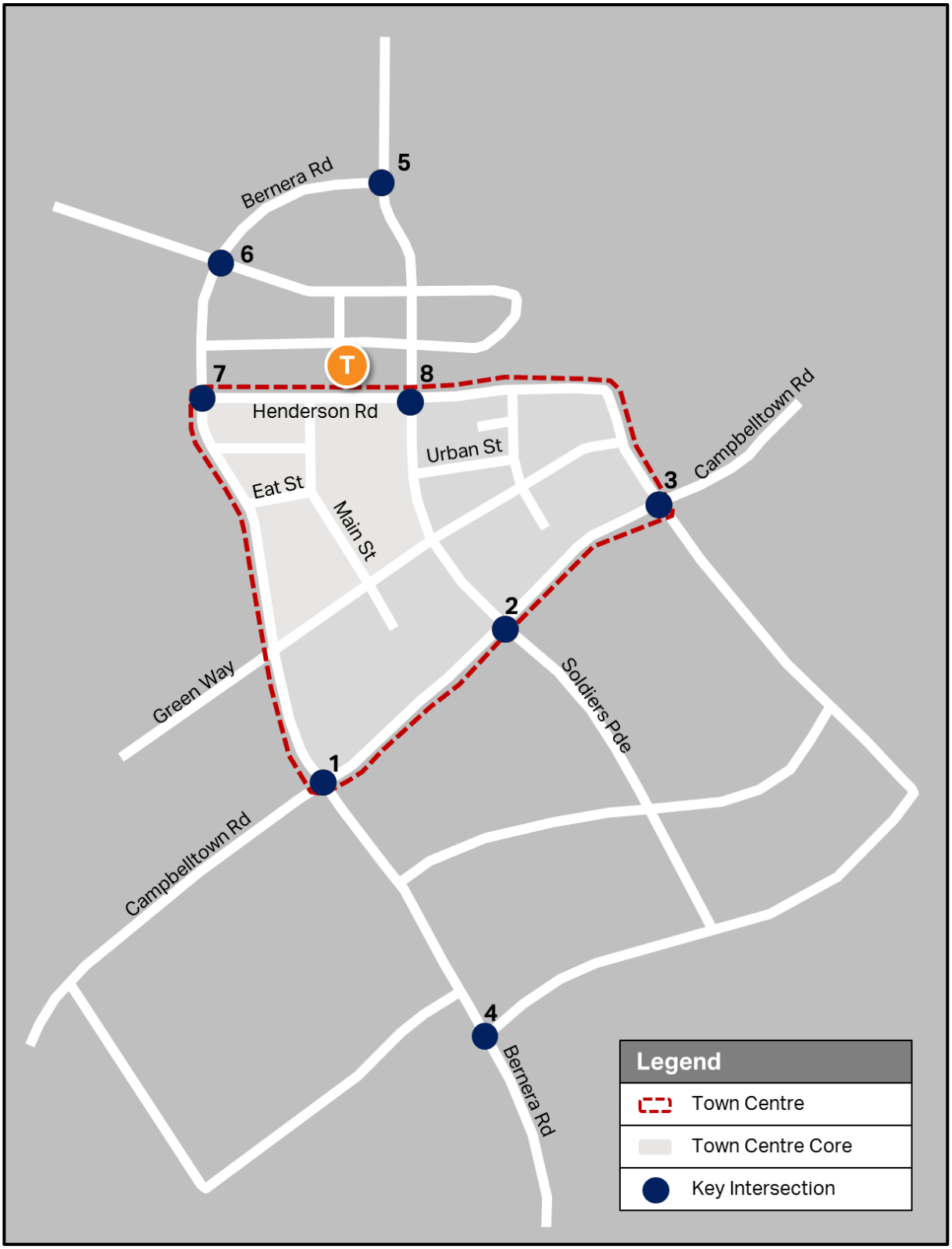
The revised EPFTC Master Plan introduced several network changes which were included in the revised VISSIM network. These included a more fine-grained street network, changes in signal locations, the addition and removal of lanes for some roads, and the modification of permitted movements and lane configuration at intersections.

The revised VISSIM model is shown in **Figure 3-2** and **Figure 3-3**. Significant changes when compared to the original modelling include:

- Changing of road hierarchy for Soldiers Parade from a main street to a collector road with an increased speed limit from 25km/hr to 40km/hr;
- Narrowing of Henderson Road from two lanes to one lane in both the eastbound and westbound direction, resulting in the change of lane configurations for intersections along this road to reflect the constructed Edmondson Park Station interchange (It should be noted that this is not infrastructure changes proposed by the revised EPFTC Master Plan – these are modelling network changes to reflect what has been constructed by Transport for New South Wales).
- Signalisation of Bernera Road / Soldiers Parade to allow for all movements (It should be noted that the layout and control of this intersection have not been confirmed as a result of all the previous modelling works. This intersection was modelled as different layout such as T-intersection and 4-way intersection and different type of control such as priorty, left-in left-out and traffic signals as the Master Plan evolves); and
- Reconfiguration of the southern approach of the Eastern Town Centre Road at Campbelltown Road traffic signals to two lanes.

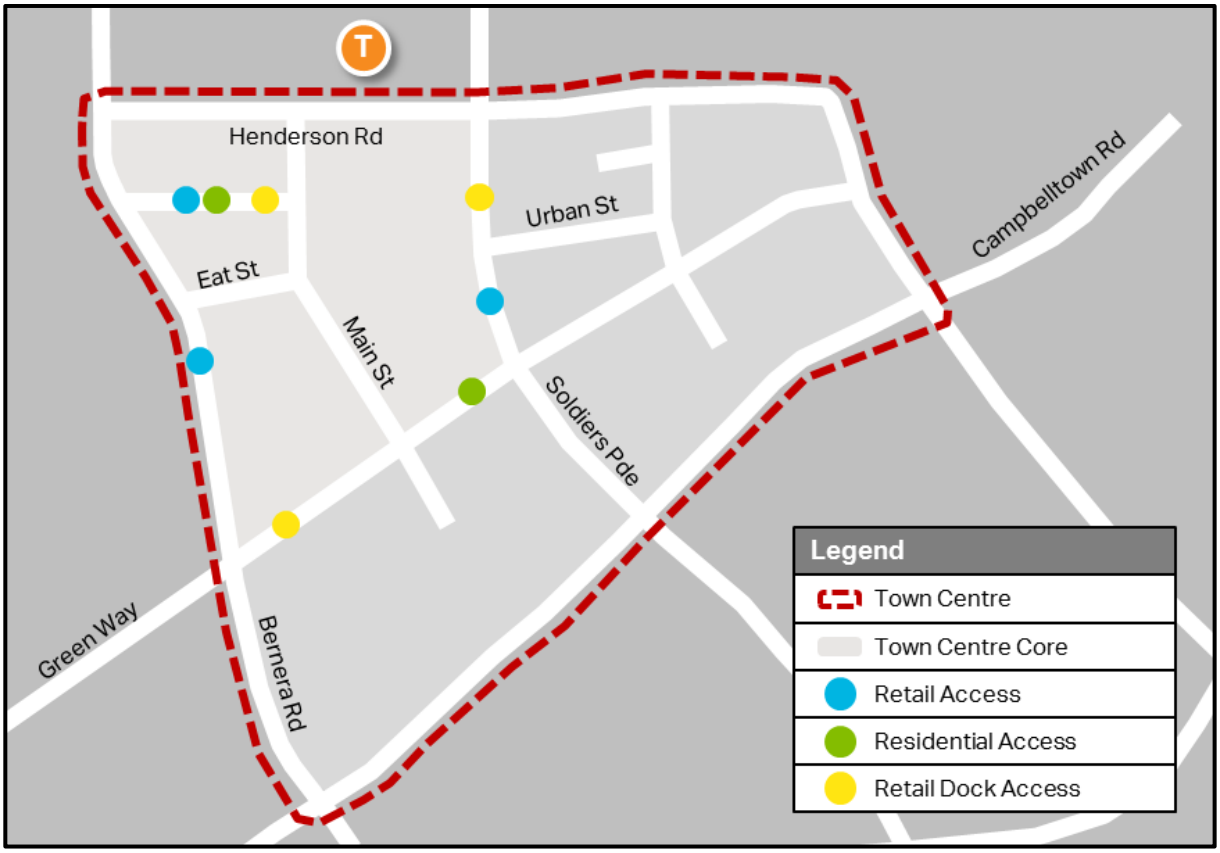
SIDRA Intersection layouts have also been provided in **Appendix A** for key intersections in and around the EPFTC.

Figure 3-2 Revised Edmondson Park VISSIM Model



Source: AECOM, 2016

Figure 3-3 Revised EPFTC Layout



Source: AECOM, 2016

3.3 Implications of Road Network Changes

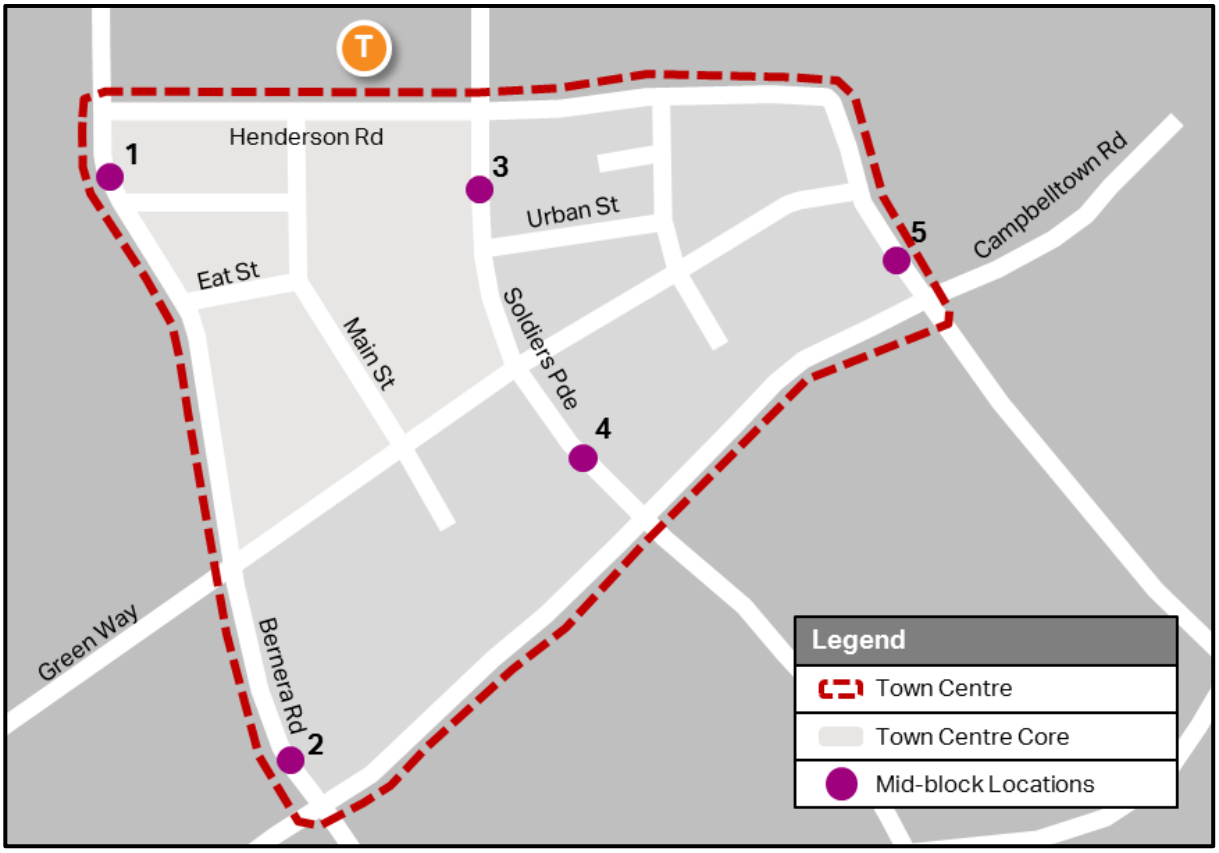
As a result of the changes outlined in the previous section, the distribution of traffic on key sections of the road network can be expected to change. **Table 5** shows a comparison of mid-block traffic at key locations in and around the EPFTC, illustrated in **Figure 3-4**.

Table 5 Comparison of previous and revised EPFTC mid-block traffic

Location		Previous (2010) Assumptions		Revised (2015) Assumptions	
		AM Peak	PM Peak	AM Peak	PM Peak
1. Bernera Road south of Henderson Road	Northbound	920	430	660	360
	Southbound	380	800	480	1010
2. Bernera Road north of Campbelltown Road	Northbound	880	540	790	570
	Southbound	430	730	510	860
3. Soldiers Parade south of Henderson Road	Northbound	170	180	300	180
	Southbound	280	330	10	180
4. Soldiers Parade north of Campbelltown Road	Northbound	250	300	130	360
	Southbound	240	380	300	70
5. Town Centre East north of Campbelltown Road	Northbound	180	240	120	230
	Southbound	200	60	210	30

Source: AECOM, 2016

Figure 3-4 EPFTC Mid-block Locations



Source: AECOM, 2016

The implications of the road network changes are outlined in the following sections.

3.3.1 Campbelltown Road

Campbelltown Road is the major east-west connector bypassing the EPFTC. No significant change is anticipated to the overall function of Campbelltown Road from the network changes identified. There may be relatively higher demand to use the intersection of Campbelltown Road / Soldiers Parade due to the signalisation of Bernera Road / Soldiers Parade to allow for all movements.

3.3.2 Bernera Road

Bernera Road is the major north-south connector bypassing the EPFTC. The introduction of car park accesses on Bernera Road may increase traffic on this route.

3.3.3 Green Way

Green Way will form the major east-west route in the EPFTC. The introduction of this route will decrease traffic demand along alternative routes such as Henderson Road and provides access to the EPFTC retail core and residential areas. The road also provides connection to the town centre roads Main Street and Eat Street.

3.3.4 Soldiers Parade

Soldiers Parade will form the major north-south route in the EPFTC. The signalisation of the intersection of Bernera Road / Soldiers Parade to allow for all movements and the addition of retail, residential and dock accesses will likely increase traffic demand on the road as a result.

3.3.5 Henderson Road

Henderson Road provides an east-west connection at the north of the EPFTC, with access to the Edmondson Park Train Station and kiss and ride zones. The narrowing of the road from two lanes to one lane in each direction (as per constructed by TfNSW) will likely encourage less traffic to use the road as a through route into the residential and retail areas of the town centre.

4.0 Modelling outputs

4.1 Introduction

The land use and network changes described in the report were reflected in the VISSIM modelling. The models were re-run for the 2026 AM and PM peaks and the revised modelling outputs were then compared to the original TMAP assessment results. This comparison aims to confirm that the changes do not have any adverse impacts to the operations of the EPFTC and surrounding road network.

4.2 Modelling results

The previous VISSIM model was used as a basis to complete the current modelling for the revised Master Plan. Land use changes as discussed in **Section 2.2** and network changes as discussed in **Section 3.2** were in included in revised VISSIM models.

A comparison of the SIDRA results from the TMAP against the revised VISSIM results is presented below in **Table 6**. A network diagram for the morning and evening peaks can be found in **Appendix B**.

Table 6 Comparison of previous and revised 2026 Edmondson Park Intersection Performance

Intersection	Peak Hour	Volumes (veh/hr)	Degree of Saturation[1] (DoS)	Ave Delay (sec)	Overall Level of Service (LoS)	95% Back of Queue (m)
1. Campbelltown Road / Bernera Road	AM previous	3,149	0.874	54.7	D	271
	AM updated	3,098	n/a	42.0	C	124
	PM previous	3,356	0.806	45.6	D	227
	PM updated	3,513	n/a	44.7	D	98
2. Campbelltown Road / Soldiers Parade	AM previous	1,872	0.492	8.3	A	42
	AM updated	2,133	n/a	26.1	B	63
	PM previous	2,505	0.681	10.8	A	88
	PM updated	2,374	n/a	29.2	C	85
3. Campbelltown Road / East Town Centre Street	AM previous	2,514	0.812	50.0	D	262
	AM updated	2,257	n/a	24.4	B	57
	PM previous	2,630	0.612	21.6	B	132
	PM updated	2,487	n/a	26.1	B	112
4. Bernera Road / Primary School South	AM previous	1,429	0.534	11.3	A	85
	AM updated	1,337	n/a	7.4	A	5
	PM previous	1,644	0.586	9.6	A	118
	PM updated	1,632	n/a	11.6	A	7
5. Bernera Road / Soldiers Parade	AM previous	1,558	0.627	10.4	A	68
	AM updated	1,214	n/a	17.4	B	70
	PM previous	1,736	0.820	20.8	B	114
	PM updated	1,304	n/a	14.8	B	52
6. Bernera Road / High School North	AM previous	1,529	0.891	27.1	B	141
	AM updated	1,754	n/a	30.8	C	70
	PM previous	1,157	0.626	10.9	A	89
	PM updated	1,468	n/a	17.7	B	36

Intersection	Peak Hour	Volumes (veh/hr)	Degree of Saturation[1] (DoS)	Ave Delay (sec)	Overall Level of Service (LoS)	95% Back of Queue (m)
7. Bernera Road / Henderson Road	AM previous	1,784	0.704	17.1	B	121
	AM updated	1,298	n/a	24.9	B	12
	PM previous	1,294	0.624	13.5	A	89
	PM updated	1,366	n/a	23.5	B	18
8. Soldiers Parade / Henderson Road	AM previous	866	0.358	13.8	A	34
	AM updated	650	n/a	38.0	C	59
	PM previous	745	0.446	17.2	B	35
	PM updated	693	n/a	35.4	C	58

[1] Degree of Saturation statistic unavailable in VISSIM

Source: AECOM, 2016

Note that comparison of intersection performance is limited due to the different software packages used. In particular, the network delays in the EPFTC and surrounding area are captured in the revised VISSIM model, whilst the previous SIDRA results did not account for this. Consequently, intersection performances in SIDRA may not consider all delays therefore delays and Level of Service of updated modelling may be higher than the original traffic modelling.

The comparison table indicates that in 2026, with the revised Master Plan, all intersections still perform acceptably at a LoS D or above. In general, volumes have decreased, but delay has increased, largely attributed to changes in infrastructure, more movements towards the EPFTC, and the additional network delay captured by VISSIM.

The full development in 2026 is not forecast to have major impacts on the key intersections on the surrounding road network. At the intersection of Campbelltown Road / Bernera Road, there is the addition of one through lane on both Campbelltown Road approaches. Along with the decrease in traffic volume in the morning peak, this ultimately decreases delay, with LoS improving from D to C. Similarly, at the intersection of Campbelltown Road / East Town Centre Street, traffic decreases in the morning peak and results in delay improving from LoS D to B.

Conversely, traffic increases at the intersection of Campbelltown Road / Soldiers Parade in both the morning and evening peaks. The permitting of right turns from all approaches and subsequent inclusion of right turn bays to cater for movements into the town centre has resulted in performance decreasing from LoS A to B and LoS A to C in the morning and evening peaks respectively.

Within the road network, infrastructure changes have resulted in altered intersection performances. North of Campbelltown Road, the intersection of Bernera Road / Soldiers Parade has been reconfigured to a signalised T-intersection, rather than a priority intersection. The right turn movement from Soldiers Parade has also been allowed in this configuration. In addition, traffic volumes through this intersection have decreased around 300 vehicles in both peaks. In the morning peak, this has resulted in a decrease in delay from LoS B to A, while the intersection remains at a LoS B in the evening peak.

Within the EPFTC, delay has increased as a result of the change in land use, and narrowing of Henderson Road to one lane in each direction instead of two. At the intersection of Bernera Road / Henderson Road, despite a decrease in traffic volume, performance falls from LoS A to B in the evening peak. Similarly, at the intersection of Soldiers Parade / Henderson Road, performance in the morning and evening peaks fall to LoS C from LoS A and LoS B respectively.

5.0 Conclusions

AECOM has undertaken additional traffic modelling using previously developed VISSIM models to support the development of the revised Master Plan for the Edmondson Park Frasers Town Centre (EPFTC).

Land use assumptions from the revised Master Plan have been used in the trip generation and distribution process to update traffic demands. The trips generated by the development are approximately 250 vehicles higher in each peak, and largely result from the increase in retail land use. The overall increase in trips results from a large concentration of increased trips within the EPFTC, offset by decreases in the rest of the precinct. There is a notable decrease in vehicles travelling from the east which have been redistributed to travelling from the north and west.

The revised EPFTC Master Plan introduced several network changes which were incorporated in the previously developed VISSIM models. These included an altered street network, changes in signal locations, the addition and removal of lanes for some roads, and the modification of permitted movements and lane configuration at intersections. In particular, this included more detail in the EPFTC, such as the introduction of town centre streets and car park accesses.

Modelling results indicate that in 2026, the road network proposed in the revised EPFTC Master Plan will support the revised land uses. All intersections still perform acceptably at a LoS D or above, and at a LoS C or above within the EPFTC. Generally, the changes have resulted in a decrease in traffic volume within the town centre, and minor increases in delay.

Appendix A

SIDRA Intersection Layouts

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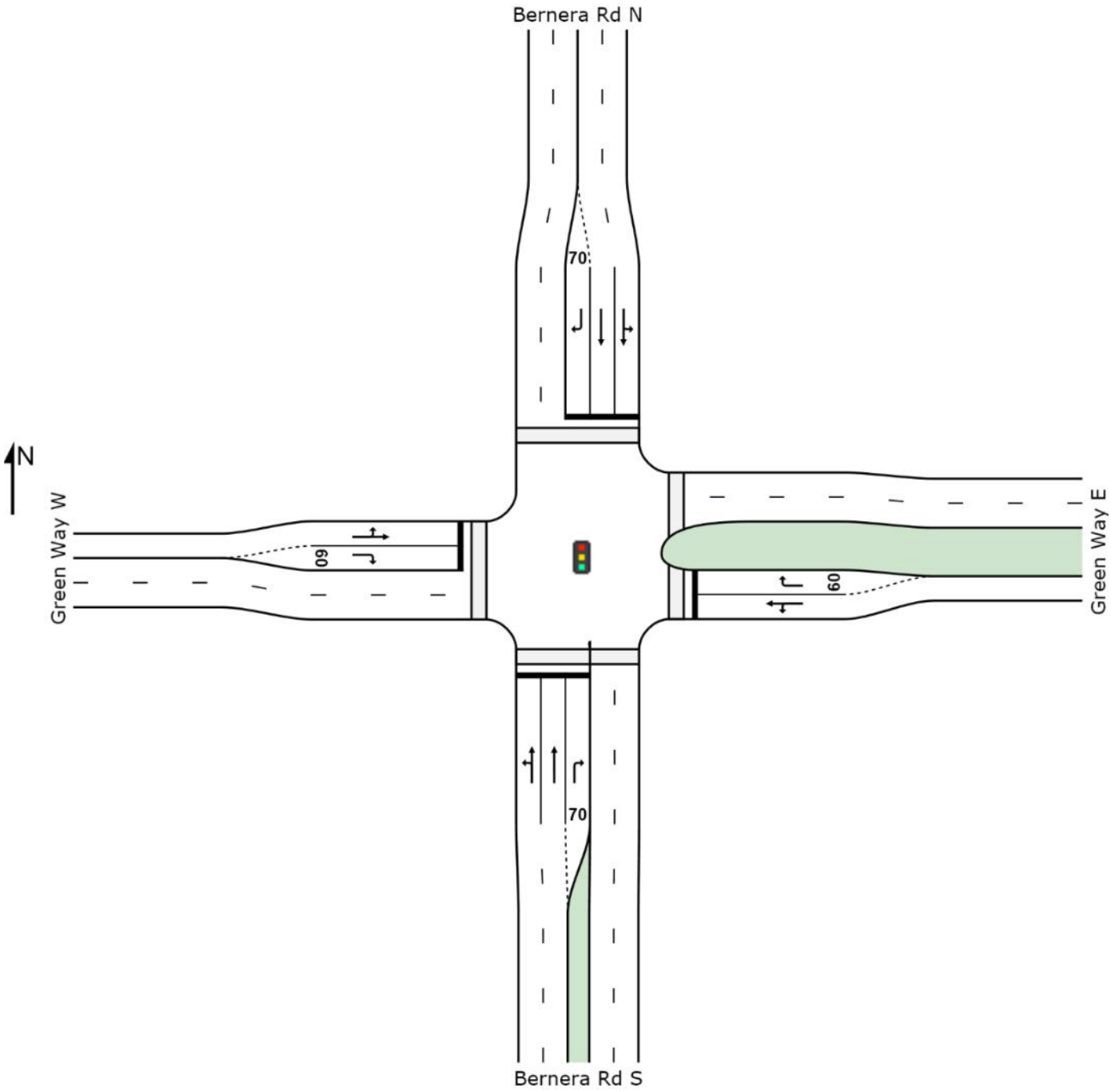
SITE LAYOUT

Site: Bernera Rd / Green Way

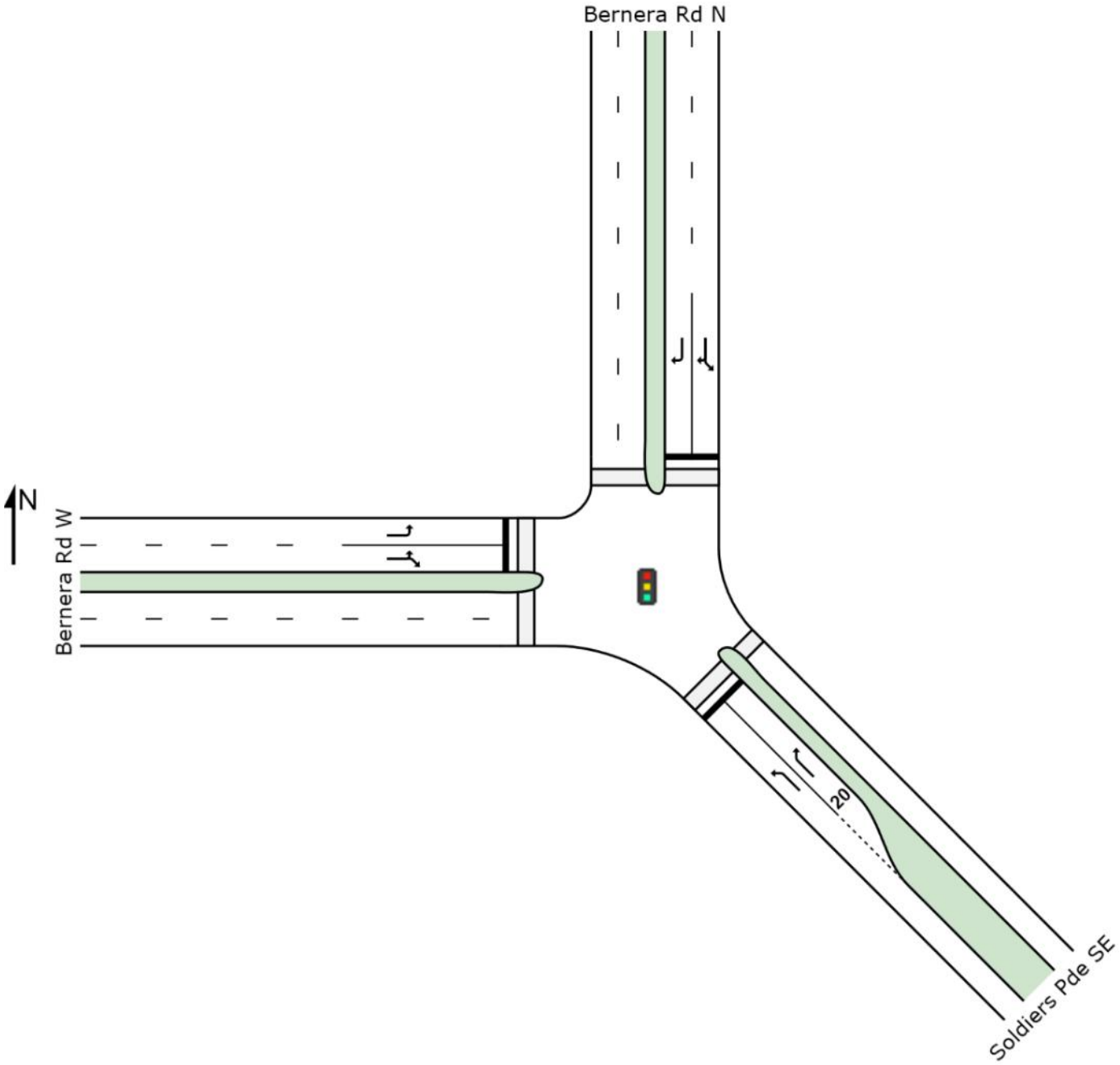
Intersection of Bernera Rd and Green Way
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Bernera Rd / Soldiers Pde

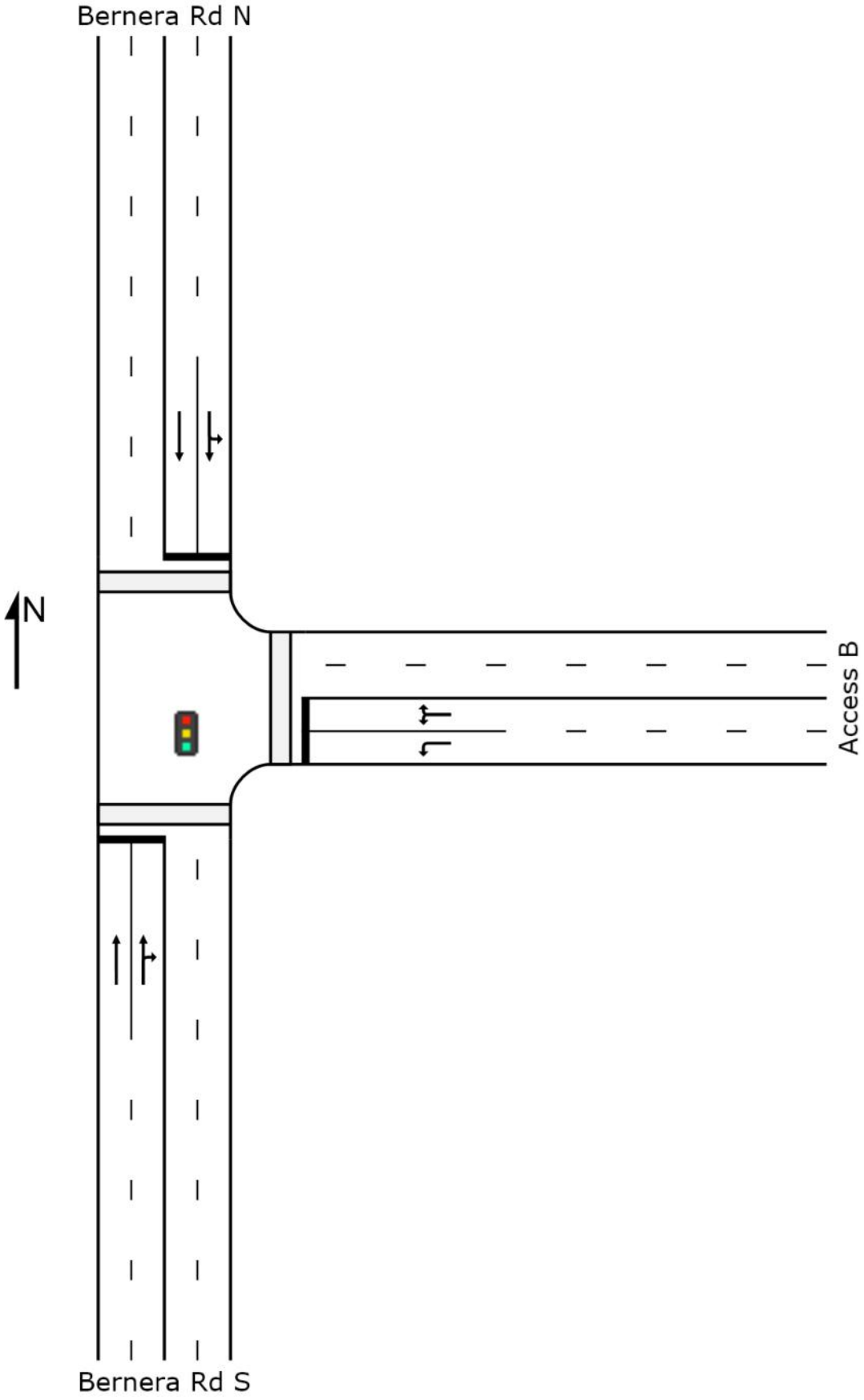
Intersection of Bernera and Soldiers
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Bernera Rd / Access B

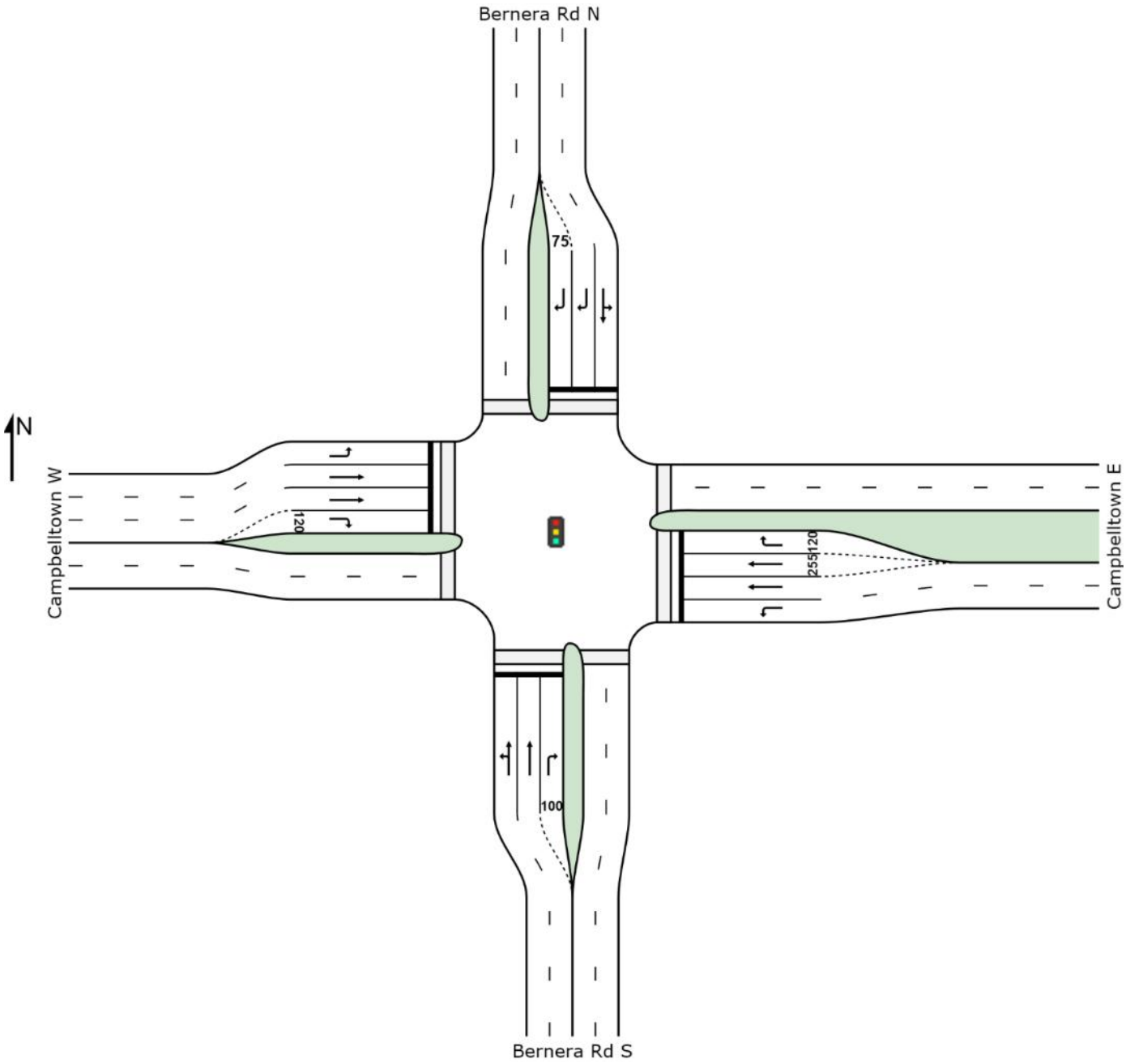
Intersection of Bernera Rd and Town Centre Core Access B
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Campbelltown Rd / Bernera Rd

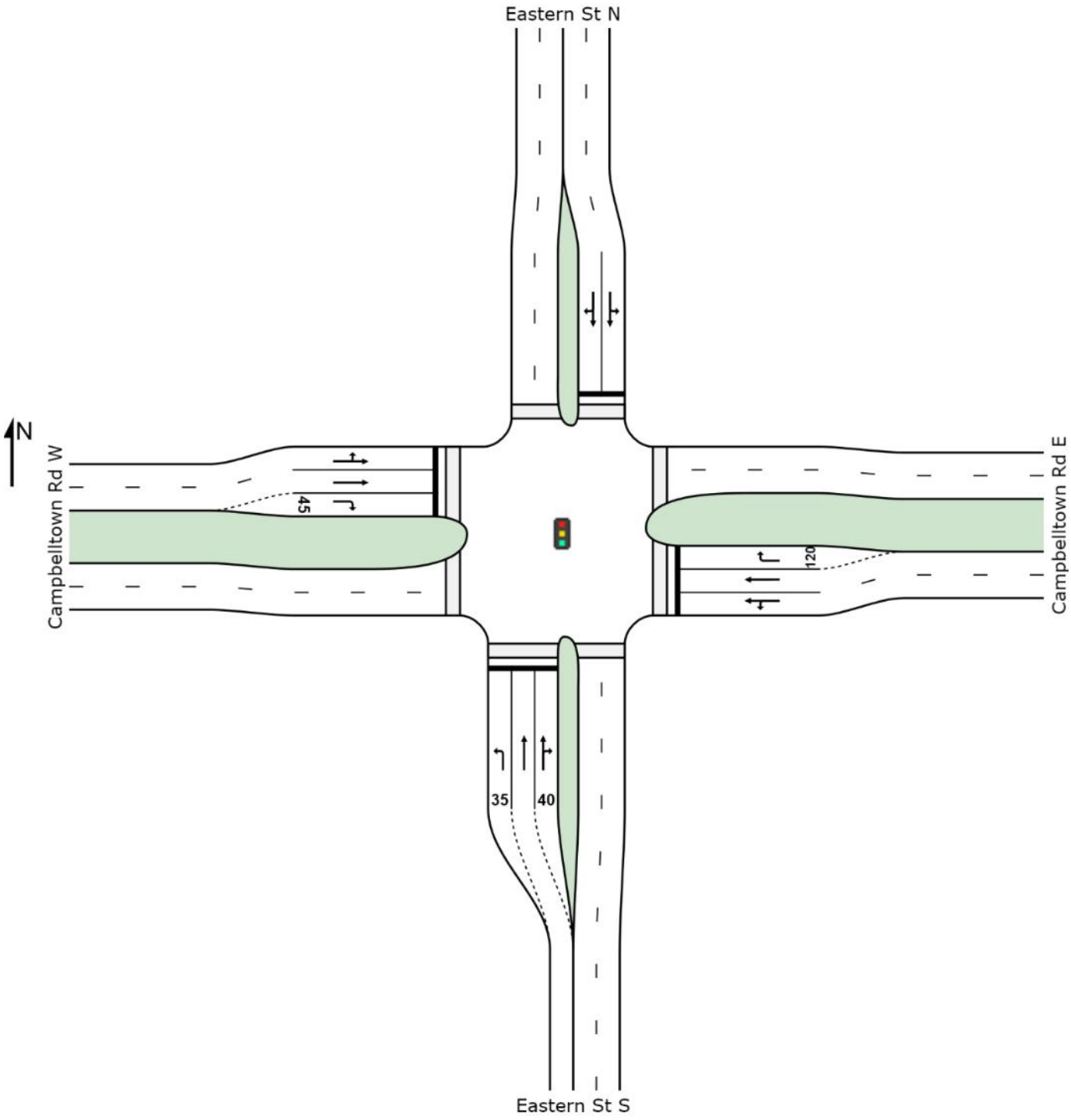
Intersection of Campbelltown Rd and Bernera Rd
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Campbelltown Rd / East TC St

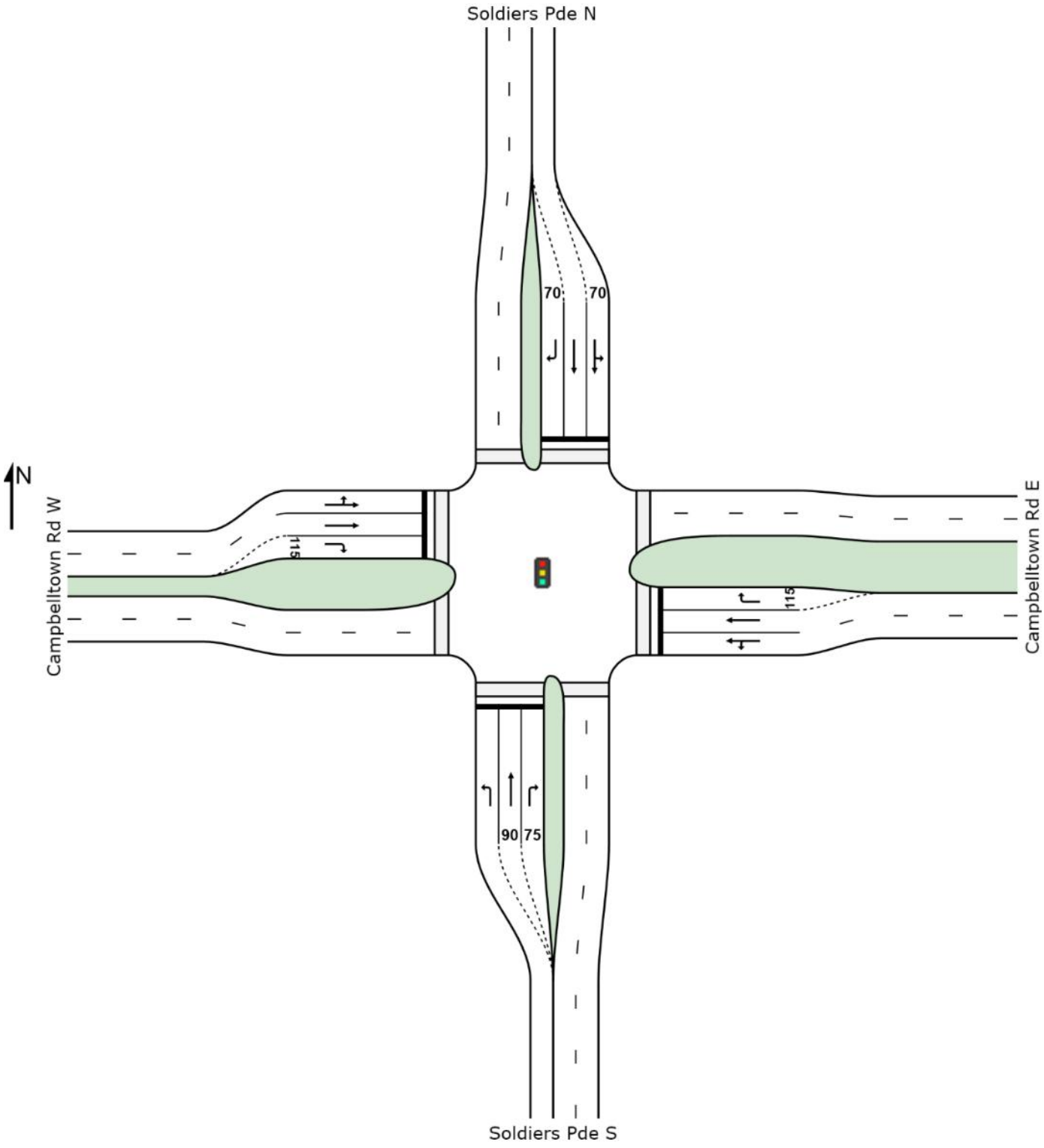
Intersection of Campbelltown Rd and East TC St
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Campbelltown Rd / Soldiers Pde

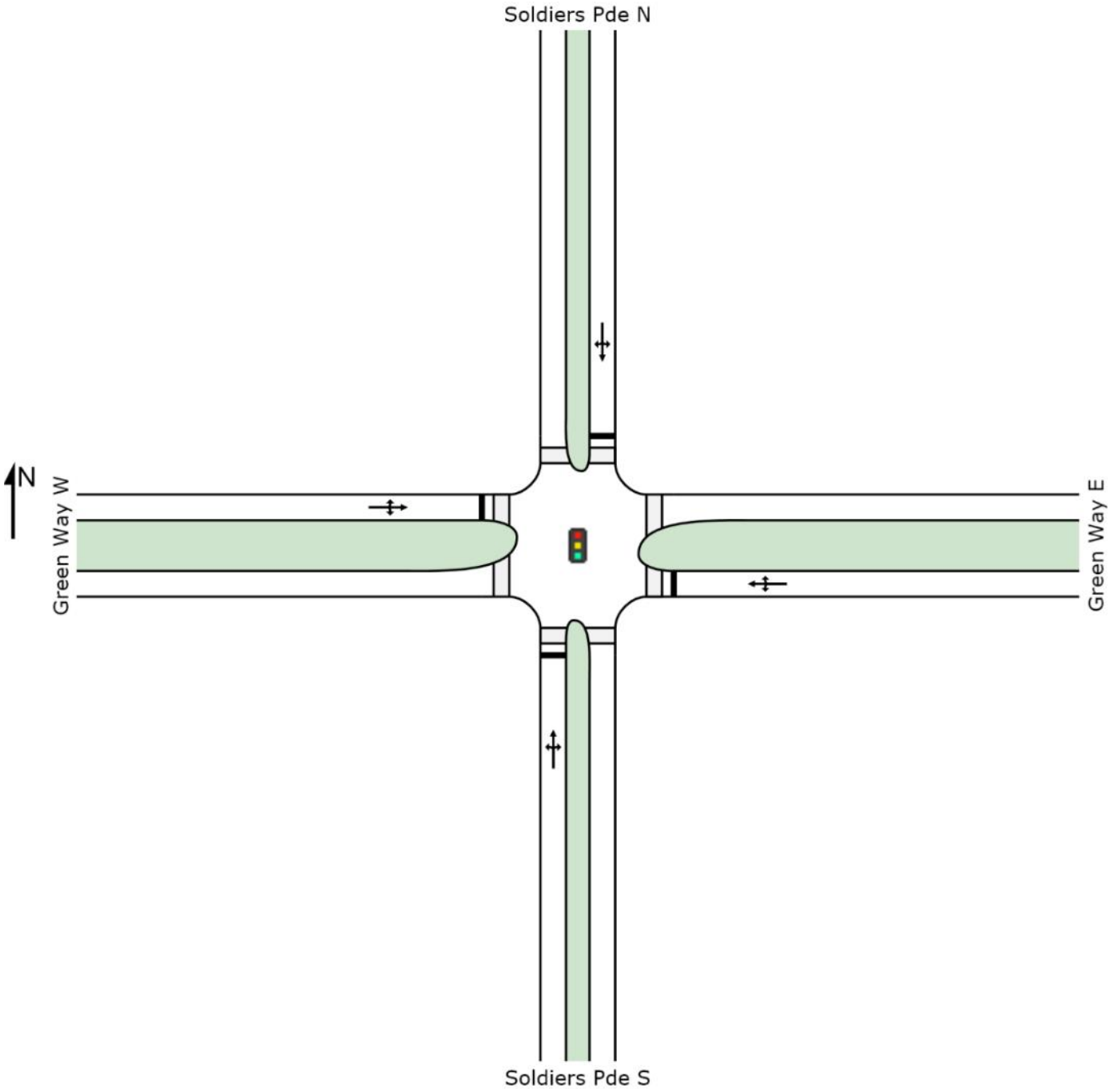
Intersection of Campbelltown Rd / Soldiers Pde
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Soldiers Pde / Green Way

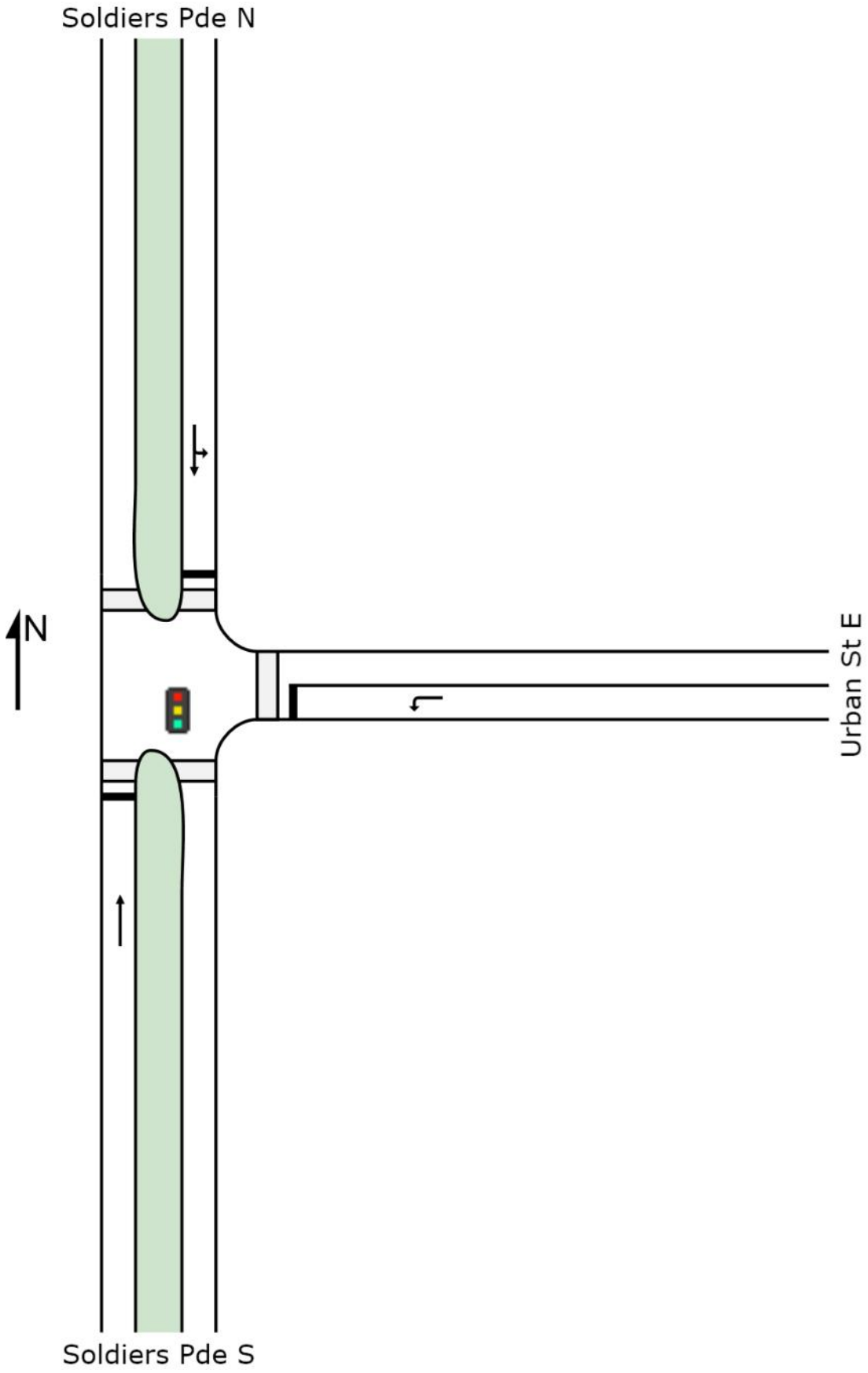
Intersection of Soldiers Pde and Green Way
Test: Signalised
Signals - Fixed Time Isolated



SITE LAYOUT

Site: Soldiers Pde / Urban St

Intersection of Soldiers Pde and Urban St
Signals - Fixed Time Isolated



Appendix B

Network Diagrams

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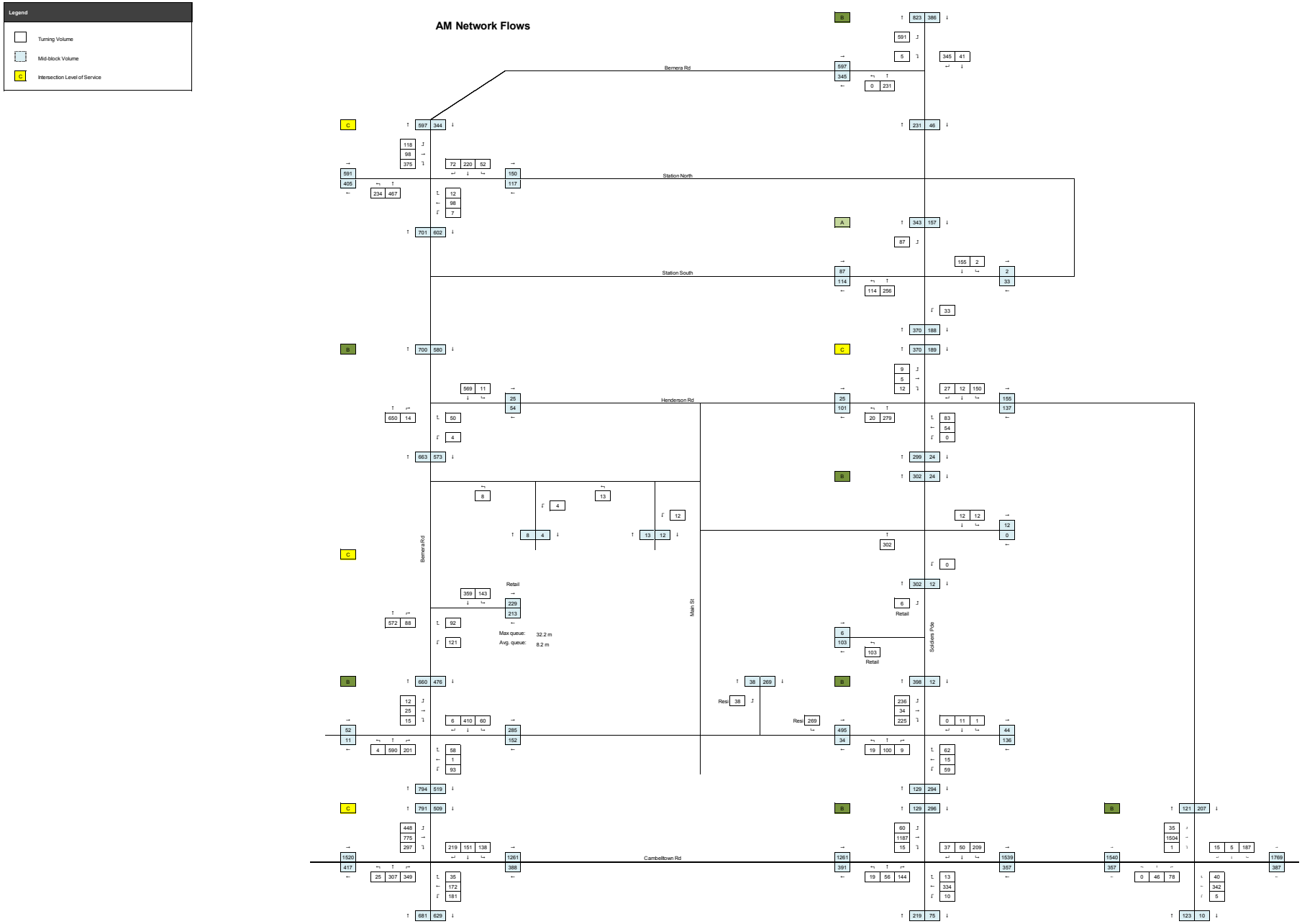
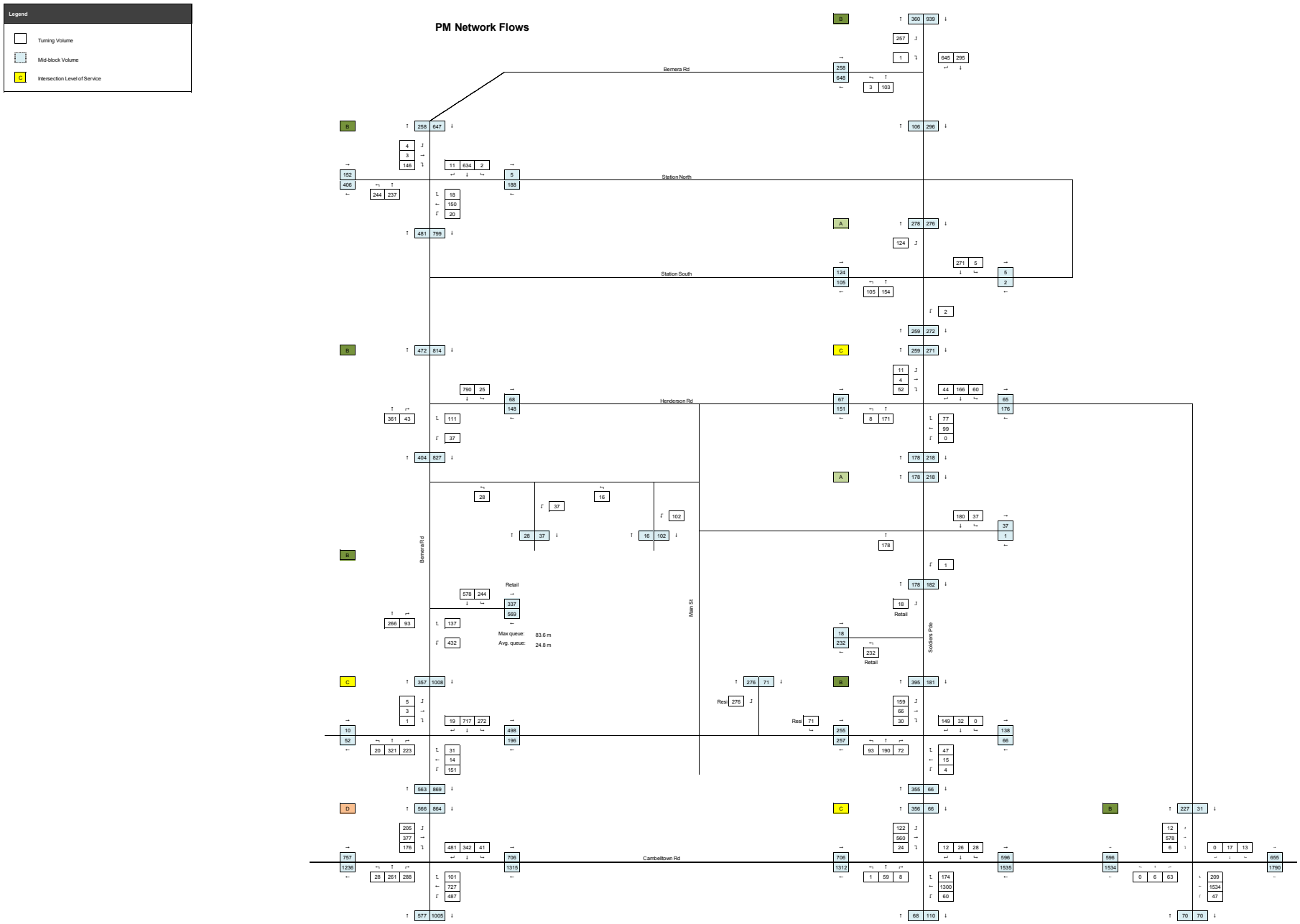

Legend
Turning Volume
Mid-block Volume
Intersection Level of Service
AM Network Flows
Bernera Rd
Station North
Station South
Henderson Rd
Main St
Soldiers Pde
Cambelltown Rd
Retail
Resi
Max queue: 32.2 m
Avg. queue: 8.2 m


Legend
Turning Volume
Mid-block Volume
Intersection Level of Service
PM Network Flows
Bernera Rd
Station North
Station South
Henderson Rd
Cambeltown Rd
Main St
Soldiers Pde
Retail
Max queue: 83.6 m
Avg. queue: 24.8 m