Proposed Closure of Andrew Fairley Avenue in Shepparton

Traffic Analysis Report

Client:

Greater Shepparton City Council

Project No. 134600

Final Report – 5/05/14

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INTRODUCTION

Trafficworks has been engaged by Greater Shepparton City Council to estimate the traffic impact of a proposed closure of Andrew Fairley Avenue in Shepparton.

This report uses existing (surveyed) traffic volumes to determine the operating characteristics of the surrounding road network immediately following the proposed road closure. In addition, future conditions are estimated (ten year's time).

BACKGROUND

Existing Conditions

Andrew Fairley Avenue is a collector street under the management of Greater Shepparton City Council. Andrew Fairley Avenue is aligned in a north-west to south-east direction, and is a two-lane, two-way road. Andrew Fairley Avenue provides connection between Railway Parade / Hawdon Street / Knight Street to the north-west, and Old Dookie Road / Lockwood Road to the south-east. Andrew Fairley Avenue has a pavement width of approximately 11m in a 20m road reservation. Kerbside parking is not permitted.

Andrew Fairley Avenue bisects the SPC-Ardmona factory site in Shepparton. Traffic counts undertaken in March 2014 by Greater Shepparton City Council indicate the typical weekday traffic volume on Andrew Fairley Avenue is 8,000 vehicles per day (vpd).

The urban default speed limit of 50km/h applies to Andrew Fairley Avenue.

The intersection of Andrew Fairley Avenue and Railway Parade / Hawdon Street / Knight Street is a roundabout. The intersection of Andrew Fairley Avenue and Old Dookie Road / Lockwood Road is also a roundabout. There is a railway level crossing on Andrew Fairley Avenue immediately east of the Railway Parade / Hawdon Street / Knight Street roundabout. The railway line at this point is a single railway line, and is located north of the Shepparton Railway Station which is the northern limit of the rail service from Melbourne. The railway line has limited use at this point. Traffic signals are located approximately half-way along Andrew Fairley Avenue, to stop through traffic on Andrew Fairley Avenue to allow vehicles to cross the road between the two sections of the SPC-Ardmona site. Andrew Fairley Avenue and the surrounding road network are shown in Figure 1. Figures 2 and 3 show photos of Andrew Fairley Avenue.

Figure 1 – Site Location (reproduced with permission from Melway Publishing Pty Ltd)

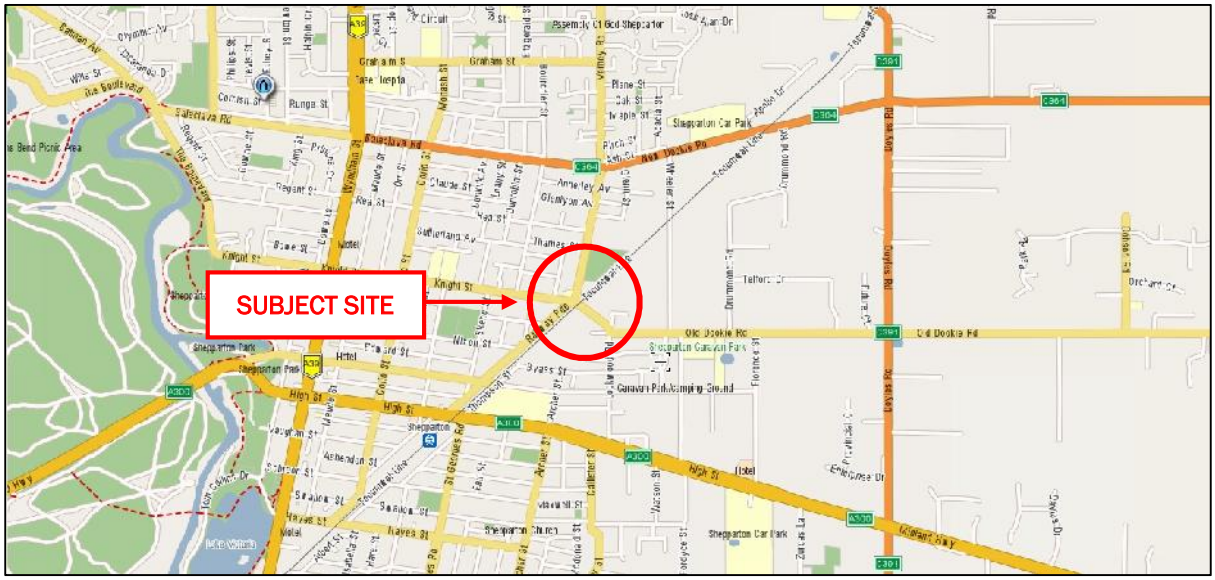


Figure 2 – Andrew Fairley Avenue, looking north-west towards Railway Parade

Figure 3 – Andrew Fairley Avenue, looking south-east towards Lockwood Road

Proposed Conditions

SPC-Ardmona has approached Greater Shepparton City Council with a request to close Andrew Fairley Avenue to all vehicular and pedestrian traffic, to incorporate the road width into the operations of the SPC-Ardmona factory.

TRAFFIC VOLUMES

Traffic surveys undertaken in March 2014 for Greater Shepparton City Council indicate that Andrew Fairley Avenue typically carries approximately 8,000vpd.

Surveys undertaken during the Easter school holiday period in 2014 indicated this volume reduced to approximately 7,100vpd during school holidays.

Greater Shepparton City Council provided traffic survey data for various roads within Shepparton to assist with the traffic analysis for the proposed road closure. The surveys were conducted over various years in the past, and so a traffic growth factor of 1.5%pa has been adopted in consultation with Greater Shepparton City Council to estimate 2014 traffic volumes.

TRAFFIC REDISTRIBUTION

The proposed closure of Andrew Fairley Avenue will result in the redistribution of 8,000vpd on a typical weekday. The assumptions made as part of the estimation of the redistributed traffic are summarised in Table 1.

Table 1: Assumptions for two-way traffic redistribution from Andrew Fairley Avenue

Route	Two-way Distribution (%)	Comments
Midland Hwy east	5	
Midland Hwy west	15	
Goulburn Valley Hwy south	0	
Goulburn Valley Hwy north	15	
Zone 1	10	Hawdon St – Andrew Fairley Ave – Florence St to Marketplace and Bunnings etc
Zone 2	5	
Zone 3	20	School traffic
Zone 4	5	
Zone 5	5	
Zone 6	10	Traffic from east half of this zone would use it for school, sports precinct etc
New Dookie Road	5	
Old Dookie Road	5	Dobson Estate (100 lots) off Old Dookie Rd east of Doyles Rd
	100	

Figures indicating the redistribution of traffic from each route and zone are shown in Attachment A.

Table 2 shows the redistributed traffic volumes on each alternate route.

Table 2: Current and Post closure traffic volumes on surrounding road network

Road	2014 24 hour volume (vpd)	Post closure Redistribution (%)	Andrew Fairley Ave Redistributed Traffic (vpd)	Post closure 24 hour volume (vpd)	Post closure – 10 years 24 hour volume (vpd)	Post closure AM Peak (vph)	Post closure PM Peak (vph)
Andrew Fairley Ave	7,976	-100	0	0	0	0	0
Byass St	4,462	2.50	199	5,079	5,895	457	508
Old Dookie Rd	7,695	0.75	60	8,107	9,410	730	811
Knight St	5,114	5.00	399	5,746	6,670	517	575
Archer St	4,257	15.25	1,216	5,668	6,580	510	567
Thompson St	8,386	1.00	80	8,848	10,270	796	885
New Dookie Rd	10,502	6.00	479	11,460	13,300	1,031	1,146
Lockwood Rd[1]	7,948	6.25	499	9,319	10,815	839	932
Hawdon St	10,589	5.00	399	12,506	14,515	1,126	1,251
Fryers St	3,202	20.50	1,635	5,084	5,900	458	508
Railway Pde	8,422	10.75	857	9,406	10,915	847	941
Wheeler St	3,430	11.25	897	4,761	5,525	429	476
Midland Hwy	15,540	12.75	1,017	19,052	22,110	1,715	1,905
Clarke St	420	3.00	239	727	845	65	73

Assumptions:

- Existing 7,976vpd on Andrew Fairley Avenue will be redistributed amongst the various local roads detailed in the table above;
- The area bounded by Goulburn Valley Highway and Dookie-Shepparton Road (Zone 1 – Refer to Table 1) is primarily a residential area;
- The area bounded by Goulburn Valley Highway, Midland Highway and the train line is primarily a retail/business and school zone that also contains some sports and recreation facilities (Zone 3 –Refer to Table 1);
- The area to the south of Midland Highway and east of the rail line is primarily a residential area with a retail and light industry strip along the Midland Highway (Zone 6 – Refer to Table 1);
- The area to the north of Midland Highway and east of the train line is primarily an industrial zone with small pockets of residential development;
- Traffic volume data provided by Greater Shepparton City Council from previous years was factored up to 2014 volumes using a 1.5%pa growth rate (determined in consultation with Greater Shepparton City Council's Senior Traffic Engineer);

[1] Includes some that will use Mitchell St and Florence St

- 10% peak hour factor adopted (i.e. the AM and PM peak hours each carry 10% of the daily volume);
- Based on the historical traffic count data provided by the Greater Shepparton City Council, the following AM directional splits were calculated for the relevant two-way traffic volumes:
    - 50% eastbound/ 50% westbound Old Dookie Road;
    - 50% northbound / 50% southbound Railway Parade;
    - 50% northbound / 50% southbound Wheelers Street;
    - 60% northbound / 40% southbound Thompson Street;
    - 55% eastbound / 45% westbound New Dookie Road; and,
    - 65% eastbound / 35% westbound Fryers Street;
- Based on the historical traffic count data provided by the Greater Shepparton City Council, the following PM directional splits were calculated for the relevant two-way traffic volumes:
    - 50% eastbound/ 50% westbound Old Dookie Road;
    - 50% northbound / 50% southbound Railway Parade;
    - 50% northbound / 50% southbound Wheelers Street;
    - 50% northbound / 50% southbound Thompson Street;
    - 35% eastbound / 65% westbound New Dookie Road; and,
    - 65% eastbound / 35% westbound Fryers Street;
- Turning movement volumes at the key intersections analysed using SIDRA were estimated from sample 15 minute turning movement counts undertaken at the key intersections on Monday 7th April 2014, between 10am and 12noon. The turning proportions were used in conjunction with the 24-hour traffic count data provided by Greater Shepparton City Council to estimate the turning movement volumes for the SIDRA analysis
- Additional sample 15 minute turning movement surveys were conducted at the intersection of Thompson Street / Fryers Street, along with observations of queue lengths, on Tuesday 22nd April 2014;
- Pedestrian and cyclists counts were conducted in Andrew Fairley Avenue on Tuesday 22nd April 2014, between 7-9.30am, and 3-7pm;
- Turning proportions for the Midland highway / Lockwood Road intersection were developed in discussion with Greater Shepparton City Council;
- Turning proportions for the Hawdon Street / New Dookie Road / Verney Road / Balaclava Road roundabout were based on historical turning movement surveys which have been factored up to current traffic volumes;
- Data provided by Aurecon of SPC-Ardmona related traffic movements are attached in Attachment C. It is estimated that of the 8,000vpd on Andrew Fairley Avenue, 1,100vpd are generated by staff travelling to and from the SPC-Ardmona site[2] (peak season). Note that all SPC-A staff parking is located east of the plant;
- SPC-Ardmona's current operations at Shepparton have fresh fruit deliveries access the site via Wheeler Street (i.e. the route does not use Andrew Fairley Ave). Other inputs such as cans and packaging enter the site via the entry west of the Old Dookie Road / Lockwood Road roundabout. B-Doubles enter the National Distribution Centre (NDC) west of the intersection of Byass Street and Archer Street, and exit onto Thompson Street (i.e. the route does not use Andrew Fairley Ave);
- SPC-Ardmona proposed future operations include tomato production at the Shepparton site instead of Mooroopna, and current inter-site trips will be removed. The proposed

[2] 902 employees were on site on 26th March 2014 (peak season), coinciding with Council's traffic counts: questionnaire surveys indicate that 92% drive to the site, a further 2% are dropped off at the site, and 65% indicated they travel from the west and use Andrew Fairley Avenue.

change will result in a minor reduction in traffic movements (refer Attachment C), and as a result these have not been included in the traffic analysis; and,
- Future traffic volumes (10 years post closure) were estimated using a 1.5%pa growth rate.

Roadway Capacities

Greater Shepparton City Council's Infrastructure Design Manual (IDM) Table 2, recommends an indicative maximum traffic volume for collector streets of 6,000 vehicles per day (vpd). Many of the collector streets within Shepparton carry traffic volumes in excess of this.

Austroads Guide to Traffic Engineering Practice Part 2 (GTEP2), Roadway Capacity, Chapter 7 provides details for Urban Arterial Roads with Interrupted Flow. Table 7.1 indicates that typical two-way mid-block capacity of arterial roads with adjacent parking lanes or clearway conditions is **1,800vph**[3]. Therefore the theoretical daily capacity of many of the collector streets in the area surrounding Andrew Fairley Avenue is 18,000vpd. These include:

- Hawdon Street
- New Dookie Road
- Old Dookie Road
- Railway Parade
- Fryers Street
- Archer Street

However extensive queuing will form at the intersections with traffic volumes approaching this level.

Table 7.1 of GTEP2 also indicates the two-way capacity of the arterial roads without a parking lane or clearway conditions but with occasional parked cars is **12,000 vehicles per day**[4]. Therefore the theoretical capacity of many of the collector streets in the area surrounding Andrew Fairley Avenue is 12,000vpd. These include:

- Lockwood Street
- Mitchell Street
- Florence Street
- Wheeler Street

As noted above, lengthy queues will form at the intersections with traffic volumes approaching this level. It may also become necessary to introduce clearway conditions along Mitchell Street, Florence Street and Wheeler Street to improve flow.

The post closure – 10 years estimate for Lockwood Road indicates that it will be approaching its theoretical capacity at that stage and will need parking restrictions to maintain acceptable flow conditions.

[3] Table 7.1 shows outer or kerb lane with adjacent parking lane: one-way mid-block capacity = 900vph (so two-way volume = 1,800vph, and assuming a 10% peak hour factor to convert to daily volumes).
[4] Table 7.1: one-way mid-block capacity = 600vph (so two-way volume = 1,200vph, and assuming a 10% peak hour factor to convert to daily volumes).

Pedestrians and Cyclists

The proposed closure of Andrew Fairley Avenue will also result in the route being closed to pedestrians and cyclists, including those accessing the schools and sports precinct to the west of Andrew Fairley Avenue.

A peak period pedestrian and cyclist survey was undertaken along Andrew Fairley Avenue on Tuesday 22nd April 2014 (in each direction and those travelling to and from SPC-Ardmona) to quantify these movements.

Pedestrian movements

In the morning peak period, between 7.00am and 9.30am, it was observed that:

- 16 pedestrians crossed Andrew Fairley Avenue;
- 3 pedestrians crossed Andrew Fairley Avenue at the SPC boom gates;
- 8 pedestrians travelled along the footpath on the north-east side of Andrew Fairley Avenue (3 northbound, 5 southbound);
- 11 pedestrians travelled along the footpath on the south-west side of Andrew Fairley Avenue (9 northbound, 2 southbound);
- In total, there were 38 pedestrians observed in Andrew Fairley Avenue between 7am and 9.30am.

In the evening peak period, between 3pm and 7pm, it was observed that there were:

- 6 pedestrians crossed Andrew Fairley Avenue;
- 2 pedestrians crossed Andrew Fairley Avenue at the SPC boom gates;
- 17 pedestrians travelled along the footpath on the north-east side of Andrew Fairley Avenue (2 northbound, 15 southbound);
- 4 pedestrians travelled along the footpath on the south-west side of Andrew Fairley Avenue (2 northbound, 2 southbound);
- In total, there were 29 pedestrians observed in Andrew Fairley Avenue between 3pm and 7pm.

Cyclist movements

In the morning peak period, between 7.00 and 9.30am, it was observed that:

- No cyclists travelled on or off-road in Andrew Fairley Avenue.

In the evening peak period, between 3pm and 7pm, it was observed that:

- 0 cyclists travelled in either direction, along the footpath (off-road) on the north-east side of Andrew Fairley Avenue;
- 1 cyclist travelled in either direction, along the footpath (off-road) on the south-west side of Andrew Fairley Avenue;
- 4 cyclists travelled north-west, along Andrew Fairley Avenue (on-road); and,
- 2 cyclists travelled south-east, along Andrew Fairley Avenue (on-road).
- In total, there were 7 cyclists observed in Andrew Fairley Avenue between 3pm and 7pm.

TRAFFIC ANALYSIS

SIDRA software was utilised to determine the anticipated intersection operational performance for the following key intersections following the proposed closure of Andrew Fairley Avenue:

- Fryers Street / Railway Parade roundabout;
- Fryers Street / Thompson Street reverse priority T-intersection;
- New Dookie Road / Wheeler Street T-intersection;
- Old Dookie Road / Wheeler Street signalised T-intersection;
- Lookwood Road / Midland Highway intersection; and
- Hawdon Street / New Dookie Road / Balaclava Road / Verney Road.

The SIDRA program produces statistics and information on the operation of an intersection but typically the main characteristic used to assess the operation is the Degree of Saturation (DOS) which takes into account the 95th percentile queue lengths and delays.

An explanation of the intersection operating characteristics is shown in Table 3.

Table 3: Definitions of intersection operation characteristics

Degree of Saturation (DOS)	Intersection Operation
Less than 0.60	Excellent operating conditions, minimal delays
0.60 – 0.70	Very good operating conditions, minimal delays
0.70 – 0.80	Good operating conditions, delays and queuing increasing
0.80 – 0.90	Acceptable operating conditions, delays and queues growing. Any interruption to flow such as minor incidents causes increasing delays
0.90 – 0.95	Poor operating conditions, flows starting to breakdown and queues and delays increase rapidly.
Above 0.95	Very poor operating conditions with queues and delays increasing rapidly. Once queues develop it takes a significant time for queues to dissipate resulting in long delays to traffic movements

Average delays are shown for all vehicles through the intersection, in seconds.

Queue lengths shown are 95th percentile queue lengths, in metres. Also noted is the approach which the longest queue is analysed on.

Intersection Analysis

The AM and PM peak period operation of the intersections listed above was analysed using SIDRA for the following scenarios:

- Existing conditions
- Post closure of Andrew Fairley Avenue conditions
- Sensitivity analysis of 10 years traffic growth, assuming 1.5%pa traffic growth to test the operational performance of the intersections over the next 10 years (including the closure of Andrew Fairley Avenue)

Fryers Street and Railway Parade

The SIDRA results for the intersection of Fryers Street and Railway Parade are summarised in Table 4 and full SIDRA results are shown in Attachment C.

Table 4: SIDRA model results for Fryers Street / Railway Parade roundabout

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.34	9	15 NE	0.44	10	21 NE
Post AFA closure	0.40	10	19 NE	0.61	11	40 NE
10 years	0.54	11	34 NE	0.77	16	76 NE
10 years no AFA closure	0.48	10	24 NE	0.74	14	69 NE

AFA – Andrew Fairley Avenue

Key observations are:

- the intersection currently operates satisfactorily during the AM and PM peak periods;
- the intersection is expected to continue to operate satisfactorily following the closure of Andrew Fairley Avenue;
- the 10 year sensitivity analysis indicates the intersection is expected to continue to operate satisfactorily for 10 years into the future following the closure of Andrew Fairley Avenue, and in fact the intersection operation will not be significantly worse than if Andrew Fairley Avenue remains open to traffic.

Fryers Street and Thompson Street

The SIDRA results for the intersection of Fryers Street and Thompson Street, using updated Austraffic turning movement counts, are summarised in Table 5 and full SIDRA results are shown in Attachment C.

Table 5: SIDRA model results for Fryers Street / Thompson Street reverse priority T-intersection

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.18	9	5.7 NE	0.76	13	38 NE
Post AFA closure (current layout)	0.21	9	6.6 NE	0.98	21	90 NE
Post AFA closure (modified T int layout)	0.24	6.6	11 W	0.54	8.4	47 W
10 years (modified T int layout)	0.29	7	13 W	0.65	10	80 W
10 years no AFA closure current layout	0.24	9	7.5 NE	0.80	14	42 NE

An alternative future intersection layout was considered subsequent to the closure of Andrew Fairley Avenue: a modified T-intersection (change of priority).

Key observations are:

- the existing intersection currently operates satisfactorily during the AM and PM peak periods with good operating conditions, minimum delays and queue lengths;
- analysing the existing intersection immediately after the closure of Andrew Fairley Avenue, the increase in traffic along Fryers Street will result in the saturation of intersection during the PM peak with lengthy delays experienced along Thompson Street;
- the SIDRA results for the alternative intersection treatment shows that immediately after the closure of Andrew Fairley Avenue and 10 years into the future, the level of service of the intersection will be satisfactory, however queuing along the west approach (Fryers Street) is expected to extend across the railway crossing and into the Railway Parade roundabout;
- it is therefore recommended that a linked network assessment of the Fryers Street / Thompson Street intersection, the railway level crossing and the Railway Parade / Fryers Street roundabout be conducted (SIDRA network model or micro simulation);

- the SIDRA results indicate that the current intersection layout could cope with future traffic growth for at least 10 years if Andrew Fairley Avenue remains open.

New Dookie Road and Wheeler Street

The SIDRA results for the intersection of New Dookie Road and Wheeler Street are summarised in Table 6 and full SIDRA results are shown in Attachment C.

Table 6: SIDRA model results for New Dookie Road / Wheeler Street T-intersection

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.34	5	13 S	0.37	4	14 S
Post AFA closure	0.41	5	17 S	0.56	6	25 S
10 years	0.60	6	31 S	0.77	8	44 S
10 years no AFA closure current layout	0.47	5	20 S	0.61	6	27 S

Key observations are:

- the intersection currently operates satisfactorily during the AM and PM peak periods;
- the intersection is expected to continue to operate satisfactorily following the closure of Andrew Fairley Avenue;
- the 10 year sensitivity analysis indicates the intersection is expected to continue to operate satisfactorily for 10 years into the future whether Andrew Fairley Avenue is closed or remains open.

Old Dookie Road and Wheeler Street

The SIDRA results for the signalised intersection of Old Dookie Road and Wheeler Street are summarised in Table 7 and full SIDRA results are shown in Attachment C.

Table 7: SIDRA model results for Old Dookie Road / Wheeler Street signalised T-intersection

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.28	14	26 E	0.46	15	38 E
Post AFA closure	0.29	15	27 E	0.46	15	39 E
10 years	0.36	15	32 E	0.57	15	46 E
10 years no AFA closure current layout	0.35	15	31 E	0.57	15	46 E

Key observations are:

- the intersection currently operates satisfactorily during the AM and PM peak periods;
- the intersection is expected to continue to operate satisfactorily following the closure of Andrew Fairley Avenue;
- the 10 year sensitivity analysis indicates the intersection is expected to continue to operate satisfactorily for 10 years into the future whether Andrew Fairley Avenue is closed or remains open to traffic.

Lockwood Road and Midland Highway

The SIDRA results for the intersection of Lockwood Road and Midland Highway are summarised in Table 8 and full SIDRA results are shown in Attachment C.

Table 8: SIDRA model results for Lockwood Road / Midland Highway signalised intersection

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.72	23	129 NW	0.74	24	136 NW
Post AFA closure	0.76	24	143 NW	0.78	26	152 NW
10 years	0.90	31	218 NW	0.93	39	249 NW
10 years no AFA closure current layout	0.85	28	185 NW	0.88	32	205 NW

Key observations are:

- the SIDRA analysis show that the existing intersection has an average level of service during the AM and PM peaks with moderate delays and queuing along the north-west approach (Midland Highway);
- subsequent to the closure of Andrew Fairley Avenue, it is expected that the level of service will decrease marginally during the AM and PM peaks, with only slight increases to the delays and queue lengths as a result of the additional traffic;
- the 10 year sensitivity analysis indicates the intersection is expected to continue to operate satisfactorily with 10 years traffic growth if Andrew Fairley Avenue remains open, but with poor operating conditions if Andrew Fairley Avenue is closed.

Hawdon Street / New Dookie Road / Balaclava Road / Verney Road

The SIDRA results for the intersection of Hawdon Road / New Dookie Road / Balaclava Road / Verney Road are summarised in Table 9 and full SIDRA results are shown in Attachment C.

Table 9: SIDRA model results for Lockwood Road / Midland Highway signalised intersection

	AM Peak			PM Peak		
	DOS	Average delay (sec)	95%ile Queue (m)	DOS	Average delay (sec)	95%ile Queue (m)
Existing Conditions	0.66	13.2	48 E	1.08	49	437 E
Post AFA closure	0.70	14	57 E	1.16	75	656 E
Post AFA closure - roundabout with slip lanes	0.68	12	53 E	1.12	51	558 E
Post AFA closure – traffic signals	0.72	26	52 N	0.68	28	76 N
10 years existing layout	0.84	18	92 E	1.16	75	656 E
10 years - roundabout with slip lanes	0.85	16	98 E	1.12	51	558 E
	8 years growth only			0 years growth only		
10 years - traffic signals	0.74	27	67 N	0.79	30	98 N
10 years no AFA closure existing layout	0.84	18	96 E	1.08	49	437 E

Roundabout with slip lanes – left turn slip lanes on the northern and western approaches

Key observations are:

- the SIDRA analysis show that the existing intersection operates satisfactorily during the morning peak period, but has very poor operating conditions in the evening peak period, with extensive queues on all approaches, in particular the eastern approach;
- the intersection will require capacity improvements if Andrew Fairley Avenue is closed;
- adding channelised left-turn slip lanes on the northern and western approaches will marginally improve the intersection performance, but it will still have poor operating conditions in the evening peak period (there is insufficient space to provide left-turn slip lanes on the other approaches without land acquisition);
- converting the existing roundabout to a signalised intersection, the operating conditions in the evening peak period are greatly improved, however the spatial constraints may limit the ability to construct sufficient traffic lanes for this intersection design (refer to the SIDRA intersection layout in Attachment C).

CONCLUSIONS

This report reviewed the likely redistribution of traffic following the proposed closure of Andrew Fairley Avenue in Shepparton. The assumptions made in the analysis are provided.

Roadway capacities were checked against Council's IDM and Austroads Guide to Traffic Engineering Practice Part 2, Roadway Capacity. This indicated that following the closure of Andrew Fairley Avenue, the roads will continue to operate within their theoretical roadway capacities. The sensitivity analysis of 10 years traffic growth indicates that Lockwood Road will be approaching its theoretical capacity at that stage. This road becomes a key access route to SPC-A and will require early implementation of parking controls to maintain acceptable flow characteristics. It may also become necessary to consider introduction of clearway conditions in Mitchell, Florence and Wheeler Streets. In urban locations, the roadway / network capacity is influenced by the intersection performance.

Pedestrian and cyclist surveys conducted on Tuesday 22nd April 2014 indicated the following level of activity in Andrew Fairley Avenue:

- 38 pedestrians between 7am and 9.30am;
- 29 pedestrians between 3pm and 7pm;
- No cyclists between 7am and 9.30am; and
- 7 cyclists between 3pm and 7pm.

Pedestrians and cyclists using Andrew Fairley Avenue as a thoroughfare to the schools and sports precinct will need to shift to Fryers Street / Thompson Street if Andrew Fairley Avenue is closed.

The traffic redistribution and SIDRA analysis indicates that the key intersections will operate satisfactorily post the closure of Andrew Fairley Avenue, with the exception of the following intersections:

- Fryers Street / Thompson Street T-intersection;
- Hawdon Street / New Dookie Road, Balaclava Road / Verney Road roundabout;
- Midland Highway / Lockwood Road.

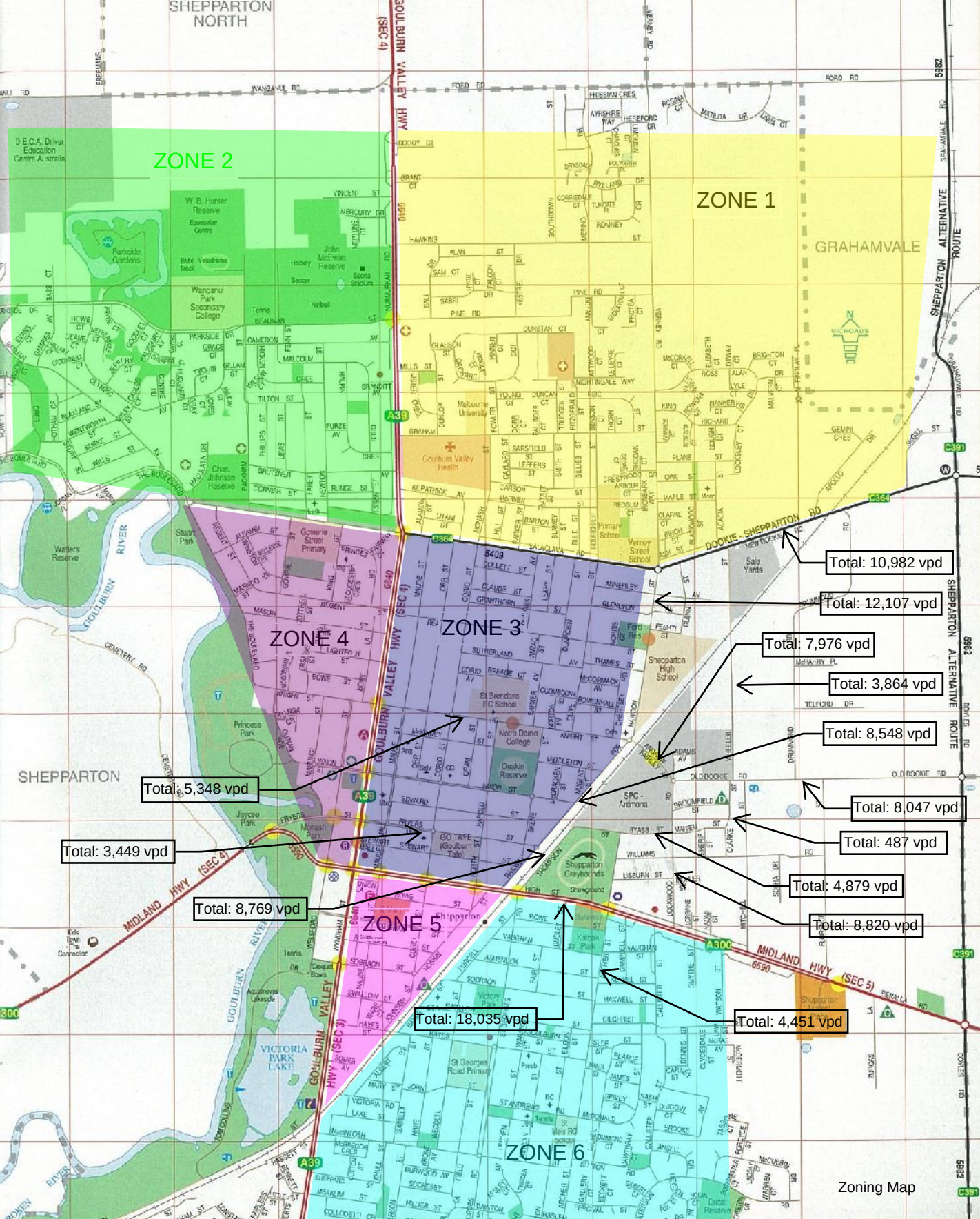
An alternative intersection layout was investigated for the intersection of Fryers Street / Thompson Street to determine the likely performance of a modified T-intersection layout. The alternate intersection layout would operate satisfactorily following the closure of Andrew Fairley Avenue, however queuing on the north-west approach of Fryers Street would likely extend across the railway line and into the Railway Parade roundabout. A network model (SIDRA network or micro simulation) of the Thompson Street / Fryers Street, railway level crossing and Fryers Street / Railway Parade intersections is required to better inform the optimal intersection layout at this location. The intersection would operate satisfactorily in its current layout with future traffic growth for at least 10 years if Andrew Fairley Avenue remains open.

Capacity improvements are required now at the Hawdon Street / New Dookie Road / Balaclava Road / Verney Road roundabout and become more time critical if Andrew Fairley Road is closed to vehicular traffic. Addition of left-turn slip lanes on the northern and western approaches to the roundabout was analysed and indicates this would be insufficient to accommodate post closure

of Andrew Fairley Avenue traffic conditions. Conversion of the roundabout to traffic signals will greatly improve the intersection operation in the evening peak period if the required number of lanes can be accommodated within the space available.

The 10 year sensitivity analysis indicates the intersection of Midland Highway and Lockwood Road is expected to continue to operate satisfactorily with 10 years traffic growth if Andrew Fairley Avenue remains open, but with poor operating conditions if Andrew Fairley Avenue is closed, and so capacity improvements will be required at the intersection at this stage.

ATTACHMENT A - REDISTRIBUTION FIGURES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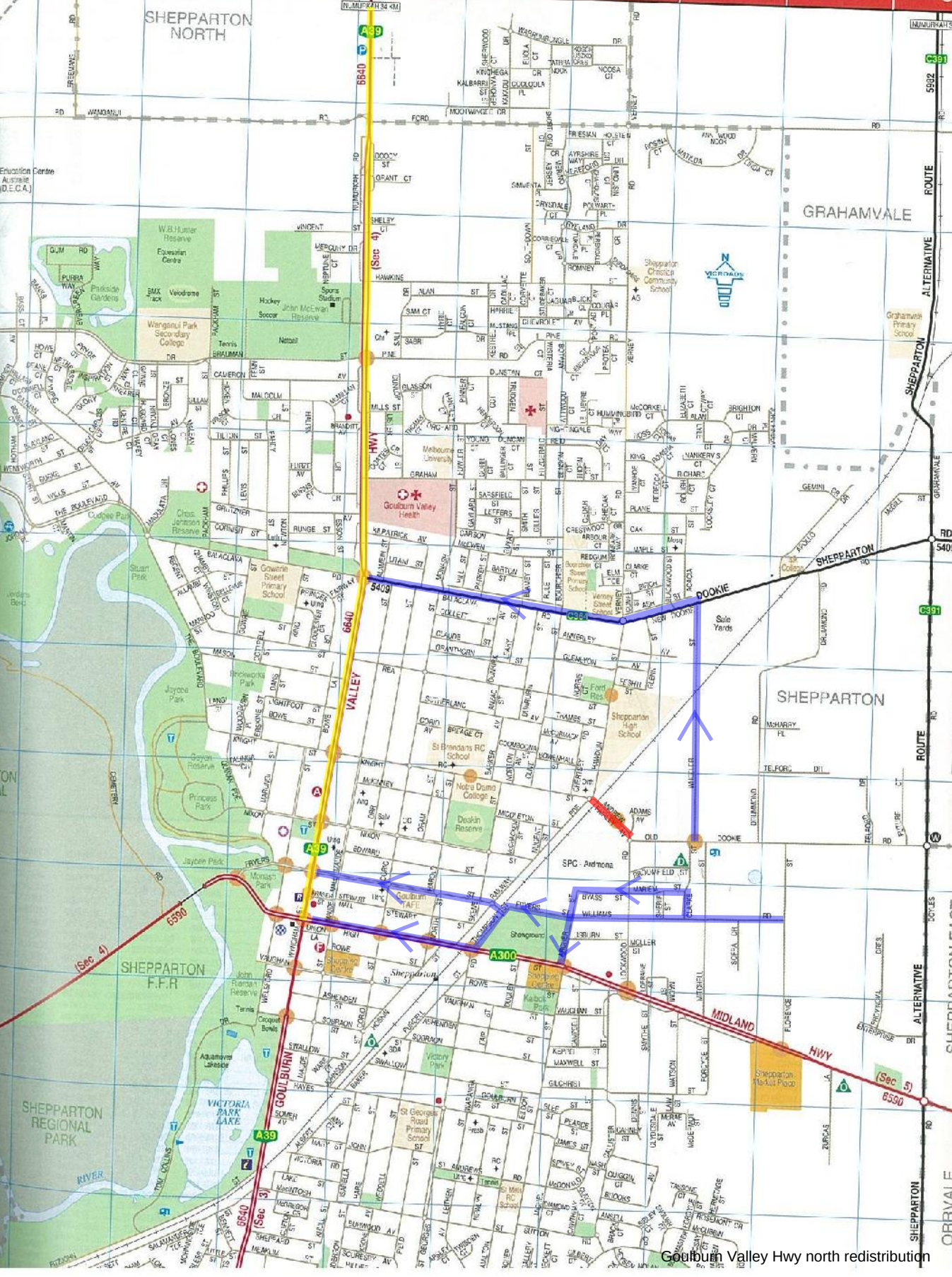
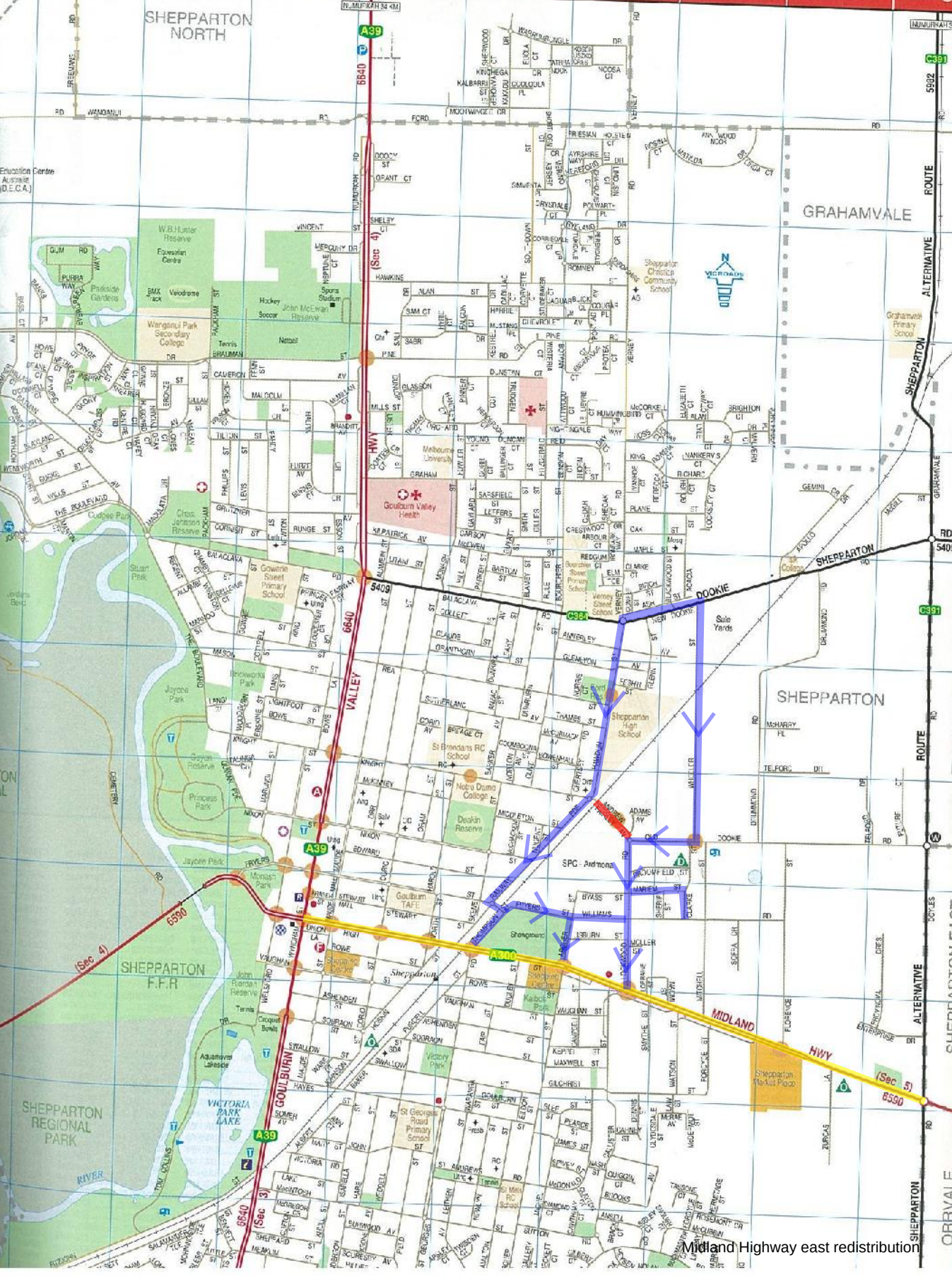
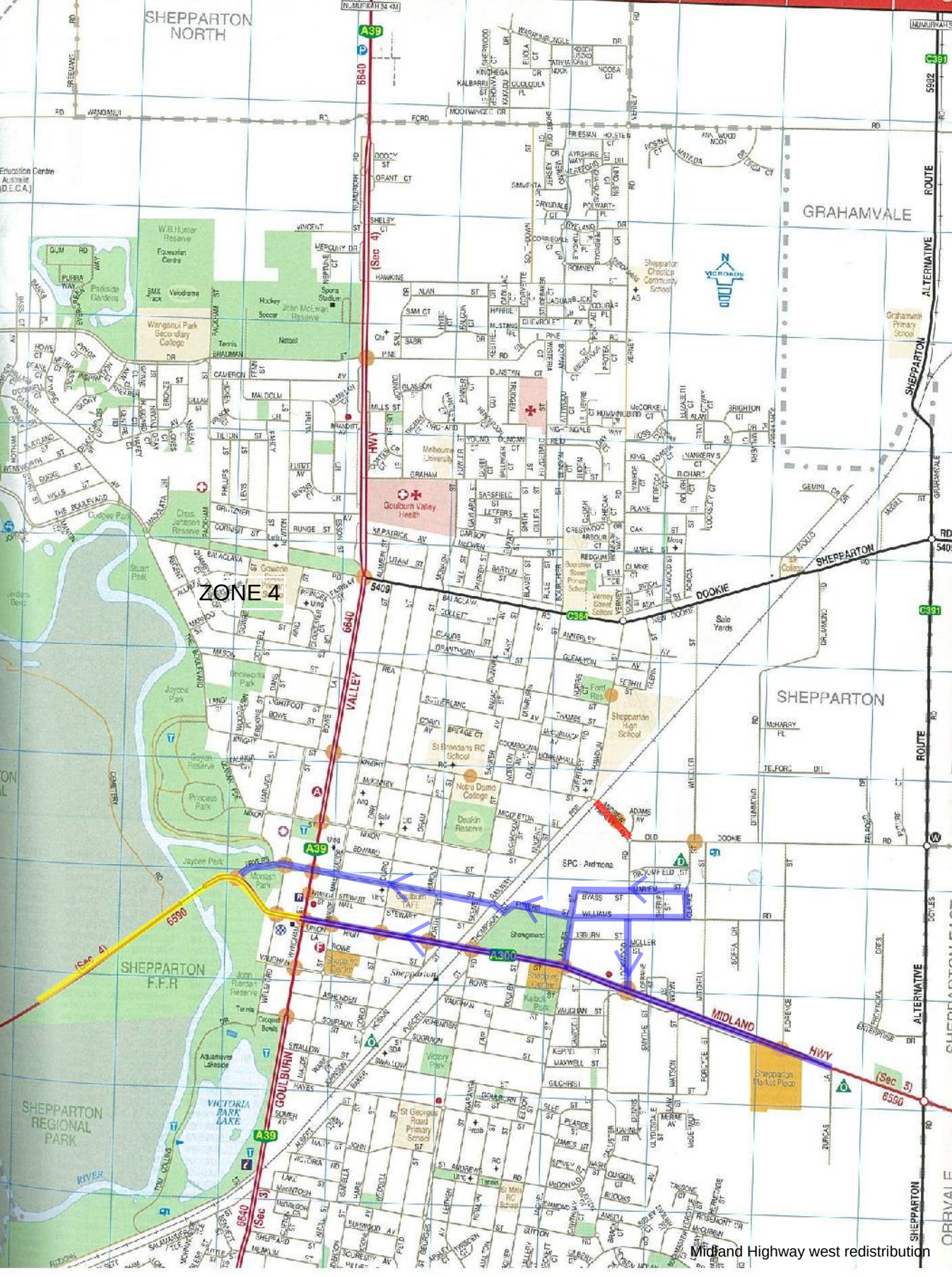
Total: 5,348 vpd
Zoning Map

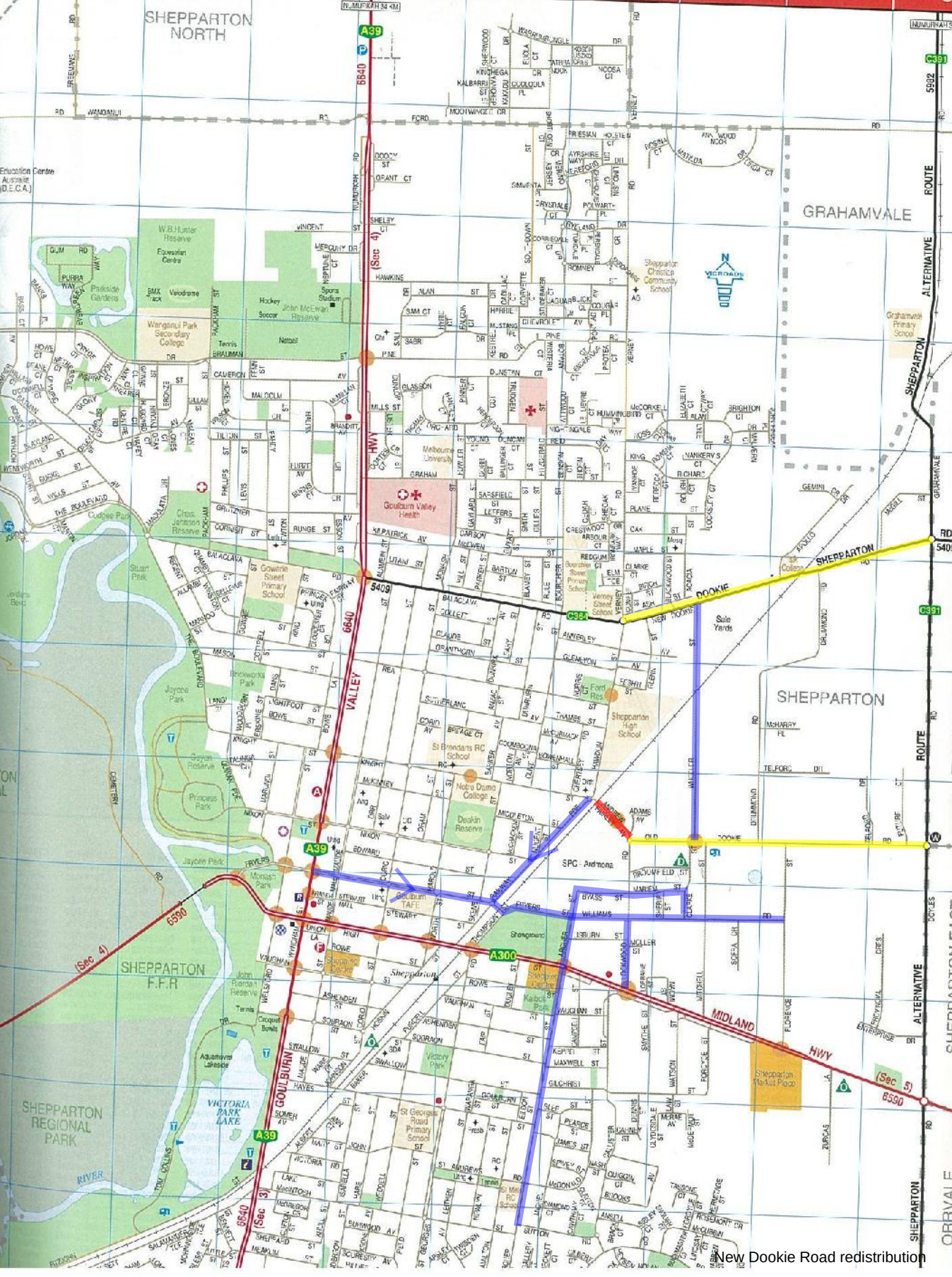


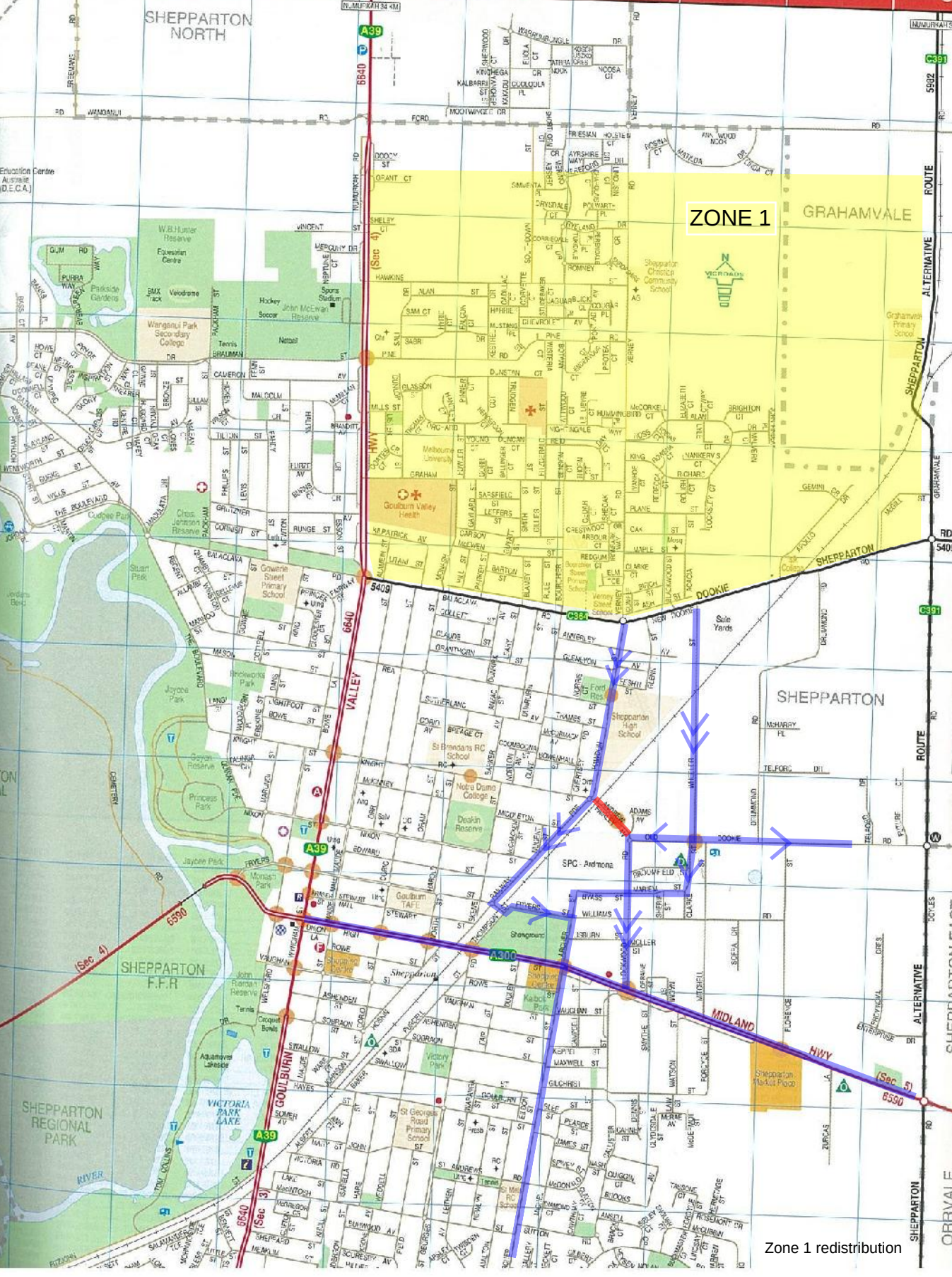
Goulburn Valley Hwy north redistribution



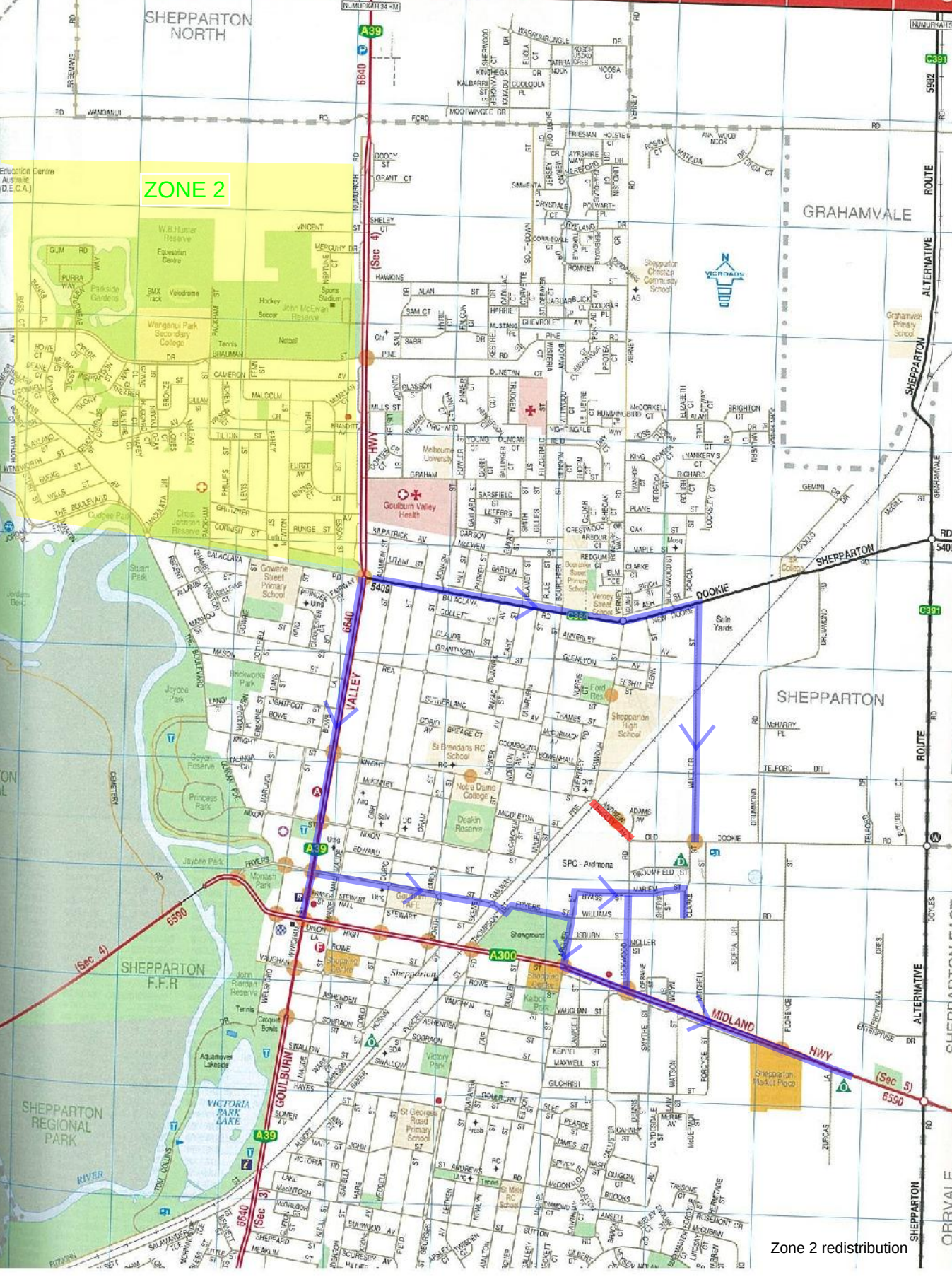
Midland Highway east redistribution

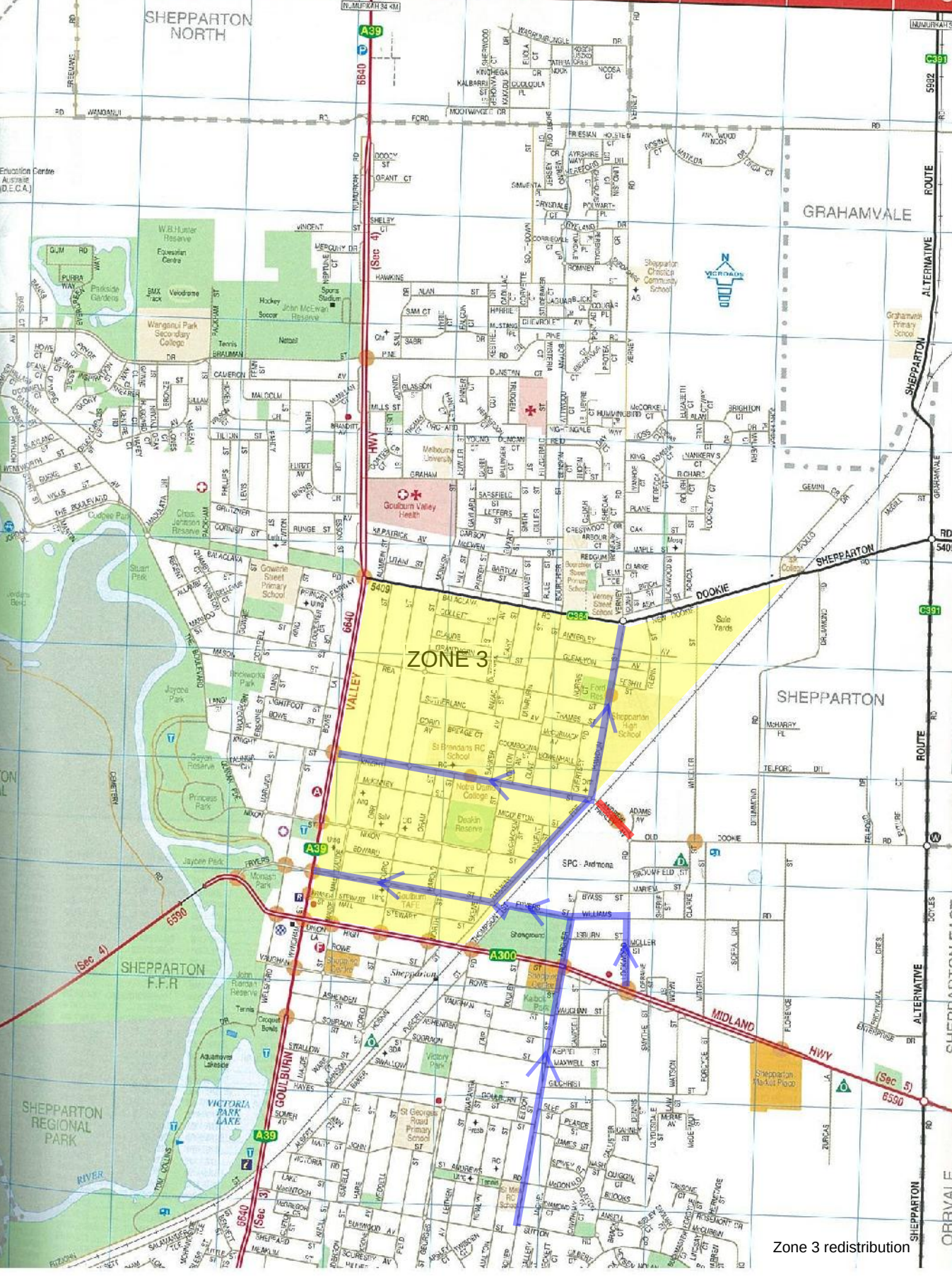

ZONE 4
SHEPPARTON NORTH
GRAHAMVALE
SHEPPARTON
SHEPPARTON F.F.R
SHEPPARTON REGIONAL PARK
VICTORIA PARK LAKE
A39
A300
6640
6590
5409
C384
C391
HWY
VALLEY
GOULBURN
MIDLAND
DOOKIE
ALTERNATIVE
ROUTE
Goulburn Valley Health
Shepparton High School
Shepparton Market Place
Sale Yards
Shepparton Christian Community School
Grahamvale Primary School
St Georges Road Primary School
St Brendans RC School
Notre Dame College
Deakin Reserve
Victory Park
Princess Park
Monash Park
Wangaratta Park Secondary College
Goulburn TAFE
SPC - Ardmona
Midland Highway west redistribution


SHEPPARTON NORTH
GRAHAMVALE
SHEPPARTON
SHEPPARTON F.F.R
SHEPPARTON REGIONAL PARK
VICTORIA PARK LAKE
A39
A300
6640
6590
5409
C384
C391
HWY
VALLEY
GOULBURN
MIDLAND
DOOKIE
ROUTE
ALTERNATIVE
Goulburn Valley Health
Shepparton High School
Sale Yards
Shepparton Market Place
Shepparton Christian Community School
Grahamvale Primary School
Education Centre Australia (D.E.C.A.)
New Dookie Road redistribution

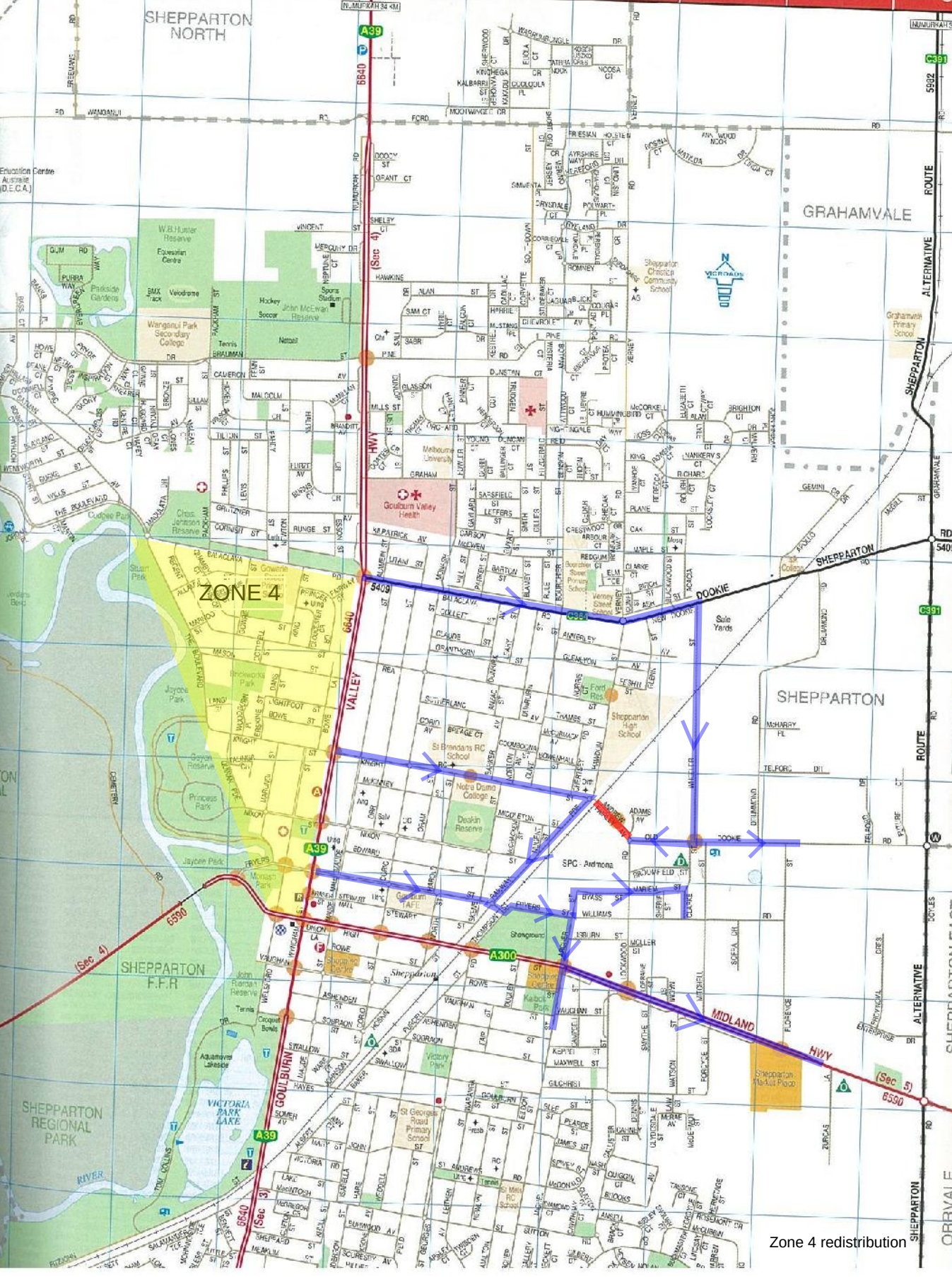


Zone 1 redistribution

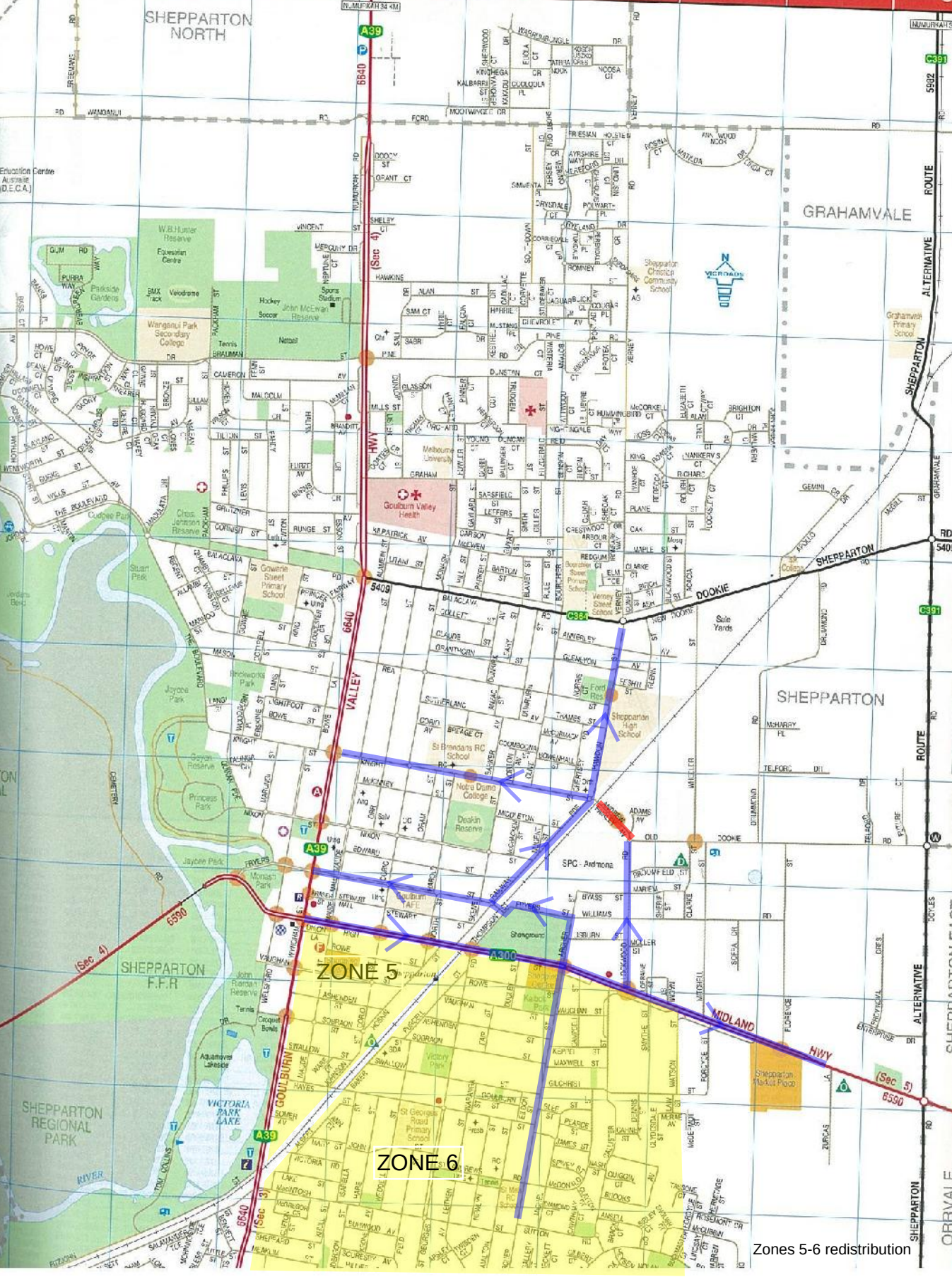

ZONE 2
SHEPPARTON NORTH
GRAHAMVALE
SHEPPARTON
SHEPPARTON F.F.R
SHEPPARTON REGIONAL PARK
VICTORIA PARK LAKE
A39
A300
6640
6590
5409
C391
VALLEY
GOULBURN
MIDLAND HWY
DOOKIE
SHEPPARTON ALTERNATIVE ROUTE
Goulburn Valley Health
Shepparton High School
Sale Yards
Shepparton Market Place
Shepparton Christian Community School
Grahamvale Primary School
Gowrie Street Primary School
St Brendans RC School
Notre Dame College
Deakin Reserve
St Georges Road Primary School
Victory Park
Princess Park
Monash Park
Jaycee Park
Wyndham Park
Stuart Park
Cussen Park
Kaiela Park
Shepparton Showgrounds
Aquamoves Lakeside
Zone 2 redistribution



Zone 3 redistribution



Zone 4 redistribution



Zones 5-6 redistribution

ATTACHMENT B – SPC-ARDMONA TRAFFIC INFORMATION

Kate Kennedy

From: Mark Stone <Mark.Stone@aurecongroup.com>
Sent: Wednesday, 16 April 2014 8:54 AM
To: Kate Kennedy
Cc: steve.bowmaker@shepparton.vic.gov.au; brendan.walsh@shepparton.vic.gov.au; Tim Plenderleith; Chris Hatcher; bkeating@spcardmona.com.au; Peter Carney
Subject: FW: SPCA Andrew Fairley Avenue Closure - URGENT Traffic Data
Attachments: SPC-A Trafffic Generation_Council.xlsx

Hi Kate,

We have undertaken a preliminary traffic generation for SPC-A at Shepparton. Daily traffic generation is contained within the attached spreadsheet.

PLease note that this generation is based on a peak or fruit season day at site. We have linked staff number present on 26/03/2014 for consistency with recent Council traffic counts. 902 empoyees were present on site. This constrasts with a season low of 313 staff on-site on 4/11/2013. This was made up of 60 office staff (9am - 5pm), 90 staff (day & evening shift - 7am-3pm & 3pm - 11pm) and the remainder working evenly over three 8 hour shifts (7am-3pm, 3pm-11pm & 11pm-7am).

We have also undertaken staff travel surveys at SPC-A last Friday to understand travel habits. 92% of staff indicated that they drive to site with a further 2% being dropped off. 65% of staff indicated that they travel from the west and cross Andrew Fairely Avenue.

Current operations at Shepparton see fresh fruit access the site via Wheeler Street. Other inputs (cans, packaging etc.) enter the site via the entry west of the Old Dookie Road/ Lockwood Road roundabout. B-double trucks enter the national distribution centre (NDC) west of the intersection of Byass Street and Archer Street and exit onto Thompson Street.

Future proposed operations at Shepparton will see tomatoe production move across from Mooroopna and current inter-site trips (Mooroopna - Shepparton) removed.

I understand that some turning movement counts were undertaken recently to understand turning proportions. Are you able to share this information.

I am out of the office today but can be reached on my mobile 0450 353 793.

Kind Regards,

Mark

From: Mark Stone
Sent: Tuesday, 15 April 2014 5:26 PM
To: Mark Stone
Subject: RE: SPCA Andrew Fairley Avenue Closure - URGENT Traffic Data

Kind Regards,

Mark

Mark Stone BE(Hons) Civil MIEAust
Senior Transport Planner, Transport Services, Aurecon
T +61 3 9975 3399 **F** +61 3 9975 3444 **M** +61 450 353 793
E Mark.Stone@aurecongroup.com

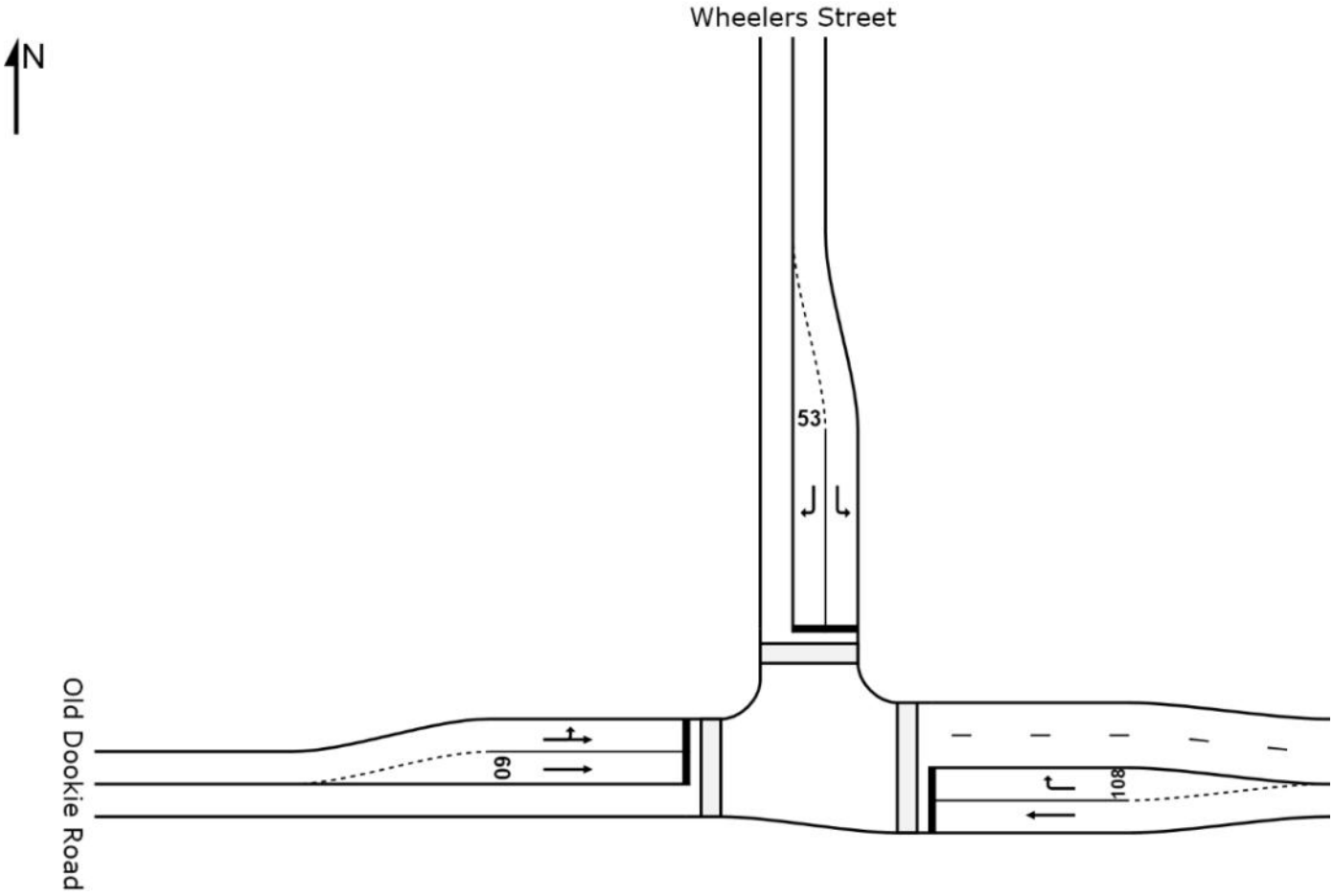
Hour	TOTAL	0:00 - 1:00	1:00 - 2:00	2:00 - 3:00	3:00 - 4:00	4:00 - 5:00	5:00 - 6:00	6:00 - 7:00	7:00 - 8:00	8:00 - 9:00	9:00 - 10:00	10:00 - 11:00	11:00 - 12:00noon	12:00noon - 13:00	13:00 - 14:00	14:00 - 15:00	15:00 - 16:00	16:00 - 17:00	17:00 - 18:00	18:00 - 19:00	19:00 - 20:00	20:00 - 21:00	21:00 - 22:00	22:00 - 23:00	23:00 - 24:00
Fruit In - HGV	130	0	0	0	0	0	0	0	0	0	13	13	13	13	13	13	13	13	13	13	0	0	0	0	0	0
Other Inputs - HGV	80	0	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0
Staff - Car	1745	0	0	0	0	0	0	289	241	58	0	0	0	0	280	289	0	58	0	0	0	0	0	241	289
Shepparton to Mooroopna - Car	20	0	0	0	0	0	0	0	0	2	2	2	2	2	2	2	2	2	2	0	0	0	0	0	0
Shepparton to Mooroopna - HGV	80	0	0	0	0	0	0	0	0	8	8	8	8	8	8	8	8	8	8	0	0	0	0	0	0
NDC - HGV	70	0	0	0	0	0	0	0	0	7	7	7	7	7	7	7	7	7	7	0	0	0	0	0	0
Subtotal - Car	1765	0	0	0	0	0	0	289	241	60	2	2	2	2	282	291	2	60	2	0	0	0	0	241	289
Subtotal - HGV	360	0	0	0	0	0	0	0	0	36	36	36	36	36	36	36	36	36	36	0	0	0	0	0	0
Existing Operations - TOTAL	2125	0	0	0	0	0	0	289	241	96	38	38	38	38	318	327	38	96	38	0	0	0	0	241	289
Tomatoe - Fruit IN HGV	66	0	0	0	0	0	0	0	6	6	6	6	6	6	6	6	6	6	6	0	0	0	0	0	0
Shepparton to Mooroopna - Rem	-20	0	0	0	0	0	0	0	0	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	0	0	0	0	0	0
Shepparton to Mooroopna - Rem	-80	0	0	0	0	0	0	0	0	-8	-8	-8	-8	-8	-8	-8	-8	-8	-8	0	0	0	0	0	0
Future Operations TOTAL	2091	0	0	0	0	0	0	289	247	92	34	34	34	34	314	323	34	92	34	0	0	0	0	241	289

ATTACHMENT C – SIDRA RESULTS

SITE LAYOUT

Site: Wheelers St/Old Dookie Rd (AM Existing)

New Site
Signals - Fixed Time



MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (AM Existing)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical 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
East: Old Dookie Road											
5	T1	212	0.0	0.506	27.0	LOS C	6.6	46.1	0.93	0.76	32.8
6	R2	124	0.0	0.520	40.7	LOS D	4.2	29.4	0.98	0.79	28.3
Approach		336	0.0	0.520	32.0	LOS C	6.6	46.1	0.95	0.77	30.9
North: Wheelers Street											
7	L2	131	0.0	0.307	33.0	LOS C	3.8	26.6	0.87	0.78	31.4
9	R2	69	0.0	0.436	43.7	LOS D	2.4	17.1	0.99	0.75	27.2
Approach		200	0.0	0.436	36.7	LOS D	3.8	26.6	0.91	0.77	29.8
West: Old Dookie Road											
10	L2	43	0.0	0.403	34.4	LOS C	5.0	35.3	0.91	0.76	32.4
11	T1	292	0.0	0.403	26.3	LOS C	5.1	35.7	0.91	0.74	32.9
Approach		335	0.0	0.403	27.3	LOS C	5.1	35.7	0.91	0.74	32.8
All Vehicles		871	0.0	0.520	31.3	LOS C	6.6	46.1	0.92	0.76	31.4

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	27.5	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	53	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		158	27.8	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (PM Existing)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical 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
East: Old Dookie Road											
5	T1	289	0.0	0.693	29.2	LOS C	9.7	67.9	0.98	0.86	31.6
6	R2	171	0.0	0.714	43.2	LOS D	6.1	43.0	1.00	0.87	27.4
Approach		460	0.0	0.714	34.4	LOS C	9.7	67.9	0.99	0.86	29.9
North: Wheelers Street											
7	L2	137	0.0	0.322	33.1	LOS C	4.0	28.0	0.88	0.79	31.4
9	R2	73	0.0	0.456	43.8	LOS D	2.6	17.9	0.99	0.76	27.1
Approach		209	0.0	0.456	36.8	LOS D	4.0	28.0	0.92	0.78	29.8
West: Old Dookie Road											
10	L2	60	0.0	0.554	35.5	LOS D	7.2	50.4	0.94	0.79	31.9
11	T1	400	0.0	0.554	27.3	LOS C	7.3	51.0	0.94	0.78	32.3
Approach		460	0.0	0.554	28.4	LOS C	7.3	51.0	0.94	0.78	32.2
All Vehicles		1129	0.0	0.714	32.4	LOS C	9.7	67.9	0.95	0.81	30.8

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	27.5	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	53	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		158	27.8	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (AM Closure)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical 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
East: Old Dookie Road											
5	T1	214	0.0	0.548	28.1	LOS C	6.8	47.6	0.95	0.78	32.2
6	R2	125	0.0	0.525	40.7	LOS D	4.2	29.7	0.98	0.79	28.3
Approach		339	0.0	0.548	32.8	LOS C	6.8	47.6	0.96	0.78	30.6
North: Wheelers Street											
7	L2	157	0.0	0.369	33.4	LOS C	4.6	32.5	0.89	0.79	31.2
9	R2	88	0.0	0.476	42.7	LOS D	3.1	21.4	0.99	0.77	27.5
Approach		245	0.0	0.476	36.8	LOS D	4.6	32.5	0.92	0.78	29.8
West: Old Dookie Road											
10	L2	44	0.0	0.437	35.5	LOS D	5.2	36.5	0.92	0.77	31.9
11	T1	295	0.0	0.437	27.3	LOS C	5.3	37.0	0.92	0.76	32.3
Approach		339	0.0	0.437	28.4	LOS C	5.3	37.0	0.92	0.76	32.2
All Vehicles		923	0.0	0.548	32.2	LOS C	6.8	47.6	0.94	0.77	31.0

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	28.4	LOS C	0.1	0.1	0.90	0.90
P4	West Full Crossing	53	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		158	28.1	LOS C			0.90	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (PM Closure)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical 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
East: Old Dookie Road											
5	T1	292	0.0	0.698	29.4	LOS C	9.8	68.6	0.98	0.86	31.5
6	R2	172	0.0	0.719	43.3	LOS D	6.2	43.4	1.00	0.87	27.4
Approach		463	0.0	0.719	34.5	LOS C	9.8	68.6	0.99	0.87	29.9
North: Wheelers Street											
7	L2	166	0.0	0.392	33.6	LOS C	5.0	34.7	0.89	0.80	31.2
9	R2	94	0.0	0.589	44.6	LOS D	3.4	23.6	1.00	0.80	26.9
Approach		260	0.0	0.589	37.5	LOS D	5.0	34.7	0.93	0.80	29.5
West: Old Dookie Road											
10	L2	60	0.0	0.558	35.5	LOS D	7.3	50.8	0.94	0.79	31.9
11	T1	403	0.0	0.558	27.3	LOS C	7.3	51.4	0.94	0.78	32.3
Approach		463	0.0	0.558	28.4	LOS C	7.3	51.4	0.94	0.79	32.2
All Vehicles		1186	0.0	0.719	32.8	LOS C	9.8	68.6	0.96	0.82	30.6

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	53	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	53	27.5	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	53	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		158	27.8	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (AM Closure, Future)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
Design Life Analysis (Practical Capacity): Results for 10 years

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
East: Old Dookie Road											
5	T1	248	0.0	0.636	29.0	LOS C	8.1	56.9	0.97	0.82	31.7
6	R2	145	0.0	0.609	41.5	LOS D	5.0	35.2	0.99	0.82	28.0
Approach		393	0.0	0.636	33.6	LOS C	8.1	56.9	0.98	0.82	30.2
North: Wheelers Street											
7	L2	182	0.0	0.429	33.8	LOS C	5.5	38.4	0.90	0.80	31.0
9	R2	103	0.0	0.553	43.2	LOS D	3.6	25.2	1.00	0.79	27.4
Approach		285	0.0	0.553	37.2	LOS D	5.5	38.4	0.94	0.80	29.6
West: Old Dookie Road											
10	L2	51	0.0	0.508	36.0	LOS D	6.2	43.1	0.94	0.78	31.7
11	T1	342	0.0	0.508	27.8	LOS C	6.2	43.7	0.94	0.77	32.0
Approach		393	0.0	0.508	28.9	LOS C	6.2	43.7	0.94	0.77	32.0
All Vehicles		1071	0.0	0.636	32.8	LOS C	8.1	56.9	0.95	0.80	30.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	64	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	64	28.4	LOS C	0.1	0.1	0.90	0.90
P4	West Full Crossing	64	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		192	28.1	LOS C			0.90	0.90

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Wheelers St/Old Dookie Rd (PM Closure, Future)

New Site
Signals - Fixed Time Cycle Time = 70 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
Design Life Analysis (Practical Capacity): Results for 10 years

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
East: Old Dookie Road											
5	T1	338	0.0	0.810	33.3	LOS C	12.5	87.3	1.00	0.97	29.8
6	R2	199	0.0	0.834	47.1	LOS D	7.7	54.1	1.00	0.97	26.1
Approach		538	0.0	0.834	38.4	LOS D	12.5	87.3	1.00	0.97	28.3
North: Wheelers Street											
7	L2	193	0.0	0.455	34.0	LOS C	5.9	41.0	0.91	0.81	31.0
9	R2	109	0.0	0.683	45.7	LOS D	4.0	28.0	1.00	0.84	26.5
Approach		302	0.0	0.683	38.2	LOS D	5.9	41.0	0.94	0.82	29.2
West: Old Dookie Road											
10	L2	70	0.0	0.647	36.5	LOS D	8.7	61.0	0.97	0.83	31.4
11	T1	468	0.0	0.647	28.3	LOS C	8.8	61.8	0.97	0.83	31.8
Approach		538	0.0	0.647	29.4	LOS C	8.8	61.8	0.97	0.83	31.7
All Vehicles		1377	0.0	0.834	34.9	LOS C	12.5	87.3	0.97	0.88	29.8

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

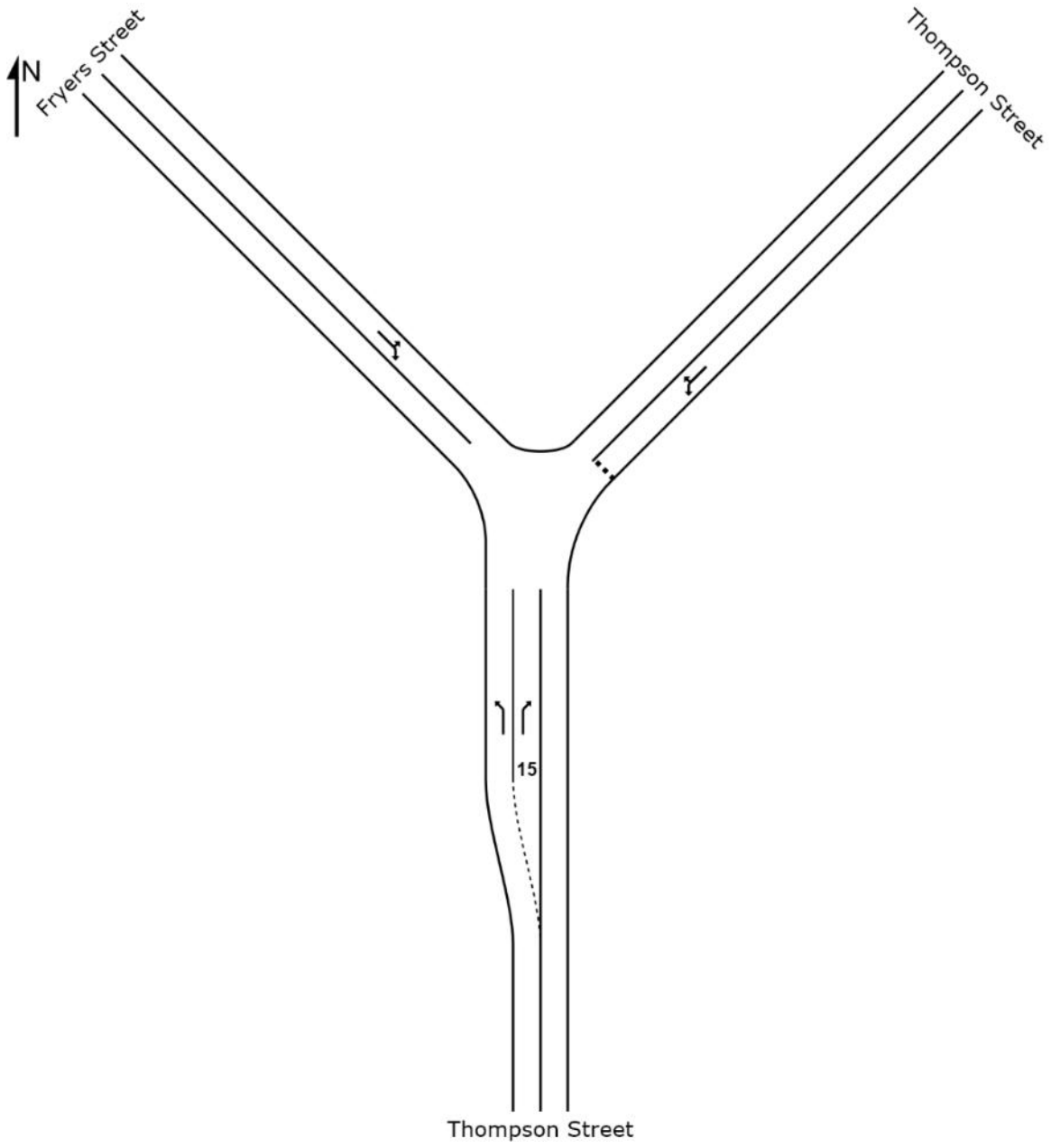
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P2	East Full Crossing	64	29.3	LOS C	0.1	0.1	0.92	0.92
P3	North Full Crossing	64	27.5	LOS C	0.1	0.1	0.89	0.89
P4	West Full Crossing	64	26.6	LOS C	0.1	0.1	0.87	0.87
All Pedestrians		192	27.8	LOS C			0.89	0.89

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: Fryers St/Thompson Rd (AM Existing) - Austraffic Update

New Site
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Existing) - Austraffic Update

New Site
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: Thompson Street											
1a	L1	228	0.9	0.120	8.3	LOS A	0.0	0.0	0.00	0.69	48.8
3a	R1	29	10.7	0.018	8.0	LOS A	0.1	0.6	0.16	0.56	48.5
Approach		258	2.0	0.120	8.3	NA	0.1	0.6	0.02	0.67	48.7
NorthEast: Thompson Street											
24a	L1	17	18.8	0.163	11.1	LOS B	0.6	4.8	0.49	0.77	45.3
26	R2	97	5.4	0.163	11.7	LOS B	0.6	4.8	0.49	0.77	45.3
Approach		114	7.4	0.163	11.6	LOS B	0.6	4.8	0.49	0.77	45.3
NorthWest: Fryers Street											
27	L2	66	7.9	0.137	8.2	LOS A	0.0	0.0	0.00	0.63	49.4
29a	R1	185	2.8	0.137	7.6	LOS A	0.0	0.0	0.00	0.63	49.4
Approach		252	4.2	0.137	7.8	NA	0.0	0.0	0.00	0.63	49.4
All Vehicles		623	3.9	0.163	8.7	NA	0.6	4.8	0.10	0.67	48.3

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Existing) - Austraffic Update

New Site
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: Thompson Street											
1a	L1	318	1.7	0.168	8.3	LOS A	0.0	0.0	0.00	0.68	48.8
3a	R1	103	1.0	0.067	8.4	LOS A	0.3	2.2	0.28	0.61	48.0
Approach		421	1.5	0.168	8.3	NA	0.3	2.2	0.07	0.67	48.6
NorthEast: Thompson Street											
24a	L1	18	5.9	0.575	24.6	LOS C	3.1	21.8	0.84	1.11	35.4
26	R2	177	1.8	0.575	25.2	LOS D	3.1	21.8	0.84	1.11	35.4
Approach		195	2.2	0.575	25.1	LOS D	3.1	21.8	0.84	1.11	35.4
NorthWest: Fryers Street											
27	L2	168	1.9	0.331	8.2	LOS A	0.0	0.0	0.00	0.65	49.3
29a	R1	456	0.5	0.331	7.6	LOS A	0.0	0.0	0.00	0.65	49.3
Approach		624	0.8	0.331	7.8	NA	0.0	0.0	0.00	0.65	49.3
All Vehicles		1240	1.3	0.575	10.7	NA	3.1	21.8	0.16	0.72	46.2

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure) - Austraffic Update

New Site
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: Thompson Street											
1a	L1	233	15.0	0.134	8.3	LOS A	0.0	0.0	0.00	0.62	48.8
3a	R1	29	15.0	0.019	8.2	LOS A	0.1	0.7	0.21	0.54	48.4
Approach		262	15.0	0.134	8.3	NA	0.1	0.7	0.02	0.61	48.7
NorthEast: Thompson Street											
24a	L1	17	15.0	0.214	13.1	LOS B	0.8	6.6	0.58	0.82	43.5
26	R2	99	15.0	0.214	13.7	LOS B	0.8	6.6	0.58	0.82	43.5
Approach		116	15.0	0.214	13.6	LOS B	0.8	6.6	0.58	0.82	43.5
NorthWest: Fryers Street											
27	L2	93	15.0	0.205	8.2	LOS A	0.0	0.0	0.00	0.58	49.4
29a	R1	259	15.0	0.205	7.6	LOS A	0.0	0.0	0.00	0.58	49.4
Approach		352	15.0	0.205	7.8	NA	0.0	0.0	0.00	0.58	49.4
All Vehicles		729	15.0	0.214	8.9	NA	0.8	6.6	0.10	0.63	48.1

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure) - Austraffic Update

New Site
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: Thompson Street											
1a	L1	321	15.0	0.186	8.3	LOS A	0.0	0.0	0.00	0.62	48.8
3a	R1	104	15.0	0.077	8.6	LOS A	0.3	2.7	0.34	0.58	47.8
Approach		425	15.0	0.186	8.4	NA	0.3	2.7	0.08	0.61	48.5
NorthEast: Thompson Street											
24a	L1	18	15.0	0.982	95.8	LOS F	11.3	89.5	0.99	1.89	16.3
26	R2	181	15.0	0.982	96.4	LOS F	11.3	89.5	0.99	1.89	16.3
Approach		199	15.0	0.982	96.4	LOS F	11.3	89.5	0.99	1.89	16.3
NorthWest: Fryers Street											
27	L2	199	15.0	0.429	8.2	LOS A	0.0	0.0	0.00	0.58	49.3
29a	R1	538	15.0	0.429	7.7	LOS A	0.0	0.0	0.00	0.58	49.3
Approach		737	15.0	0.429	7.8	NA	0.0	0.0	0.00	0.58	49.3
All Vehicles		1361	15.0	0.982	20.9	NA	11.3	89.5	0.17	0.78	37.9

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure, Future) - Austraffic Update

New Site
Giveway / Yield (Two-Way)
Design Life Analysis (Practical Capacity): Results for 10 years

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: Thompson Street											
1a	L1	270	15.0	0.156	8.3	LOS A	0.0	0.0	0.00	0.62	48.8
3a	R1	34	15.0	0.023	8.2	LOS A	0.1	0.8	0.23	0.55	48.3
Approach		304	15.0	0.156	8.3	NA	0.1	0.8	0.03	0.61	48.7
NorthEast: Thompson Street											
24a	L1	20	15.0	0.288	15.4	LOS C	1.2	9.8	0.65	0.88	41.7
26	R2	115	15.0	0.288	16.0	LOS C	1.2	9.8	0.65	0.88	41.7
Approach		134	15.0	0.288	15.9	LOS C	1.2	9.8	0.65	0.88	41.7
NorthWest: Fryers Street											
27	L2	108	15.0	0.238	8.2	LOS A	0.0	0.0	0.00	0.58	49.4
29a	R1	301	15.0	0.238	7.6	LOS A	0.0	0.0	0.00	0.58	49.4
Approach		408	15.0	0.238	7.8	NA	0.0	0.0	0.00	0.58	49.4
All Vehicles		847	15.0	0.288	9.2	NA	1.2	9.8	0.11	0.64	47.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure, Future) - Austraffic Update

New Site
Giveway / Yield (Two-Way)
Design Life Analysis (Practical Capacity): Results for 0 years

Movement Performance - Vehicles

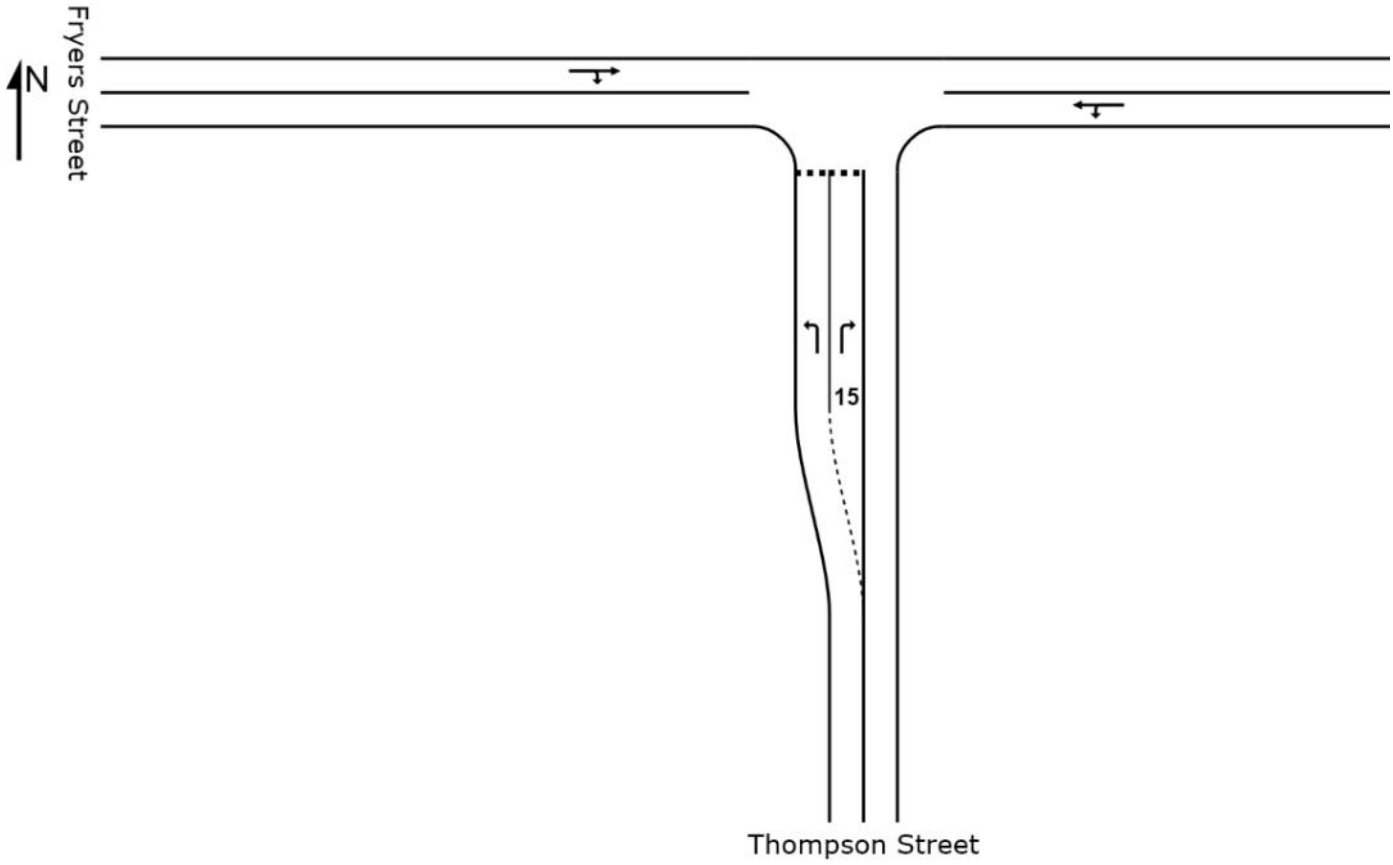
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Thompson Street											
1a	L1	321	15.0	0.186	8.3	LOS A	0.0	0.0	0.00	0.62	48.8
3a	R1	104	15.0	0.077	8.6	LOS A	0.3	2.7	0.34	0.58	47.8
Approach		425	15.0	0.186	8.4	NA	0.3	2.7	0.08	0.61	48.5
NorthEast: Thompson Street											
24a	L1	18	15.0	0.982	95.8	LOS F	11.3	89.5	0.99	1.89	16.3
26	R2	181	15.0	0.982	96.4	LOS F	11.3	89.5	0.99	1.89	16.3
Approach		199	15.0	0.982	96.4	LOS F	11.3	89.5	0.99	1.89	16.3
NorthWest: Fryers Street											
27	L2	199	15.0	0.429	8.2	LOS A	0.0	0.0	0.00	0.58	49.3
29a	R1	538	15.0	0.429	7.7	LOS A	0.0	0.0	0.00	0.58	49.3
Approach		737	15.0	0.429	7.8	NA	0.0	0.0	0.00	0.58	49.3
All Vehicles		1361	15.0	0.982	20.9	NA	11.3	89.5	0.17	0.78	37.9

Level of Service (LOS) Method: Delay (HCM 2000).
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.

SITE LAYOUT

Site: Fryers St/Thompson Rd (AM Closure New) - Austraffic Update

New Site
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure New) - Austraffic Update

New Site
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: Thompson Street											
1	L2	245	15.0	0.178	8.6	LOS A	0.8	6.4	0.24	0.57	47.9
3	R2	31	15.0	0.044	11.1	LOS B	0.1	1.1	0.46	0.73	45.8
Approach		276	15.0	0.178	8.9	LOS A	0.8	6.4	0.26	0.59	47.7
East: Thompson Street											
4	L2	18	15.0	0.069	8.2	LOS A	0.0	0.0	0.00	0.14	58.1
5	T1	104	15.0	0.069	0.0	LOS A	0.0	0.0	0.00	0.14	58.1
Approach		122	15.0	0.069	1.2	NA	0.0	0.0	0.00	0.14	58.1
West: Fryers Street											
11	T1	98	15.0	0.242	0.6	LOS A	1.4	10.8	0.30	0.47	49.2
12	R2	273	15.0	0.242	8.9	LOS A	1.4	10.8	0.30	0.47	49.2
Approach		371	15.0	0.242	6.7	NA	1.4	10.8	0.30	0.47	49.2
All Vehicles		768	15.0	0.242	6.6	NA	1.4	10.8	0.24	0.46	49.9

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure New) - Austraffic Update

New Site
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: Thompson Street											
1	L2	338	15.0	0.269	9.1	LOS A	1.3	10.1	0.36	0.62	47.4
3	R2	109	15.0	0.360	21.2	LOS C	1.3	10.1	0.82	0.99	37.8
Approach		447	15.0	0.360	12.1	LOS B	1.3	10.1	0.47	0.71	44.6
East: Thompson Street											
4	L2	19	15.0	0.119	8.2	LOS A	0.0	0.0	0.00	0.09	58.8
5	T1	191	15.0	0.119	0.0	LOS A	0.0	0.0	0.00	0.09	58.8
Approach		209	15.0	0.119	0.8	NA	0.0	0.0	0.00	0.09	58.8
West: Fryers Street											
11	T1	209	15.0	0.544	2.3	LOS A	6.0	47.3	0.56	0.55	47.4
12	R2	566	15.0	0.544	10.6	LOS B	6.0	47.3	0.56	0.55	47.4
Approach		776	15.0	0.544	8.3	NA	6.0	47.3	0.56	0.55	47.4
All Vehicles		1433	15.0	0.544	8.4	NA	6.0	47.3	0.45	0.53	47.8

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure New, Future) - Austraffic Update

New Site
Giveway / Yield (Two-Way)
Design Life Analysis (Practical Capacity): Results for 10 years

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: Thompson Street											
1	L2	285	15.0	0.210	8.7	LOS A	1.0	7.7	0.27	0.58	47.8
3	R2	35	15.0	0.057	11.8	LOS B	0.2	1.4	0.50	0.77	45.2
Approach		320	15.0	0.210	9.1	LOS A	1.0	7.7	0.29	0.60	47.5
East: Thompson Street											
4	L2	21	15.0	0.080	8.2	LOS A	0.0	0.0	0.00	0.14	58.1
5	T1	121	15.0	0.080	0.0	LOS A	0.0	0.0	0.00	0.14	58.1
Approach		142	15.0	0.080	1.2	NA	0.0	0.0	0.00	0.14	58.1
West: Fryers Street											
11	T1	114	15.0	0.285	0.7	LOS A	1.7	13.3	0.34	0.48	49.0
12	R2	316	15.0	0.285	9.0	LOS A	1.7	13.3	0.34	0.48	49.0
Approach		430	15.0	0.285	6.8	NA	1.7	13.3	0.34	0.48	49.0
All Vehicles		892	15.0	0.285	6.7	NA	1.7	13.3	0.27	0.47	49.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure New, Future) - Austraffic Update

New Site
Giveway / Yield (Two-Way)
Design Life Analysis (Practical Capacity): Results for 10 years

Movement Performance - Vehicles

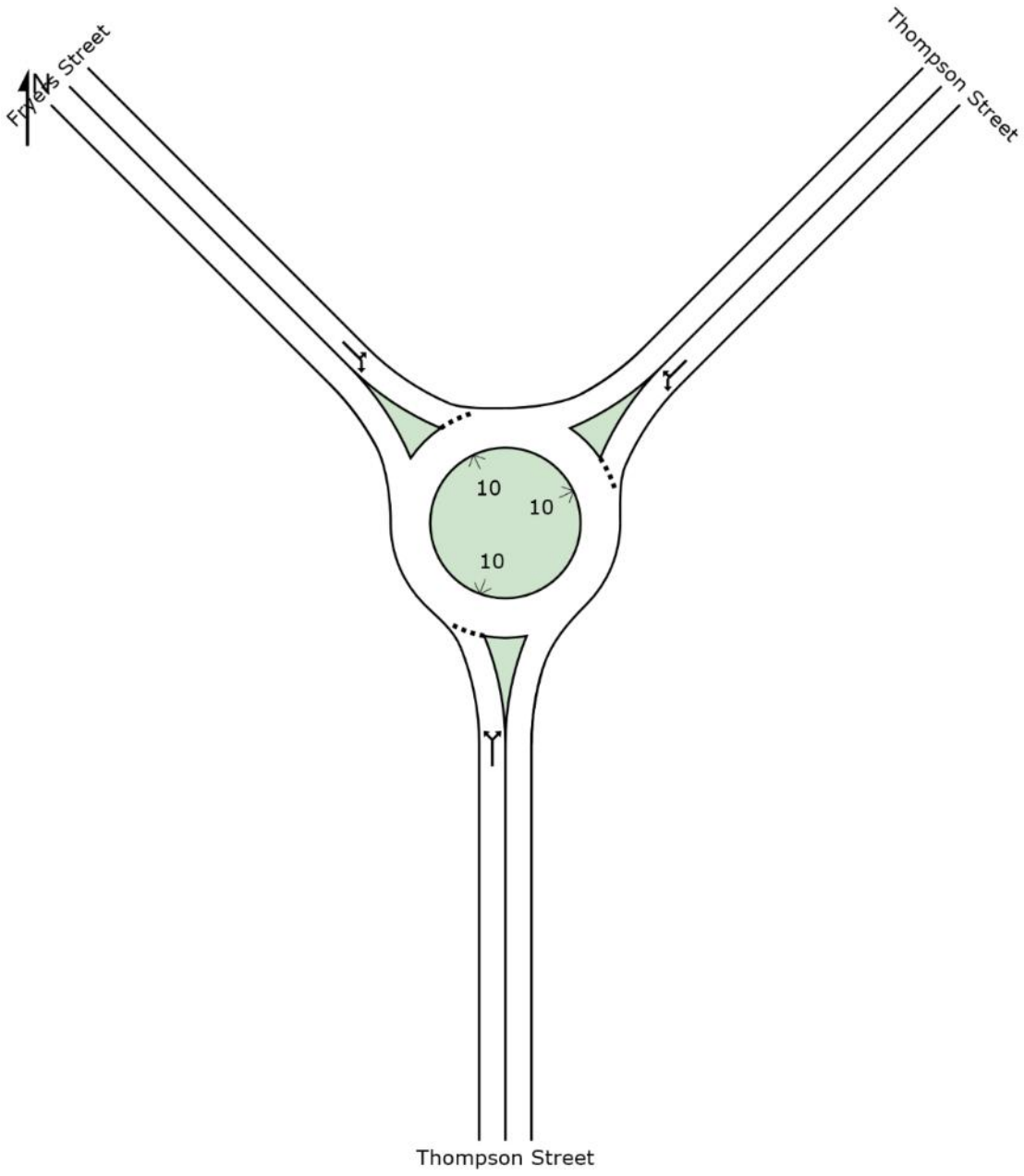
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Thompson Street											
1	L2	392	15.0	0.323	9.4	LOS A	1.6	12.6	0.41	0.64	47.2
3	R2	127	15.0	0.592	32.2	LOS D	2.3	18.1	0.92	1.09	31.7
Approach		519	15.0	0.592	15.0	LOS B	2.3	18.1	0.53	0.75	42.2
East: Thompson Street											
4	L2	22	15.0	0.138	8.2	LOS A	0.0	0.0	0.00	0.09	58.8
5	T1	221	15.0	0.138	0.0	LOS A	0.0	0.0	0.00	0.09	58.8
Approach		243	15.0	0.138	0.8	NA	0.0	0.0	0.00	0.09	58.8
West: Fryers Street											
11	T1	243	15.0	0.651	3.9	LOS A	10.2	80.2	0.71	0.65	45.7
12	R2	657	15.0	0.651	12.2	LOS B	10.2	80.2	0.71	0.65	45.7
Approach		900	15.0	0.651	9.9	NA	10.2	80.2	0.71	0.65	45.7
All Vehicles		1663	15.0	0.651	10.2	NA	10.2	80.2	0.55	0.60	46.0

Level of Service (LOS) Method: Delay (HCM 2000).
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.

SITE LAYOUT

Site: Fryers St/Thompson Rd (AM Closure, Roundabout) - Austraffic Update

New Site
Roundabout



MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure, Roundabout) - Austraffic Update

New Site
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
South: Thompson Street											
1a	L1	233	15.0	0.232	7.3	LOS A	1.6	12.6	0.37	1.05	48.4
3a	R1	29	15.0	0.232	10.9	LOS B	1.6	12.6	0.37	1.05	48.4
Approach		262	15.0	0.232	7.7	LOS A	1.6	12.6	0.37	0.52	48.4
NorthEast: Thompson Street											
24a	L1	17	15.0	0.128	8.6	LOS A	0.7	5.7	0.51	1.35	44.9
26	R2	99	15.0	0.128	13.0	LOS B	0.7	5.7	0.51	1.35	44.9
Approach		116	15.0	0.128	12.4	LOS B	0.7	5.7	0.51	0.67	44.9
NorthWest: Fryers Street											
27	L2	93	15.0	0.259	7.5	LOS A	1.9	14.7	0.19	1.16	47.1
29a	R1	259	15.0	0.259	10.2	LOS B	1.9	14.7	0.19	1.16	47.1
Approach		352	15.0	0.259	9.5	LOS A	1.9	14.7	0.19	0.58	47.1
All Vehicles		729	15.0	0.259	9.3	LOS A	1.9	14.7	0.30	0.57	47.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure, Roundabout) - Austraffic Update

New Site
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
South: Thompson Street											
1a	L1	321	15.0	0.426	8.4	LOS A	3.5	27.9	0.61	1.26	46.9
3a	R1	104	15.0	0.426	11.9	LOS B	3.5	27.9	0.61	1.26	46.9
Approach		425	15.0	0.426	9.3	LOS A	3.5	27.9	0.61	0.63	46.9
NorthEast: Thompson Street											
24a	L1	18	15.0	0.312	11.8	LOS B	2.1	16.6	0.79	1.72	42.1
26	R2	181	15.0	0.312	16.2	LOS B	2.1	16.6	0.79	1.72	42.1
Approach		199	15.0	0.312	15.8	LOS B	2.1	16.6	0.79	0.86	42.1
NorthWest: Fryers Street											
27	L2	199	15.0	0.620	8.7	LOS A	7.0	55.6	0.60	1.20	45.6
29a	R1	538	15.0	0.620	11.5	LOS B	7.0	55.6	0.60	1.20	45.6
Approach		737	15.0	0.620	10.7	LOS B	7.0	55.6	0.60	0.60	45.6
All Vehicles		1361	15.0	0.620	11.0	LOS B	7.0	55.6	0.63	0.65	45.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (AM Closure, Future, Roundabout) - Austraffic Update

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

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: Thompson Street											
1a	L1	284	15.0	0.291	7.6	LOS A	2.1	16.7	0.44	1.09	48.1
3a	R1	36	15.0	0.291	11.1	LOS B	2.1	16.7	0.44	1.09	48.1
Approach		320	15.0	0.291	8.0	LOS A	2.1	16.7	0.44	0.55	48.1
NorthEast: Thompson Street											
24a	L1	21	15.0	0.166	9.2	LOS A	1.0	7.7	0.57	1.42	44.5
26	R2	121	15.0	0.166	13.6	LOS B	1.0	7.7	0.57	1.42	44.5
Approach		141	15.0	0.166	12.9	LOS B	1.0	7.7	0.57	0.71	44.5
NorthWest: Fryers Street											
27	L2	113	15.0	0.318	7.6	LOS A	2.5	19.7	0.23	1.15	47.0
29a	R1	316	15.0	0.318	10.3	LOS B	2.5	19.7	0.23	1.15	47.0
Approach		429	15.0	0.318	9.6	LOS A	2.5	19.7	0.23	0.57	47.0
All Vehicles		889	15.0	0.318	9.5	LOS A	2.5	19.7	0.36	0.58	46.9

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Thompson Rd (PM Closure, Future, Roundabout) - Austraffic Update

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

Movement Performance - Vehicles

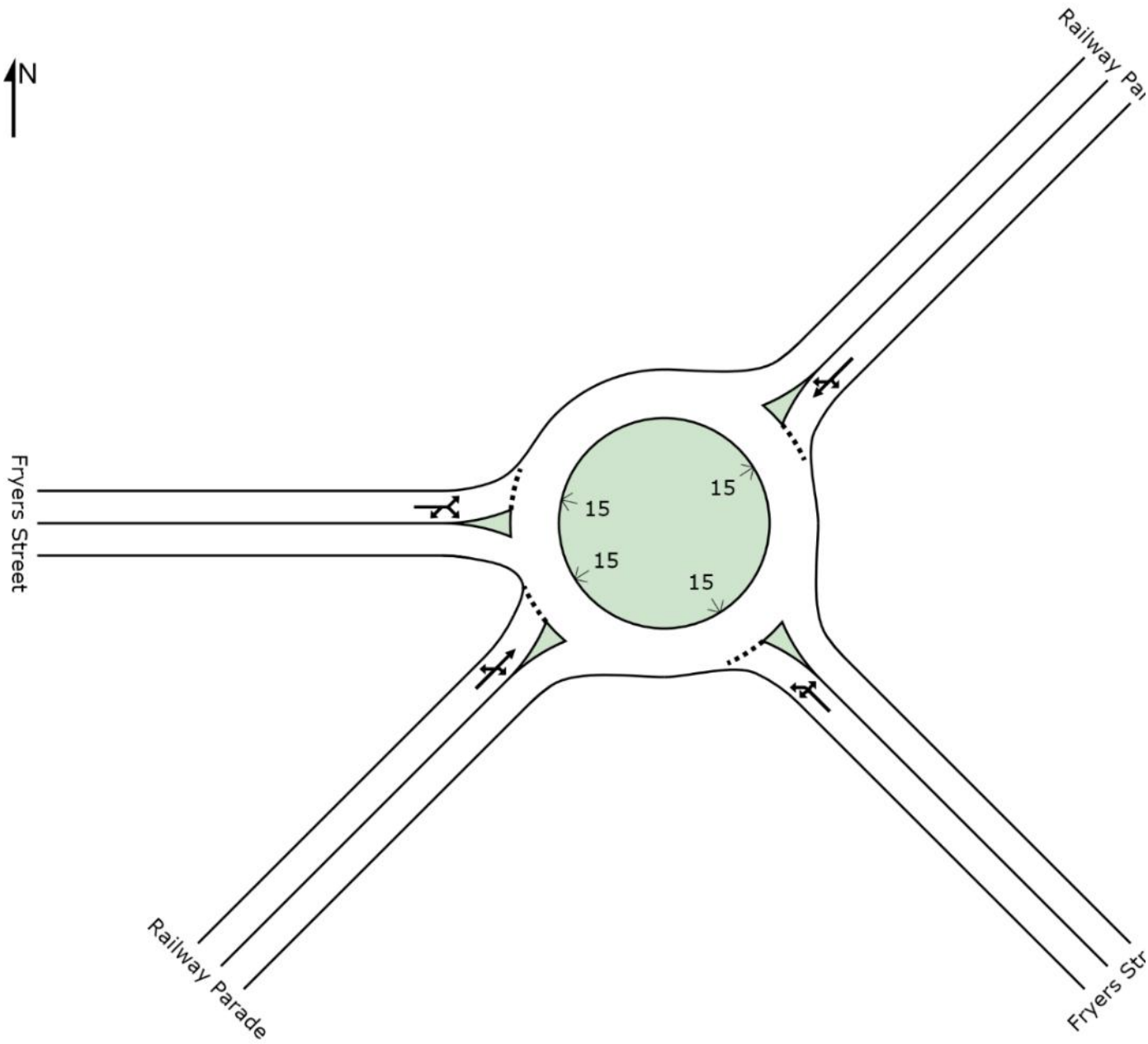
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Thompson Street											
1a	L1	391	15.0	0.550	9.1	LOS A	5.1	40.4	0.75	1.39	46.2
3a	R1	127	15.0	0.550	12.7	LOS B	5.1	40.4	0.75	1.39	46.2
Approach		518	15.0	0.550	10.0	LOS A	5.1	40.4	0.75	0.70	46.2
NorthEast: Thompson Street											
24a	L1	22	15.0	0.476	15.5	LOS B	3.9	30.9	0.94	2.04	39.4
26	R2	221	15.0	0.476	19.9	LOS B	3.9	30.9	0.94	2.04	39.4
Approach		243	15.0	0.476	19.5	LOS B	3.9	30.9	0.94	1.02	39.4
NorthWest: Fryers Street											
27	L2	243	15.0	0.782	9.6	LOS A	11.7	92.1	0.87	1.26	44.6
29a	R1	656	15.0	0.782	12.4	LOS B	11.7	92.1	0.87	1.26	44.6
Approach		898	15.0	0.782	11.6	LOS B	11.7	92.1	0.87	0.63	44.6
All Vehicles		1659	15.0	0.782	12.3	LOS B	11.7	92.1	0.84	0.71	44.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Fryers St/Railway Pde Roundabout (AM Existing)

New Site
Roundabout



MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (AM Existing)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Fryers Street											
21	L2	5	0.0	0.106	9.2	LOS A	0.6	4.1	0.57	1.39	46.4
21a	L1	53	0.0	0.106	8.3	LOS A	0.6	4.1	0.57	1.39	46.4
23	R2	38	0.0	0.106	13.4	LOS B	0.6	4.1	0.57	1.39	46.4
Approach		96	0.0	0.106	10.4	LOS B	0.6	4.1	0.57	0.69	46.4
NorthEast: Railway Parade											
24	L2	7	0.0	0.342	8.2	LOS A	2.2	15.2	0.47	1.22	48.1
25	T1	324	0.0	0.342	7.3	LOS A	2.2	15.2	0.47	1.22	48.1
26a	R1	59	0.0	0.342	11.4	LOS B	2.2	15.2	0.47	1.22	48.1
Approach		391	0.0	0.342	7.9	LOS A	2.2	15.2	0.47	0.61	48.1
West: Fryers Street											
10a	L1	106	0.0	0.175	7.7	LOS A	1.0	6.8	0.50	1.35	46.6
12a	R1	8	0.0	0.175	11.8	LOS B	1.0	6.8	0.50	1.35	46.6
12b	R3	62	0.0	0.175	13.7	LOS B	1.0	6.8	0.50	1.35	46.6
Approach		177	0.0	0.175	10.0	LOS B	1.0	6.8	0.50	0.68	46.6
SouthWest: Railway Parade											
30b	L3	109	0.0	0.320	8.2	LOS A	2.1	14.4	0.39	1.24	47.3
31	T1	141	0.0	0.320	6.8	LOS A	2.1	14.4	0.39	1.24	47.3
32	R2	141	0.0	0.320	11.9	LOS B	2.1	14.4	0.39	1.24	47.3
Approach		392	0.0	0.320	9.0	LOS A	2.1	14.4	0.39	0.62	47.3
All Vehicles		1055	0.0	0.342	8.9	LOS A	2.2	15.2	0.46	0.63	47.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (PM Existing)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Fryers Street											
21	L2	7	0.0	0.161	10.0	LOS A	0.9	6.6	0.65	1.50	45.8
21a	L1	73	0.0	0.161	9.1	LOS A	0.9	6.6	0.65	1.50	45.8
23	R2	52	0.0	0.161	14.2	LOS B	0.9	6.6	0.65	1.50	45.8
Approach		132	0.0	0.161	11.1	LOS B	0.9	6.6	0.65	0.75	45.8
NorthEast: Railway Parade											
24	L2	9	0.0	0.435	8.7	LOS A	3.0	21.2	0.57	1.32	47.6
25	T1	392	0.0	0.435	7.8	LOS A	3.0	21.2	0.57	1.32	47.6
26a	R1	71	0.0	0.435	11.9	LOS B	3.0	21.2	0.57	1.32	47.6
Approach		472	0.0	0.435	8.5	LOS A	3.0	21.2	0.57	0.66	47.6
West: Fryers Street											
10a	L1	146	0.0	0.258	8.3	LOS A	1.6	10.9	0.59	1.45	46.1
12a	R1	13	0.0	0.258	12.4	LOS B	1.6	10.9	0.59	1.45	46.1
12b	R3	85	0.0	0.258	14.3	LOS B	1.6	10.9	0.59	1.45	46.1
Approach		244	0.0	0.258	10.6	LOS B	1.6	10.9	0.59	0.72	46.1
SouthWest: Railway Parade											
30b	L3	133	0.0	0.404	8.6	LOS A	2.8	19.9	0.49	1.30	46.8
31	T1	169	0.0	0.404	7.2	LOS A	2.8	19.9	0.49	1.30	46.8
32	R2	169	0.0	0.404	12.3	LOS B	2.8	19.9	0.49	1.30	46.8
Approach		472	0.0	0.404	9.4	LOS A	2.8	19.9	0.49	0.65	46.8
All Vehicles		1319	0.0	0.435	9.5	LOS A	3.0	21.2	0.55	0.68	46.8

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (AM Closure)

New Site
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
SouthEast: Fryers Street											
21	L2	9	0.0	0.177	9.8	LOS A	1.0	7.3	0.64	1.49	45.9
21a	L1	82	0.0	0.177	8.9	LOS A	1.0	7.3	0.64	1.49	45.9
23	R2	59	0.0	0.177	14.0	LOS B	1.0	7.3	0.64	1.49	45.9
Approach		151	0.0	0.177	11.0	LOS B	1.0	7.3	0.64	0.74	45.9
NorthEast: Railway Parade											
24	L2	14	0.0	0.399	8.6	LOS A	2.7	18.6	0.55	1.30	47.7
25	T1	358	0.0	0.399	7.8	LOS A	2.7	18.6	0.55	1.30	47.7
26a	R1	59	0.0	0.399	11.9	LOS B	2.7	18.6	0.55	1.30	47.7
Approach		431	0.0	0.399	8.4	LOS A	2.7	18.6	0.55	0.65	47.7
West: Fryers Street											
10a	L1	167	0.0	0.289	8.2	LOS A	1.8	12.5	0.59	1.45	46.1
12a	R1	14	0.0	0.289	12.3	LOS B	1.8	12.5	0.59	1.45	46.1
12b	R3	98	0.0	0.289	14.2	LOS B	1.8	12.5	0.59	1.45	46.1
Approach		279	0.0	0.289	10.5	LOS B	1.8	12.5	0.59	0.72	46.1
SouthWest: Railway Parade											
30b	L3	121	0.0	0.375	8.6	LOS A	2.6	18.0	0.49	1.30	46.9
31	T1	156	0.0	0.375	7.2	LOS A	2.6	18.0	0.49	1.30	46.9
32	R2	156	0.0	0.375	12.3	LOS B	2.6	18.0	0.49	1.30	46.9
Approach		433	0.0	0.375	9.4	LOS A	2.6	18.0	0.49	0.65	46.9
All Vehicles		1293	0.0	0.399	9.5	LOS A	2.7	18.6	0.55	0.68	46.9

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (PM Closure)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Fryers Street											
21	L2	12	0.0	0.292	11.9	LOS B	2.0	13.7	0.82	1.73	44.3
21a	L1	105	0.0	0.292	11.1	LOS B	2.0	13.7	0.82	1.73	44.3
23	R2	75	0.0	0.292	16.1	LOS B	2.0	13.7	0.82	1.73	44.3
Approach		192	0.0	0.292	13.1	LOS B	2.0	13.7	0.82	0.86	44.3
NorthEast: Railway Parade											
24	L2	16	0.0	0.608	10.3	LOS B	5.7	39.7	0.74	1.56	46.1
25	T1	429	0.0	0.608	9.5	LOS A	5.7	39.7	0.74	1.56	46.1
26a	R1	180	0.0	0.608	13.6	LOS B	5.7	39.7	0.74	1.56	46.1
Approach		625	0.0	0.608	10.7	LOS B	5.7	39.7	0.74	0.78	46.1
West: Fryers Street											
10a	L1	214	0.0	0.402	9.0	LOS A	2.8	19.4	0.71	1.57	45.5
12a	R1	18	0.0	0.402	13.1	LOS B	2.8	19.4	0.71	1.57	45.5
12b	R3	124	0.0	0.402	15.0	LOS B	2.8	19.4	0.71	1.57	45.5
Approach		356	0.0	0.402	11.3	LOS B	2.8	19.4	0.71	0.79	45.5
SouthWest: Railway Parade											
30b	L3	145	0.0	0.526	10.4	LOS B	4.1	28.9	0.70	1.56	45.7
31	T1	186	0.0	0.526	9.0	LOS A	4.1	28.9	0.70	1.56	45.7
32	R2	186	0.0	0.526	14.0	LOS B	4.1	28.9	0.70	1.56	45.7
Approach		518	0.0	0.526	11.2	LOS B	4.1	28.9	0.70	0.78	45.7
All Vehicles		1691	0.0	0.608	11.2	LOS B	5.7	39.7	0.73	0.79	45.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (AM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

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
SouthEast: Fryers Street											
21	L2	11	0.0	0.225	10.5	LOS B	1.4	9.8	0.71	1.58	45.4
21a	L1	95	0.0	0.225	9.7	LOS A	1.4	9.8	0.71	1.58	45.4
23	R2	68	0.0	0.225	14.7	LOS B	1.4	9.8	0.71	1.58	45.4
Approach		175	0.0	0.225	11.7	LOS B	1.4	9.8	0.71	0.79	45.4
NorthEast: Railway Parade											
24	L2	16	0.0	0.481	9.1	LOS A	3.5	24.3	0.63	1.39	47.2
25	T1	415	0.0	0.481	8.3	LOS A	3.5	24.3	0.63	1.39	47.2
26a	R1	68	0.0	0.481	12.4	LOS B	3.5	24.3	0.63	1.39	47.2
Approach		500	0.0	0.481	8.8	LOS A	3.5	24.3	0.63	0.70	47.2
West: Fryers Street											
10a	L1	194	0.0	0.355	8.8	LOS A	2.3	16.3	0.66	1.53	45.7
12a	R1	16	0.0	0.355	12.9	LOS B	2.3	16.3	0.66	1.53	45.7
12b	R3	114	0.0	0.355	14.8	LOS B	2.3	16.3	0.66	1.53	45.7
Approach		324	0.0	0.355	11.1	LOS B	2.3	16.3	0.66	0.77	45.7
SouthWest: Railway Parade											
30b	L3	140	0.0	0.449	9.0	LOS A	3.3	23.3	0.56	1.35	46.5
31	T1	181	0.0	0.449	7.6	LOS A	3.3	23.3	0.56	1.35	46.5
32	R2	181	0.0	0.449	12.6	LOS B	3.3	23.3	0.56	1.35	46.5
Approach		502	0.0	0.449	9.8	LOS A	3.3	23.3	0.56	0.68	46.5
All Vehicles		1500	0.0	0.481	10.0	LOS A	3.5	24.3	0.62	0.72	46.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Fryers St/Railway Pde Roundabout (PM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

Movement Performance - Vehicles

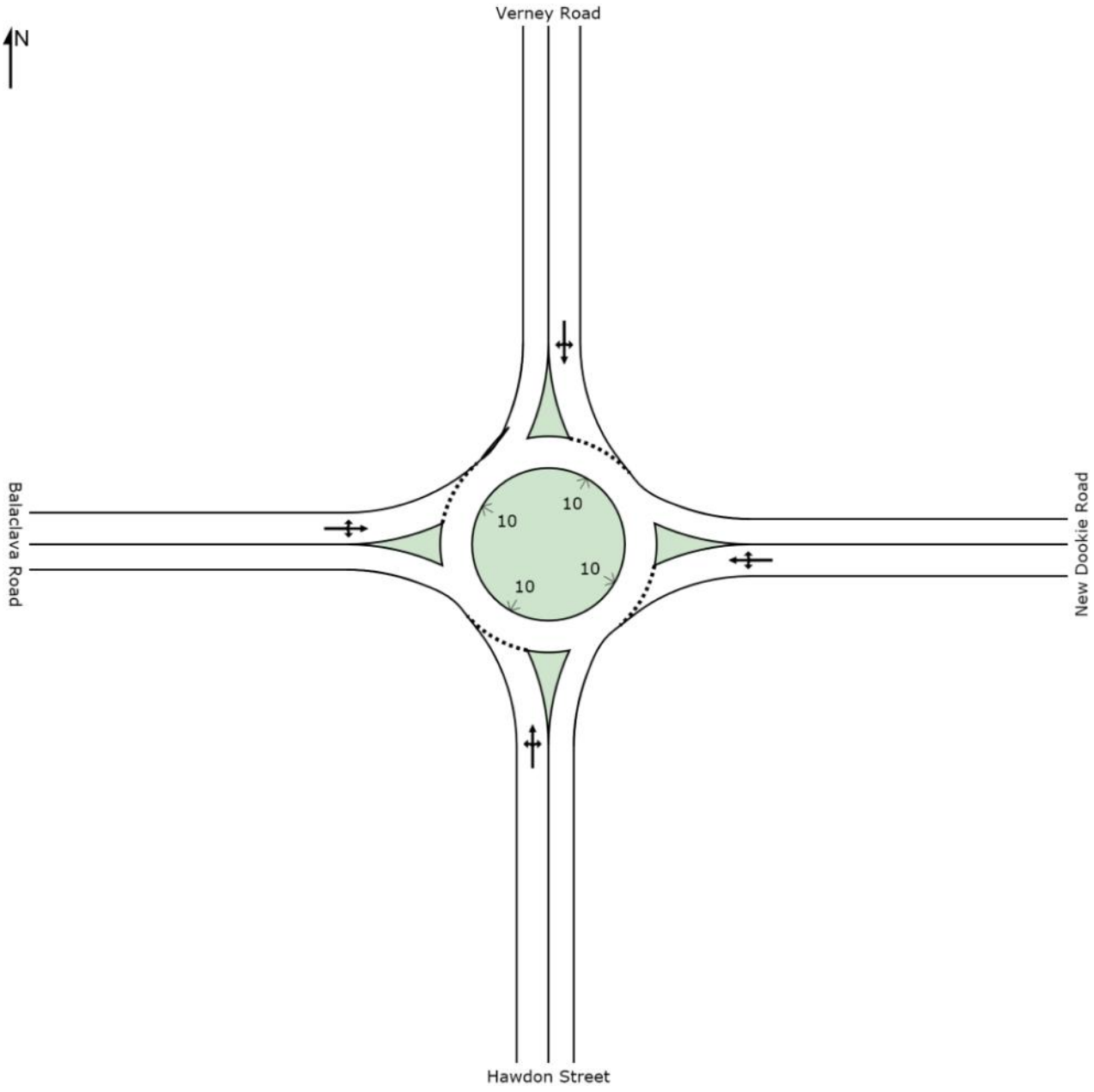
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Fryers Street											
21	L2	13	0.0	0.411	14.2	LOS B	3.1	21.9	0.93	1.94	42.3
21a	L1	122	0.0	0.411	13.4	LOS B	3.1	21.9	0.93	1.94	42.3
23	R2	87	0.0	0.411	18.4	LOS B	3.1	21.9	0.93	1.94	42.3
Approach		222	0.0	0.411	15.4	LOS B	3.1	21.9	0.93	0.97	42.3
NorthEast: Railway Parade											
24	L2	18	0.0	0.743	13.6	LOS B	9.8	68.6	0.89	1.89	43.4
25	T1	498	0.0	0.743	12.8	LOS B	9.8	68.6	0.89	1.89	43.4
26a	R1	209	0.0	0.743	16.9	LOS B	9.8	68.6	0.89	1.89	43.4
Approach		726	0.0	0.743	14.0	LOS B	9.8	68.6	0.89	0.94	43.4
West: Fryers Street											
10a	L1	248	0.0	0.507	10.6	LOS B	4.2	29.2	0.81	1.77	44.5
12a	R1	21	0.0	0.507	14.7	LOS B	4.2	29.2	0.81	1.77	44.5
12b	R3	144	0.0	0.507	16.6	LOS B	4.2	29.2	0.81	1.77	44.5
Approach		413	0.0	0.507	12.9	LOS B	4.2	29.2	0.81	0.88	44.5
SouthWest: Railway Parade											
30b	L3	169	0.0	0.646	12.8	LOS B	6.7	47.0	0.83	1.81	43.8
31	T1	216	0.0	0.646	11.4	LOS B	6.7	47.0	0.83	1.81	43.8
32	R2	216	0.0	0.646	16.5	LOS B	6.7	47.0	0.83	1.81	43.8
Approach		601	0.0	0.646	13.6	LOS B	6.7	47.0	0.83	0.90	43.8
All Vehicles		1962	0.0	0.743	13.8	LOS B	9.8	68.6	0.86	0.92	43.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Existing)

New Site
Roundabout



SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Existing)

New Site
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
South: Hawdon Street											
1	L2	115	15.0	0.600	12.5	LOS B	5.0	39.9	0.80	1.86	44.5
2	T1	277	15.0	0.600	11.7	LOS B	5.0	39.9	0.80	1.86	44.5
3	R2	86	15.0	0.600	16.0	LOS B	5.0	39.9	0.80	1.86	44.5
Approach		478	15.0	0.600	12.7	LOS B	5.0	39.9	0.80	0.93	44.5
East: New Dookie Road											
4	L2	108	15.0	0.656	14.4	LOS B	6.1	48.4	0.86	2.06	42.3
5	T1	206	15.0	0.656	13.6	LOS B	6.1	48.4	0.86	2.06	42.3
6	R2	177	15.0	0.656	17.9	LOS B	6.1	48.4	0.86	2.06	42.3
Approach		492	15.0	0.656	15.3	LOS B	6.1	48.4	0.86	1.03	42.3
North: Verney Road											
7	L2	106	15.0	0.639	12.2	LOS B	5.7	45.0	0.77	1.78	45.0
8	T1	357	15.0	0.639	11.3	LOS B	5.7	45.0	0.77	1.78	45.0
9	R2	95	15.0	0.639	15.6	LOS B	5.7	45.0	0.77	1.78	45.0
Approach		558	15.0	0.639	12.2	LOS B	5.7	45.0	0.77	0.89	45.0
West: Balaclava Road											
10	L2	69	15.0	0.502	12.1	LOS B	3.6	28.1	0.75	1.79	44.8
11	T1	220	15.0	0.502	11.2	LOS B	3.6	28.1	0.75	1.79	44.8
12	R2	97	15.0	0.502	15.5	LOS B	3.6	28.1	0.75	1.79	44.8
Approach		386	15.0	0.502	12.4	LOS B	3.6	28.1	0.75	0.90	44.8
All Vehicles		1914	15.0	0.656	13.2	LOS B	6.1	48.4	0.80	0.94	44.1

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Existing)

New Site
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
South: Hawdon Street											
1	L2	80	15.0	0.743	15.3	LOS B	8.4	66.1	0.92	2.14	42.3
2	T1	388	15.0	0.743	14.4	LOS B	8.4	66.1	0.92	2.14	42.3
3	R2	103	15.0	0.743	18.7	LOS B	8.4	66.1	0.92	2.14	42.3
Approach		572	15.0	0.743	15.3	LOS B	8.4	66.1	0.92	1.07	42.3
East: New Dookie Road											
4	L2	248	15.0	1.080	107.9	LOS F	55.3	436.6	1.00	5.97	15.1
5	T1	184	15.0	1.080	107.0	LOS F	55.3	436.6	1.00	5.97	15.1
6	R2	277	15.0	1.080	111.3	LOS F	55.3	436.6	1.00	5.97	15.1
Approach		709	15.0	1.080	109.0	LOS F	55.3	436.6	1.00	2.99	15.1
North: Verney Road											
7	L2	185	15.0	0.940	32.4	LOS C	21.1	166.4	1.00	3.13	31.9
8	T1	446	15.0	0.940	31.5	LOS C	21.1	166.4	1.00	3.13	31.9
9	R2	55	15.0	0.940	35.8	LOS D	21.1	166.4	1.00	3.13	31.9
Approach		686	15.0	0.940	32.1	LOS C	21.1	166.4	1.00	1.57	31.9
West: Balaclava Road											
10	L2	65	15.0	0.842	27.5	LOS C	12.0	94.8	1.00	2.71	34.1
11	T1	308	15.0	0.842	26.6	LOS C	12.0	94.8	1.00	2.71	34.1
12	R2	132	15.0	0.842	30.9	LOS C	12.0	94.8	1.00	2.71	34.1
Approach		505	15.0	0.842	27.9	LOS C	12.0	94.8	1.00	1.36	34.1
All Vehicles		2473	15.0	1.080	49.4	LOS D	55.3	436.6	0.98	1.82	25.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	119	15.0	0.638	13.4	LOS B	5.8	45.7	0.83	1.95	43.8
2	T1	287	15.0	0.638	12.5	LOS B	5.8	45.7	0.83	1.95	43.8
3	R2	89	15.0	0.638	16.8	LOS B	5.8	45.7	0.83	1.95	43.8
Approach		496	15.0	0.638	13.5	LOS B	5.8	45.7	0.83	0.97	43.8
East: New Dookie Road											
4	L2	113	15.0	0.704	15.9	LOS B	7.2	57.0	0.90	2.18	41.2
5	T1	215	15.0	0.704	15.0	LOS B	7.2	57.0	0.90	2.18	41.2
6	R2	184	15.0	0.704	19.3	LOS B	7.2	57.0	0.90	2.18	41.2
Approach		512	15.0	0.704	16.7	LOS B	7.2	57.0	0.90	1.09	41.2
North: Verney Road											
7	L2	109	15.0	0.678	13.1	LOS B	6.6	52.1	0.82	1.89	44.1
8	T1	369	15.0	0.678	12.2	LOS B	6.6	52.1	0.82	1.89	44.1
9	R2	98	15.0	0.678	16.5	LOS B	6.6	52.1	0.82	1.89	44.1
Approach		577	15.0	0.678	13.1	LOS B	6.6	52.1	0.82	0.95	44.1
West: Balaclava Road											
10	L2	74	15.0	0.547	12.9	LOS B	4.2	33.3	0.79	1.89	44.0
11	T1	234	15.0	0.547	12.0	LOS B	4.2	33.3	0.79	1.89	44.0
12	R2	103	15.0	0.547	16.3	LOS B	4.2	33.3	0.79	1.89	44.0
Approach		411	15.0	0.547	13.2	LOS B	4.2	33.3	0.79	0.94	44.0
All Vehicles		1995	15.0	0.704	14.1	LOS B	7.2	57.0	0.84	0.99	43.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure)

New Site
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
South: Hawdon Street											
1	L2	83	15.0	0.759	15.5	LOS B	8.9	70.1	0.93	2.16	42.1
2	T1	402	15.0	0.759	14.7	LOS B	8.9	70.1	0.93	2.16	42.1
3	R2	106	15.0	0.759	19.0	LOS B	8.9	70.1	0.93	2.16	42.1
Approach		592	15.0	0.759	15.6	LOS B	8.9	70.1	0.93	1.08	42.1
East: New Dookie Road											
4	L2	260	15.0	1.160	173.0	LOS F	83.0	655.9	1.00	8.00	10.4
5	T1	193	15.0	1.160	172.1	LOS F	83.0	655.9	1.00	8.00	10.4
6	R2	289	15.0	1.160	176.4	LOS F	83.0	655.9	1.00	8.00	10.4
Approach		742	15.0	1.160	174.1	LOS F	83.0	655.9	1.00	4.00	10.4
North: Verney Road											
7	L2	192	15.0	0.992	49.9	LOS D	30.9	244.4	1.00	3.90	25.4
8	T1	461	15.0	0.992	49.0	LOS D	30.9	244.4	1.00	3.90	25.4
9	R2	57	15.0	0.992	53.3	LOS D	30.9	244.4	1.00	3.90	25.4
Approach		709	15.0	0.992	49.6	LOS D	30.9	244.4	1.00	1.95	25.4
West: Balaclava Road											
10	L2	68	15.0	0.888	33.3	LOS C	14.9	117.5	1.00	2.95	31.2
11	T1	319	15.0	0.888	32.5	LOS C	14.9	117.5	1.00	2.95	31.2
12	R2	136	15.0	0.888	36.8	LOS D	14.9	117.5	1.00	2.95	31.2
Approach		523	15.0	0.888	33.7	LOS C	14.9	117.5	1.00	1.48	31.2
All Vehicles		2566	15.0	1.160	74.5	LOS E	83.0	655.9	0.98	2.25	19.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 6 years

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: Hawdon Street											
1	L2	130	15.0	0.744	16.4	LOS B	8.3	65.8	0.94	2.24	41.3
2	T1	314	15.0	0.744	15.6	LOS B	8.3	65.8	0.94	2.24	41.3
3	R2	98	15.0	0.744	19.9	LOS B	8.3	65.8	0.94	2.24	41.3
Approach		542	15.0	0.744	16.5	LOS B	8.3	65.8	0.94	1.12	41.3
East: New Dookie Road											
4	L2	123	15.0	0.835	22.5	LOS C	11.7	92.4	1.00	2.57	36.6
5	T1	235	15.0	0.835	21.6	LOS C	11.7	92.4	1.00	2.57	36.6
6	R2	201	15.0	0.835	25.9	LOS C	11.7	92.4	1.00	2.57	36.6
Approach		559	15.0	0.835	23.4	LOS C	11.7	92.4	1.00	1.28	36.6
North: Verney Road											
7	L2	120	15.0	0.778	16.0	LOS B	9.5	75.3	0.93	2.18	41.6
8	T1	404	15.0	0.778	15.2	LOS B	9.5	75.3	0.93	2.18	41.6
9	R2	107	15.0	0.778	19.5	LOS B	9.5	75.3	0.93	2.18	41.6
Approach		631	15.0	0.778	16.1	LOS B	9.5	75.3	0.93	1.09	41.6
West: Balaclava Road											
10	L2	81	15.0	0.642	15.2	LOS B	5.9	46.3	0.88	2.11	42.1
11	T1	256	15.0	0.642	14.3	LOS B	5.9	46.3	0.88	2.11	42.1
12	R2	113	15.0	0.642	18.6	LOS B	5.9	46.3	0.88	2.11	42.1
Approach		449	15.0	0.642	15.6	LOS B	5.9	46.3	0.88	1.06	42.1
All Vehicles		2181	15.0	0.835	18.0	LOS B	11.7	92.4	0.94	1.14	40.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 0 years

Movement Performance - Vehicles

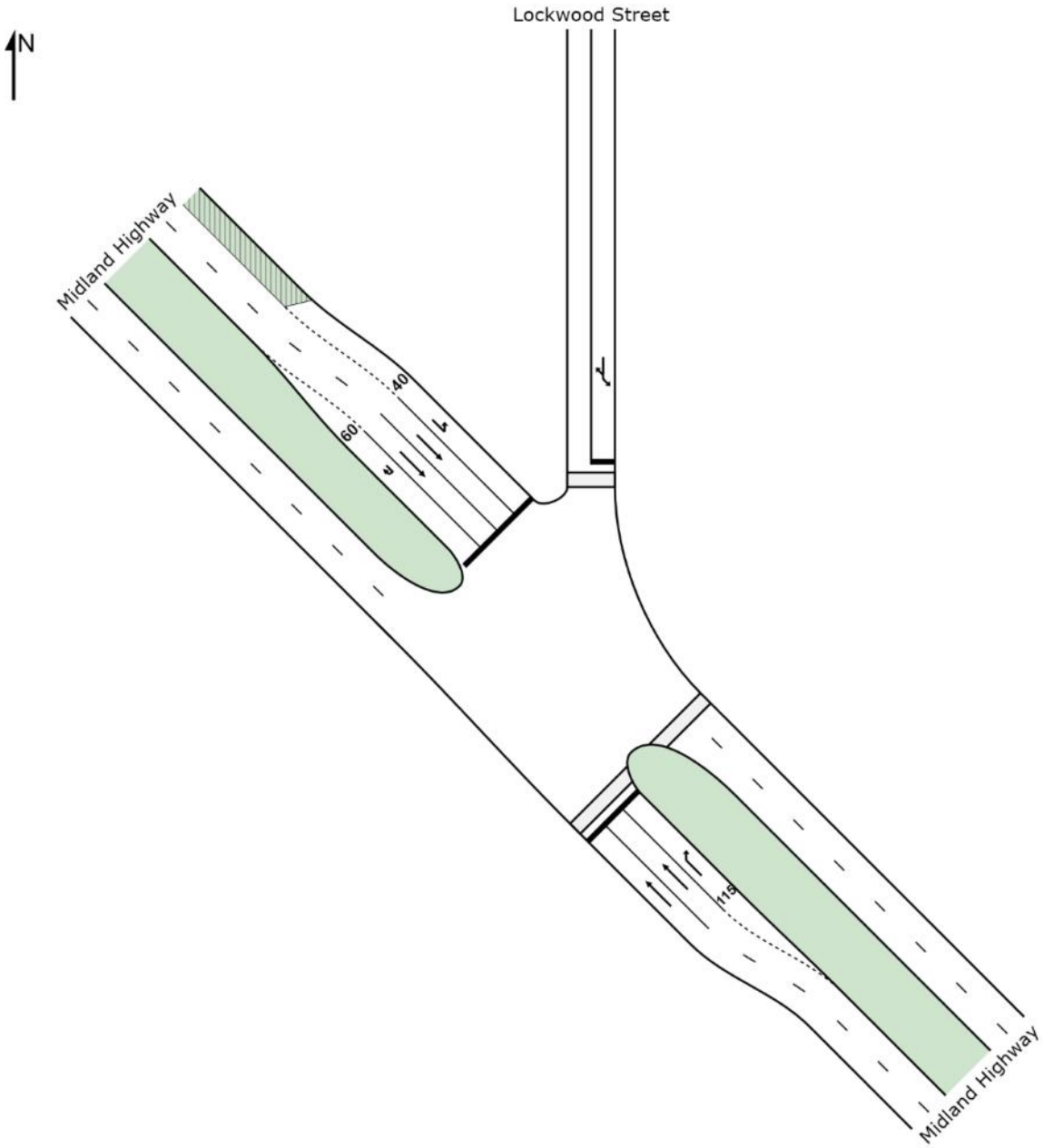
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	83	15.0	0.759	15.5	LOS B	8.9	70.1	0.93	2.16	42.1
2	T1	402	15.0	0.759	14.7	LOS B	8.9	70.1	0.93	2.16	42.1
3	R2	106	15.0	0.759	19.0	LOS B	8.9	70.1	0.93	2.16	42.1
Approach		592	15.0	0.759	15.6	LOS B	8.9	70.1	0.93	1.08	42.1
East: New Dookie Road											
4	L2	260	15.0	1.160	173.0	LOS F	83.0	655.9	1.00	8.00	10.4
5	T1	193	15.0	1.160	172.1	LOS F	83.0	655.9	1.00	8.00	10.4
6	R2	289	15.0	1.160	176.4	LOS F	83.0	655.9	1.00	8.00	10.4
Approach		742	15.0	1.160	174.1	LOS F	83.0	655.9	1.00	4.00	10.4
North: Verney Road											
7	L2	192	15.0	0.992	49.9	LOS D	30.9	244.4	1.00	3.90	25.4
8	T1	461	15.0	0.992	49.0	LOS D	30.9	244.4	1.00	3.90	25.4
9	R2	57	15.0	0.992	53.3	LOS D	30.9	244.4	1.00	3.90	25.4
Approach		709	15.0	0.992	49.6	LOS D	30.9	244.4	1.00	1.95	25.4
West: Balaclava Road											
10	L2	68	15.0	0.888	33.3	LOS C	14.9	117.5	1.00	2.95	31.2
11	T1	319	15.0	0.888	32.5	LOS C	14.9	117.5	1.00	2.95	31.2
12	R2	136	15.0	0.888	36.8	LOS D	14.9	117.5	1.00	2.95	31.2
Approach		523	15.0	0.888	33.7	LOS C	14.9	117.5	1.00	1.48	31.2
All Vehicles		2566	15.0	1.160	74.5	LOS E	83.0	655.9	0.98	2.25	19.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Lockwood Rd/Midland Hwy (AM Existing)

New Site
Signals - Fixed Time



MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (AM Existing)

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Practical 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
SouthEast: Midland Highway											
22	T1	841	15.0	0.631	22.3	LOS C	13.6	107.5	0.88	0.76	35.3
23a	R1	61	15.0	0.235	21.8	LOS C	1.3	10.1	0.85	0.72	37.5
Approach		902	15.0	0.631	22.3	LOS C	13.6	107.5	0.87	0.76	35.5
North: Lockwood Street											
7a	L1	74	15.0	0.339	24.0	LOS C	4.7	37.4	0.78	0.78	35.5
9b	R3	109	15.0	0.339	25.9	LOS C	4.7	37.4	0.78	0.78	35.5
Approach		183	15.0	0.339	25.1	LOS C	4.7	37.4	0.78	0.78	35.5
NorthWest: Midland Highway											
27b	L3	88	15.0	0.085	11.7	LOS B	0.8	6.6	0.34	0.69	45.4
28	T1	937	15.0	0.716	23.9	LOS C	16.3	128.7	0.91	0.82	34.4
29u	U	15	15.0	0.155	50.7	LOS D	0.6	4.6	0.96	0.70	25.1
Approach		1040	15.0	0.716	23.2	LOS C	16.3	128.7	0.86	0.80	34.9
All Vehicles		2125	15.0	0.716	23.0	LOS C	16.3	128.7	0.86	0.78	35.2

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	18.9	LOS B	0.1	0.1	0.69	0.69
All Pedestrians		105	26.6	LOS C			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (PM Existing)

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Practical 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
SouthEast: Midland Highway											
22	T1	961	15.0	0.721	24.1	LOS C	16.6	131.4	0.92	0.83	34.2
23a	R1	48	15.0	0.188	21.6	LOS C	1.0	7.9	0.84	0.71	37.6
Approach		1009	15.0	0.721	24.0	LOS C	16.6	131.4	0.91	0.82	34.4
North: Lockwood Street											
7a	L1	95	15.0	0.441	24.7	LOS C	6.4	50.7	0.82	0.80	35.1
9b	R3	143	15.0	0.441	26.7	LOS C	6.4	50.7	0.82	0.80	35.1
Approach		238	15.0	0.441	25.9	LOS C	6.4	50.7	0.82	0.80	35.1
NorthWest: Midland Highway											
27b	L3	117	15.0	0.113	11.8	LOS B	1.1	8.9	0.34	0.69	45.4
28	T1	959	15.0	0.741	24.8	LOS C	17.2	136.3	0.92	0.84	33.9
29u	U	20	15.0	0.210	51.0	LOS D	0.8	6.4	0.97	0.71	25.0
Approach		1096	15.0	0.741	23.9	LOS C	17.2	136.3	0.86	0.82	34.6
All Vehicles		2343	15.0	0.741	24.1	LOS C	17.2	136.3	0.88	0.82	34.6

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	18.9	LOS B	0.1	0.1	0.69	0.69
All Pedestrians		105	26.6	LOS C			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (AM Closure)

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Practical 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
SouthEast: Midland Highway											
22	T1	880	15.0	0.660	22.6	LOS C	14.5	114.2	0.89	0.78	35.1
23a	R1	64	15.0	0.255	22.2	LOS C	1.3	10.6	0.87	0.73	37.2
Approach		944	15.0	0.660	22.6	LOS C	14.5	114.2	0.89	0.77	35.2
North: Lockwood Street											
7a	L1	84	15.0	0.393	24.4	LOS C	5.6	44.2	0.80	0.79	35.3
9b	R3	127	15.0	0.393	26.3	LOS C	5.6	44.2	0.80	0.79	35.3
Approach		212	15.0	0.393	25.5	LOS C	5.6	44.2	0.80	0.79	35.3
NorthWest: Midland Highway											
27b	L3	96	15.0	0.092	11.7	LOS B	0.9	7.2	0.34	0.69	45.4
28	T1	983	15.0	0.758	25.6	LOS C	18.1	142.8	0.93	0.86	33.5
29u	U	16	15.0	0.166	50.7	LOS D	0.6	5.0	0.97	0.70	25.1
Approach		1095	15.0	0.758	24.7	LOS C	18.1	142.8	0.87	0.84	34.1
All Vehicles		2251	15.0	0.758	23.9	LOS C	18.1	142.8	0.87	0.81	34.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	18.9	LOS B	0.1	0.1	0.69	0.69
All Pedestrians		105	26.6	LOS C			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (PM Closure)

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Practical 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
SouthEast: Midland Highway											
22	T1	1013	15.0	0.760	25.8	LOS C	18.4	145.4	0.94	0.87	33.3
23a	R1	51	15.0	0.205	22.4	LOS C	1.0	8.3	0.87	0.72	37.1
Approach		1063	15.0	0.760	25.7	LOS C	18.4	145.4	0.93	0.87	33.5
North: Lockwood Street											
7a	L1	107	15.0	0.500	25.2	LOS C	7.5	58.9	0.84	0.81	34.8
9b	R3	162	15.0	0.500	27.1	LOS C	7.5	58.9	0.84	0.81	34.8
Approach		269	15.0	0.500	26.3	LOS C	7.5	58.9	0.84	0.81	34.8
NorthWest: Midland Highway											
27b	L3	124	15.0	0.120	11.8	LOS B	1.2	9.5	0.35	0.69	45.3
28	T1	1004	15.0	0.783	26.9	LOS C	19.2	151.8	0.93	0.89	32.8
29u	U	21	15.0	0.221	51.1	LOS D	0.8	6.7	0.97	0.71	25.0
Approach		1149	15.0	0.783	25.7	LOS C	19.2	151.8	0.87	0.87	33.6
All Vehicles		2482	15.0	0.783	25.7	LOS C	19.2	151.8	0.89	0.86	33.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	18.9	LOS B	0.1	0.1	0.69	0.69
All Pedestrians		105	26.6	LOS C			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (AM Closure, Future)

New Site
Signals - Fixed Time Cycle Time = 80 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
Design Life Analysis (Practical Capacity): Results for 10 years

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
SouthEast: Midland Highway											
22	T1	1021	15.0	0.766	26.1	LOS C	18.7	147.9	0.94	0.88	33.1
23a	R1	75	15.0	0.324	24.5	LOS C	1.6	12.4	0.93	0.75	35.8
Approach		1096	15.0	0.766	26.0	LOS C	18.7	147.9	0.94	0.87	33.3
North: Lockwood Street											
7a	L1	98	15.0	0.456	24.8	LOS C	6.7	52.7	0.82	0.80	35.0
9b	R3	148	15.0	0.456	26.8	LOS C	6.7	52.7	0.82	0.80	35.0
Approach		246	15.0	0.456	26.0	LOS C	6.7	52.7	0.82	0.80	35.0
NorthWest: Midland Highway											
27b	L3	111	15.0	0.107	11.8	LOS B	1.1	8.4	0.34	0.69	45.4
28	T1	1141	15.0	0.898	39.4	LOS D	27.6	218.3	0.99	1.11	27.5
29u	U	18	15.0	0.193	50.9	LOS D	0.7	5.8	0.97	0.71	25.0
Approach		1270	15.0	0.898	37.1	LOS D	27.6	218.3	0.93	1.07	28.5
All Vehicles		2612	15.0	0.898	31.4	LOS C	27.6	218.3	0.92	0.96	30.9

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	64	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	64	19.0	LOS B	0.1	0.1	0.69	0.69
All Pedestrians		128	26.6	LOS C			0.81	0.81

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Lockwood Rd/Midland Hwy (PM Closure, Future)

New Site
Signals - Fixed Time Cycle Time = 90 seconds (Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.
Design Life Analysis (Practical Capacity): Results for 10 years

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
SouthEast: Midland Highway											
22	T1	1175	15.0	0.744	23.0	LOS C	21.8	172.3	0.89	0.81	34.9
23a	R1	59	15.0	0.262	23.0	LOS C	1.2	9.6	0.85	0.73	36.8
Approach		1234	15.0	0.744	23.0	LOS C	21.8	172.3	0.89	0.81	35.0
North: Lockwood Street											
7a	L1	125	15.0	0.653	32.2	LOS C	11.1	87.3	0.92	0.84	31.4
9b	R3	188	15.0	0.653	34.1	LOS C	11.1	87.3	0.92	0.84	31.4
Approach		313	15.0	0.653	33.3	LOS C	11.1	87.3	0.92	0.84	31.4
NorthWest: Midland Highway											
27b	L3	144	15.0	0.133	11.5	LOS B	1.4	11.1	0.31	0.69	45.6
28	T1	1165	15.0	0.787	25.0	LOS C	23.9	188.9	0.89	0.84	33.8
29u	U	24	15.0	0.289	57.3	LOS E	1.1	8.9	0.98	0.72	23.3
Approach		1334	15.0	0.787	24.2	LOS C	23.9	188.9	0.83	0.82	34.5
All Vehicles		2881	15.0	0.787	24.6	LOS C	23.9	188.9	0.87	0.82	34.3

Level of Service (LOS) Method: Delay (HCM 2000).
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.

Movement Performance - Pedestrians

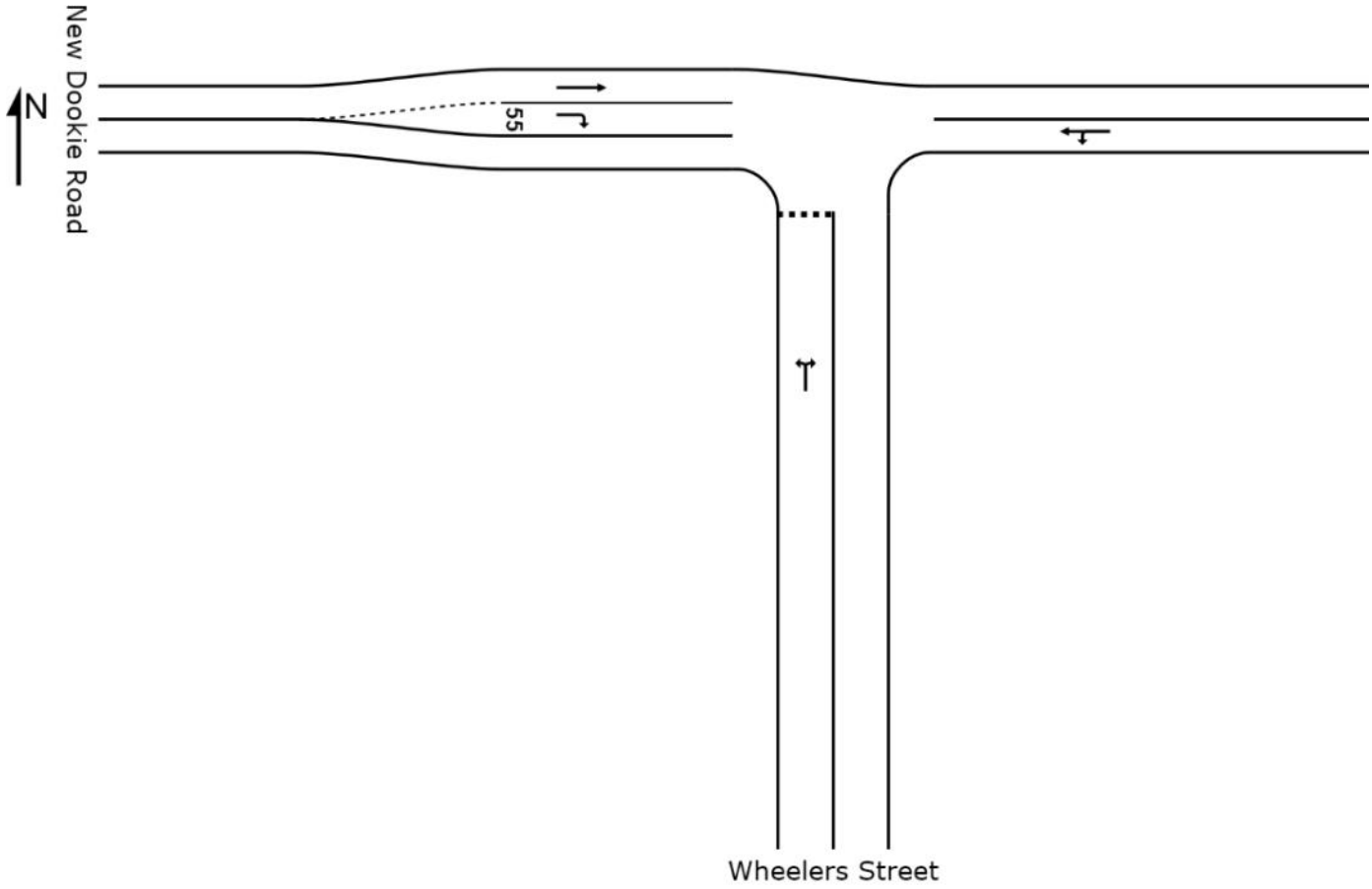
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	64	39.3	LOS D	0.2	0.2	0.94	0.94
P3	North Full Crossing	64	16.9	LOS B	0.1	0.1	0.61	0.61
All Pedestrians		128	28.1	LOS C			0.77	0.77

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: New Dookie Rd/Wheelers Rd (AM Existing)

Three-way intersection with 2-lane major road (Stop control)
Stop (Two-Way)



MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (AM Existing)

Three-way intersection with 2-lane major road (Stop control)
Stop (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: Wheelers Street											
1	L2	173	0.0	0.259	11.6	LOS B	1.0	7.3	0.54	0.78	45.4
3	R2	31	0.0	0.259	11.7	LOS B	1.0	7.3	0.54	0.78	45.4
Approach		203	0.0	0.259	11.7	LOS B	1.0	7.3	0.54	0.78	45.4
East: New Dookie Road											
4	L2	79	0.0	0.254	8.2	LOS A	0.0	0.0	0.00	0.16	57.9
5	T1	413	0.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.16	57.9
Approach		492	0.0	0.254	1.3	NA	0.0	0.0	0.00	0.16	57.9
West: New Dookie Road											
11	T1	391	0.0	0.200	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	211	0.0	0.193	10.4	LOS B	0.9	6.0	0.53	0.77	46.6
Approach		601	0.0	0.200	3.7	NA	0.9	6.0	0.19	0.27	54.5
All Vehicles		1296	0.0	0.259	4.0	NA	1.0	7.3	0.17	0.31	54.0

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (PM Existing)

Three-way intersection with 2-lane major road (Stop control)
Stop (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: Wheelers Street											
1	L2	181	0.0	0.318	13.4	LOS B	1.4	10.0	0.63	0.92	43.8
3	R2	32	0.0	0.318	13.5	LOS B	1.4	10.0	0.63	0.92	43.8
Approach		213	0.0	0.318	13.4	LOS B	1.4	10.0	0.63	0.92	43.8
East: New Dookie Road											
4	L2	114	0.0	0.367	8.2	LOS A	0.0	0.0	0.00	0.16	57.8
5	T1	596	0.0	0.367	0.1	LOS A	0.0	0.0	0.00	0.16	57.8
Approach		709	0.0	0.367	1.4	NA	0.0	0.0	0.00	0.16	57.8
West: New Dookie Road											
11	T1	248	0.0	0.127	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	134	0.0	0.165	11.9	LOS B	0.7	4.7	0.62	0.87	45.1
Approach		382	0.0	0.165	4.2	NA	0.7	4.7	0.22	0.30	53.8
All Vehicles		1304	0.0	0.367	4.2	NA	1.4	10.0	0.17	0.32	53.8

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (AM Closure)

Three-way intersection with 2-lane major road (Stop control)
Stop (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: Wheelers Street											
1	L2	209	0.0	0.327	12.5	LOS B	1.5	10.7	0.57	0.84	44.6
3	R2	37	0.0	0.327	12.6	LOS B	1.5	10.7	0.57	0.84	44.6
Approach		246	0.0	0.327	12.5	LOS B	1.5	10.7	0.57	0.84	44.6
East: New Dookie Road											
4	L2	82	0.0	0.264	8.2	LOS A	0.0	0.0	0.00	0.16	57.9
5	T1	429	0.0	0.264	0.0	LOS A	0.0	0.0	0.00	0.16	57.9
Approach		512	0.0	0.264	1.3	NA	0.0	0.0	0.00	0.16	57.9
West: New Dookie Road											
11	T1	406	0.0	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	219	0.0	0.205	10.5	LOS B	0.9	6.4	0.55	0.78	46.5
Approach		625	0.0	0.208	3.7	NA	0.9	6.4	0.19	0.27	54.4
All Vehicles		1383	0.0	0.327	4.4	NA	1.5	10.7	0.19	0.33	53.5

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (PM Closure)

Three-way intersection with 2-lane major road (Stop control)
Stop (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: Wheelers Street											
1	L2	221	0.0	0.427	15.2	LOS C	2.2	15.3	0.68	0.99	42.2
3	R2	39	0.0	0.427	15.3	LOS C	2.2	15.3	0.68	0.99	42.2
Approach		260	0.0	0.427	15.2	LOS C	2.2	15.3	0.68	0.99	42.2
East: New Dookie Road											
4	L2	119	0.0	0.384	8.2	LOS A	0.0	0.0	0.00	0.16	57.8
5	T1	623	0.0	0.384	0.1	LOS A	0.0	0.0	0.00	0.16	57.8
Approach		742	0.0	0.384	1.4	NA	0.0	0.0	0.00	0.16	57.8
West: New Dookie Road											
11	T1	299	0.0	0.153	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	161	0.0	0.210	12.3	LOS B	0.9	6.0	0.64	0.88	44.8
Approach		460	0.0	0.210	4.3	NA	0.9	6.0	0.22	0.31	53.6
All Vehicles		1462	0.0	0.427	4.8	NA	2.2	15.3	0.19	0.35	53.0

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (AM Closure, Future)

Three-way intersection with 2-lane major road (Stop control)
Stop (Two-Way)
Design Life Analysis (Practical Capacity): Results for 10 years

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: Wheelers Street											
1	L2	243	0.0	0.454	15.3	LOS C	2.5	17.8	0.65	0.98	42.2
3	R2	43	0.0	0.454	15.4	LOS C	2.5	17.8	0.65	0.98	42.2
Approach		286	0.0	0.454	15.3	LOS C	2.5	17.8	0.65	0.98	42.2
East: New Dookie Road											
4	L2	95	0.0	0.307	8.2	LOS A	0.0	0.0	0.00	0.16	57.8
5	T1	498	0.0	0.307	0.0	LOS A	0.0	0.0	0.00	0.16	57.8
Approach		594	0.0	0.307	1.4	NA	0.0	0.0	0.00	0.16	57.8
West: New Dookie Road											
11	T1	472	0.0	0.242	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
12	R2	254	0.0	0.266	11.3	LOS B	1.2	8.6	0.60	0.85	45.7
Approach		726	0.0	0.266	4.0	NA	1.2	8.6	0.21	0.30	54.1
All Vehicles		1605	0.0	0.454	5.0	NA	2.5	17.8	0.21	0.37	52.7

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: New Dookie Rd/Wheelers Rd (PM Closure, Future)

Three-way intersection with 2-lane major road (Stop control)
Stop (Two-Way)
Design Life Analysis (Practical Capacity): Results for 10 years

Movement Performance - Vehicles

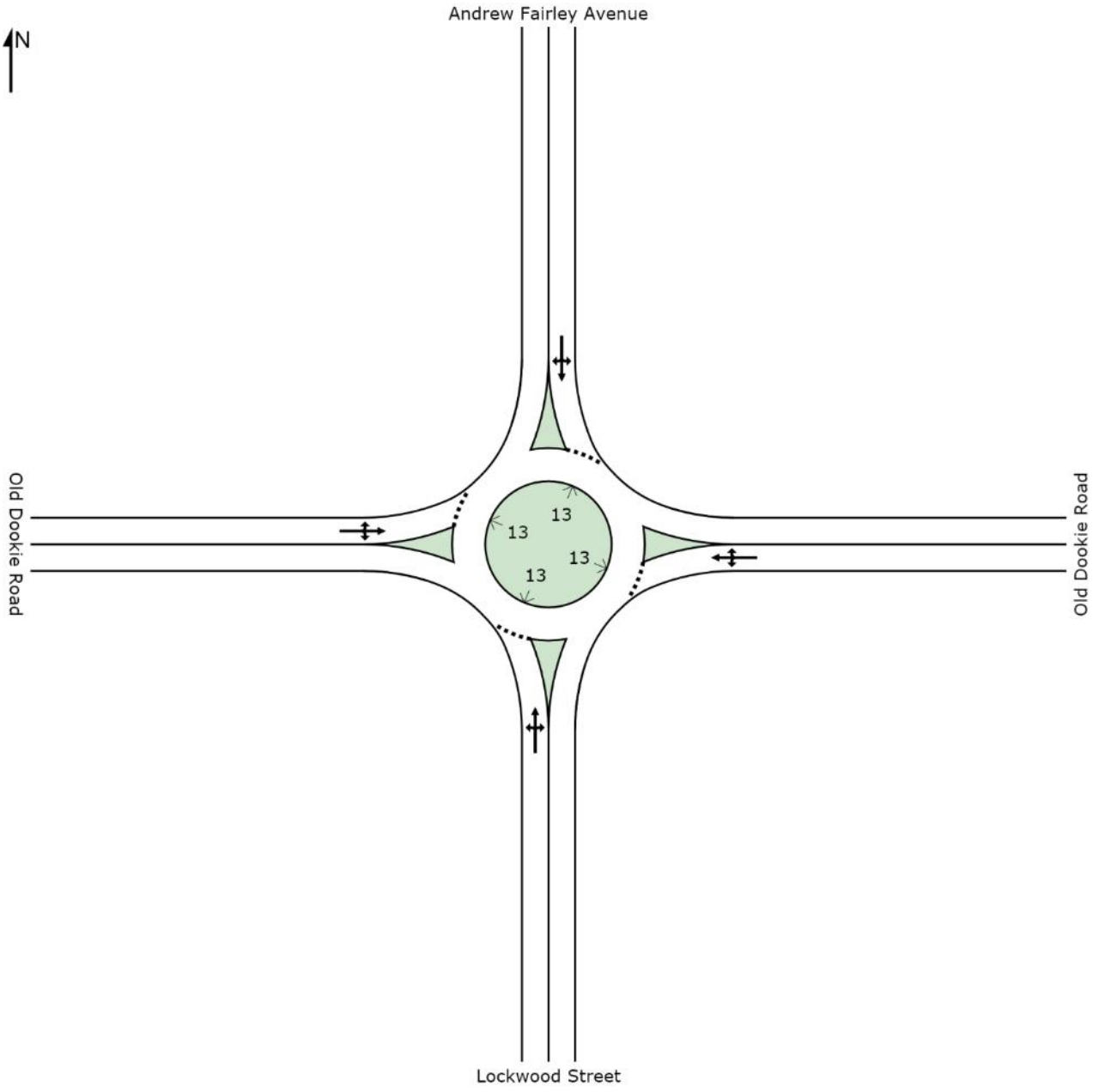
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wheelers Street											
1	L2	257	0.0	0.629	21.0	LOS C	3.8	26.9	0.80	1.15	38.0
3	R2	45	0.0	0.629	21.1	LOS C	3.8	26.9	0.80	1.15	38.0
Approach		302	0.0	0.629	21.1	LOS C	3.8	26.9	0.80	1.15	38.0
East: New Dookie Road											
4	L2	138	0.0	0.445	8.2	LOS A	0.0	0.0	0.00	0.16	57.8
5	T1	723	0.0	0.445	0.1	LOS A	0.0	0.0	0.00	0.16	57.8
Approach		861	0.0	0.445	1.4	NA	0.0	0.0	0.00	0.16	57.8
West: New Dookie Road											
11	T1	347	0.0	0.178	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R2	187	0.0	0.298	14.5	LOS B	1.3	9.3	0.73	0.95	42.9
Approach		534	0.0	0.298	5.1	NA	1.3	9.3	0.25	0.33	52.6
All Vehicles		1697	0.0	0.629	6.0	NA	3.8	26.9	0.22	0.39	51.4

Level of Service (LOS) Method: Delay (HCM 2000).
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.

SITE LAYOUT

Site: Old Dookie Rd/Lockwood Rd (AM Existing)

New Site
Roundabout



SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (AM Existing)

New Site
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
South: Lockwood Street											
1	L2	3	0.0	0.149	7.5	LOS A	0.8	5.7	0.26	1.22	47.1
2	T1	69	1.5	0.149	6.7	LOS A	0.8	5.7	0.26	1.22	47.1
3	R2	113	6.5	0.149	11.4	LOS B	0.8	5.7	0.26	1.22	47.1
Approach		185	4.5	0.149	9.6	LOS A	0.8	5.7	0.26	0.61	47.1
East: Old Dookie Road											
4	L2	83	10.1	0.131	7.2	LOS A	0.7	5.3	0.18	1.19	47.4
5	T1	2	50.0	0.131	6.4	LOS A	0.7	5.3	0.18	1.19	47.4
6	R2	87	3.6	0.131	11.2	LOS B	0.7	5.3	0.18	1.19	47.4
Approach		173	7.3	0.131	9.2	LOS A	0.7	5.3	0.18	0.59	47.4
North: Andrew Fairley Avenue											
7	L2	114	4.6	0.136	7.6	LOS A	0.7	5.3	0.30	1.08	48.9
8	T1	46	6.8	0.136	6.8	LOS A	0.7	5.3	0.30	1.08	48.9
9	R2	1	0.0	0.136	11.6	LOS B	0.7	5.3	0.30	1.08	48.9
Approach		161	5.2	0.136	7.4	LOS A	0.7	5.3	0.30	0.54	48.9
West: Old Dookie Road											
10	L2	3	0.0	0.006	8.2	LOS A	0.0	0.2	0.40	1.12	47.8
11	T1	2	0.0	0.006	7.4	LOS A	0.0	0.2	0.40	1.12	47.8
12	R2	1	0.0	0.006	12.2	LOS B	0.0	0.2	0.40	1.12	47.8
Approach		6	0.0	0.006	8.6	LOS A	0.0	0.2	0.40	0.56	47.8
All Vehicles		525	5.6	0.149	8.8	LOS A	0.8	5.7	0.25	0.58	47.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (PM Existing)

New Site
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
South: Lockwood Street											
1	L2	1	0.0	0.254	7.6	LOS A	1.6	11.4	0.33	1.18	47.6
2	T1	179	2.9	0.254	6.8	LOS A	1.6	11.4	0.33	1.18	47.6
3	R2	134	7.9	0.254	11.6	LOS B	1.6	11.4	0.33	1.18	47.6
Approach		314	5.0	0.254	8.9	LOS A	1.6	11.4	0.33	0.59	47.6
East: Old Dookie Road											
4	L2	133	4.0	0.214	8.0	LOS A	1.2	8.8	0.39	1.27	46.7
5	T1	1	0.0	0.214	7.2	LOS A	1.2	8.8	0.39	1.27	46.7
6	R2	109	0.0	0.214	12.0	LOS B	1.2	8.8	0.39	1.27	46.7
Approach		243	2.2	0.214	9.8	LOS A	1.2	8.8	0.39	0.64	46.7
North: Andrew Fairley Avenue											
7	L2	152	2.8	0.268	7.8	LOS A	1.6	11.6	0.37	1.12	48.7
8	T1	172	0.6	0.268	7.0	LOS A	1.6	11.6	0.37	1.12	48.7
9	R2	2	0.0	0.268	11.8	LOS B	1.6	11.6	0.37	1.12	48.7
Approach		325	1.6	0.268	7.4	LOS A	1.6	11.6	0.37	0.56	48.7
West: Old Dookie Road											
10	L2	1	0.0	0.003	8.9	LOS A	0.0	0.1	0.51	1.16	46.7
11	T1	1	0.0	0.003	8.2	LOS A	0.0	0.1	0.51	1.16	46.7
12	R2	1	0.0	0.003	12.9	LOS B	0.0	0.1	0.51	1.16	46.7
Approach		3	0.0	0.003	10.0	LOS B	0.0	0.1	0.51	0.58	46.7
All Vehicles		885	3.0	0.268	8.6	LOS A	1.6	11.6	0.36	0.59	47.7

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (AM Closure)

New Site
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
South: Lockwood Street											
1	L2	3	15.0	0.173	7.6	LOS A	0.9	7.4	0.28	1.17	47.0
2	T1	77	15.0	0.173	6.8	LOS A	0.9	7.4	0.28	1.17	47.0
3	R2	124	15.0	0.173	11.5	LOS B	0.9	7.4	0.28	1.17	47.0
Approach		204	15.0	0.173	9.7	LOS A	0.9	7.4	0.28	0.58	47.0
East: Old Dookie Road											
4	L2	84	15.0	0.141	7.3	LOS A	0.8	6.1	0.22	1.14	47.3
5	T1	2	15.0	0.141	6.5	LOS A	0.8	6.1	0.22	1.14	47.3
6	R2	88	15.0	0.141	11.3	LOS B	0.8	6.1	0.22	1.14	47.3
Approach		175	15.0	0.141	9.3	LOS A	0.8	6.1	0.22	0.57	47.3
North: Andrew Fairley Avenue											
7	L2	134	15.0	0.172	7.8	LOS A	0.9	7.4	0.34	1.06	48.7
8	T1	55	15.0	0.172	7.0	LOS A	0.9	7.4	0.34	1.06	48.7
9	R2	1	15.0	0.172	11.8	LOS B	0.9	7.4	0.34	1.06	48.7
Approach		189	15.0	0.172	7.6	LOS A	0.9	7.4	0.34	0.53	48.7
West: Old Dookie Road											
10	L2	5	15.0	0.010	8.6	LOS A	0.0	0.4	0.44	1.08	47.8
11	T1	3	15.0	0.010	7.8	LOS A	0.0	0.4	0.44	1.08	47.8
12	R2	1	15.0	0.010	12.6	LOS B	0.0	0.4	0.44	1.08	47.8
Approach		9	15.0	0.010	8.7	LOS A	0.0	0.4	0.44	0.54	47.8
All Vehicles		578	15.0	0.173	8.9	LOS A	0.9	7.4	0.28	0.56	47.6

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (PM Closure)

New Site
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
South: Lockwood Street											
1	L2	1	15.0	0.287	7.8	LOS A	1.8	14.4	0.36	1.15	47.4
2	T1	191	15.0	0.287	7.0	LOS A	1.8	14.4	0.36	1.15	47.4
3	R2	142	15.0	0.287	11.8	LOS B	1.8	14.4	0.36	1.15	47.4
Approach		334	15.0	0.287	9.0	LOS A	1.8	14.4	0.36	0.57	47.4
East: Old Dookie Road											
4	L2	135	15.0	0.241	8.3	LOS A	1.4	11.2	0.45	1.26	46.5
5	T1	1	15.0	0.241	7.6	LOS A	1.4	11.2	0.45	1.26	46.5
6	R2	111	15.0	0.241	12.3	LOS B	1.4	11.2	0.45	1.26	46.5
Approach		246	15.0	0.241	10.1	LOS B	1.4	11.2	0.45	0.63	46.5
North: Andrew Fairley Avenue											
7	L2	166	15.0	0.320	8.1	LOS A	2.0	16.1	0.42	1.10	48.4
8	T1	188	15.0	0.320	7.3	LOS A	2.0	16.1	0.42	1.10	48.4
9	R2	2	15.0	0.320	12.0	LOS B	2.0	16.1	0.42	1.10	48.4
Approach		357	15.0	0.320	7.7	LOS A	2.0	16.1	0.42	0.55	48.4
West: Old Dookie Road											
10	L2	2	15.0	0.006	9.5	LOS A	0.0	0.3	0.55	1.18	46.1
11	T1	1	15.0	0.006	8.7	LOS A	0.0	0.3	0.55	1.18	46.1
12	R2	2	15.0	0.006	13.5	LOS B	0.0	0.3	0.55	1.18	46.1
Approach		5	15.0	0.006	11.0	LOS B	0.0	0.3	0.55	0.59	46.1
All Vehicles		942	15.0	0.320	8.8	LOS A	2.0	16.1	0.41	0.58	47.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (PM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

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: Lockwood Street											
1	L2	1	15.0	0.341	8.0	LOS A	2.3	18.2	0.42	1.18	47.1
2	T1	221	15.0	0.341	7.2	LOS A	2.3	18.2	0.42	1.18	47.1
3	R2	165	15.0	0.341	12.0	LOS B	2.3	18.2	0.42	1.18	47.1
Approach		387	15.0	0.341	9.2	LOS A	2.3	18.2	0.42	0.59	47.1
East: Old Dookie Road											
4	L2	156	15.0	0.290	8.6	LOS A	1.8	14.1	0.51	1.31	46.3
5	T1	1	15.0	0.290	7.9	LOS A	1.8	14.1	0.51	1.31	46.3
6	R2	128	15.0	0.290	12.6	LOS B	1.8	14.1	0.51	1.31	46.3
Approach		286	15.0	0.290	10.4	LOS B	1.8	14.1	0.51	0.66	46.3
North: Andrew Fairley Avenue											
7	L2	193	15.0	0.381	8.3	LOS A	2.6	20.4	0.48	1.15	48.0
8	T1	219	15.0	0.381	7.5	LOS A	2.6	20.4	0.48	1.15	48.0
9	R2	2	15.0	0.381	12.3	LOS B	2.6	20.4	0.48	1.15	48.0
Approach		414	15.0	0.381	7.9	LOS A	2.6	20.4	0.48	0.58	48.0
West: Old Dookie Road											
10	L2	2	15.0	0.008	10.0	LOS B	0.0	0.3	0.59	1.22	45.7
11	T1	1	15.0	0.008	9.3	LOS A	0.0	0.3	0.59	1.22	45.7
12	R2	2	15.0	0.008	14.0	LOS B	0.0	0.3	0.59	1.22	45.7
Approach		6	15.0	0.008	11.5	LOS B	0.0	0.3	0.59	0.61	45.7
All Vehicles		1093	15.0	0.381	9.1	LOS A	2.6	20.4	0.46	0.60	47.2

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Old Dookie Rd/Lockwood Rd (AM Closure, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

Movement Performance - Vehicles

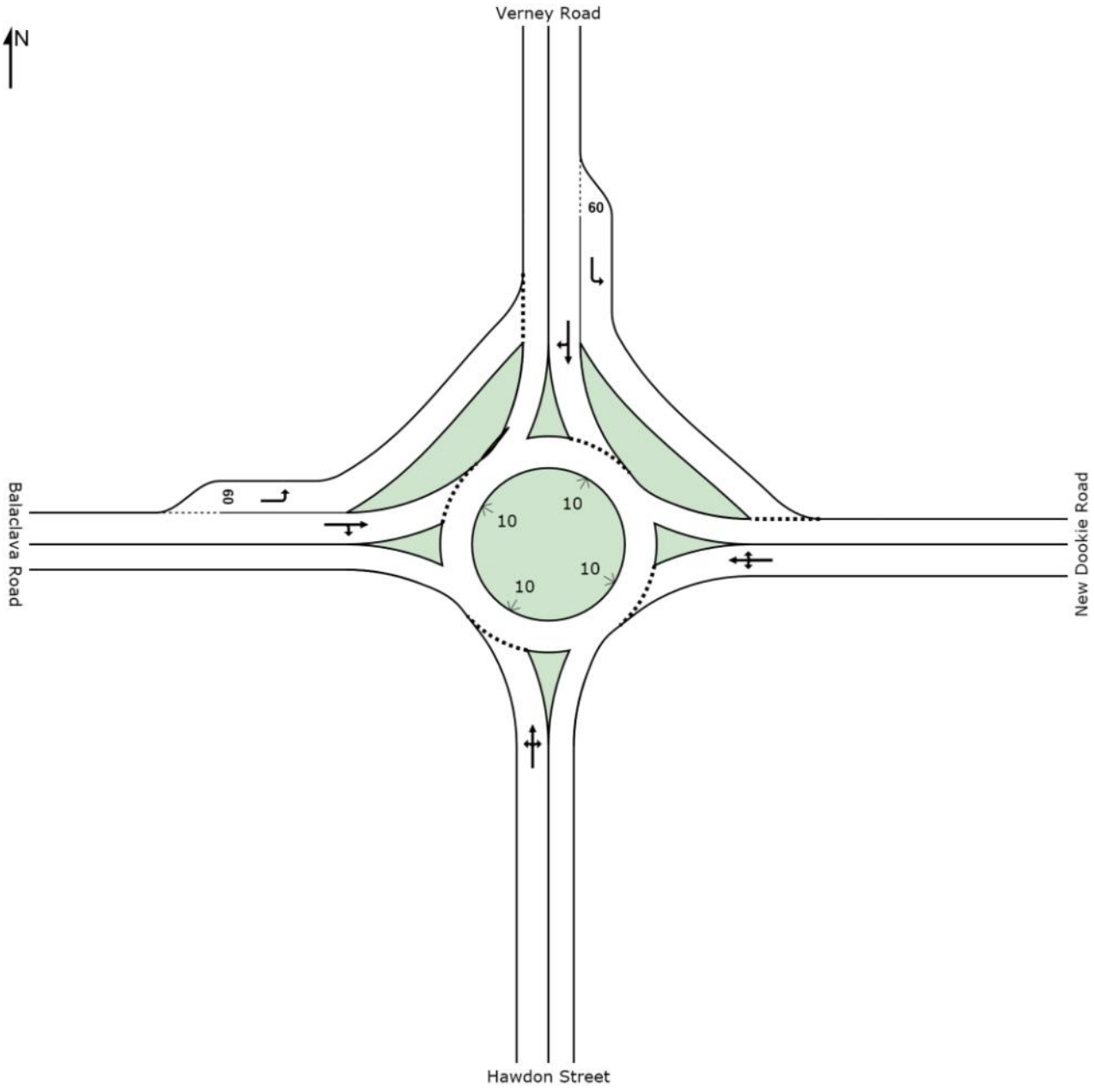
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Lockwood Street											
1	L2	4	15.0	0.204	7.7	LOS A	1.1	9.0	0.31	1.18	46.9
2	T1	89	15.0	0.204	6.9	LOS A	1.1	9.0	0.31	1.18	46.9
3	R2	144	15.0	0.204	11.7	LOS B	1.1	9.0	0.31	1.18	46.9
Approach		237	15.0	0.204	9.8	LOS A	1.1	9.0	0.31	0.59	46.9
East: Old Dookie Road											
4	L2	98	15.0	0.165	7.4	LOS A	0.9	7.3	0.24	1.14	47.2
5	T1	2	15.0	0.165	6.6	LOS A	0.9	7.3	0.24	1.14	47.2
6	R2	103	15.0	0.165	11.4	LOS B	0.9	7.3	0.24	1.14	47.2
Approach		203	15.0	0.165	9.4	LOS A	0.9	7.3	0.24	0.57	47.2
North: Andrew Fairley Avenue											
7	L2	155	15.0	0.204	8.0	LOS A	1.1	9.0	0.38	1.10	48.4
8	T1	64	15.0	0.204	7.2	LOS A	1.1	9.0	0.38	1.10	48.4
9	R2	1	15.0	0.204	12.0	LOS B	1.1	9.0	0.38	1.10	48.4
Approach		220	15.0	0.204	7.8	LOS A	1.1	9.0	0.38	0.55	48.4
West: Old Dookie Road											
10	L2	6	15.0	0.012	8.9	LOS A	0.1	0.5	0.48	1.11	47.6
11	T1	4	15.0	0.012	8.1	LOS A	0.1	0.5	0.48	1.11	47.6
12	R2	1	15.0	0.012	12.8	LOS B	0.1	0.5	0.48	1.11	47.6
Approach		11	15.0	0.012	9.0	LOS A	0.1	0.5	0.48	0.56	47.6
All Vehicles		671	15.0	0.204	9.0	LOS A	1.1	9.0	0.32	0.57	47.5

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod2)

New Site
Roundabout



MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod2)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	119	15.0	0.635	13.3	LOS B	5.7	45.2	0.83	1.94	43.8
2	T1	287	15.0	0.635	12.5	LOS B	5.7	45.2	0.83	1.94	43.8
3	R2	89	15.0	0.635	16.8	LOS B	5.7	45.2	0.83	1.94	43.8
Approach		496	15.0	0.635	13.4	LOS B	5.7	45.2	0.83	0.97	43.8
East: New Dookie Road											
4	L2	113	15.0	0.684	15.4	LOS B	6.7	53.1	0.87	2.14	41.5
5	T1	215	15.0	0.684	14.5	LOS B	6.7	53.1	0.87	2.14	41.5
6	R2	184	15.0	0.684	18.9	LOS B	6.7	53.1	0.87	2.14	41.5
Approach		512	15.0	0.684	16.3	LOS B	6.7	53.1	0.87	1.07	41.5
North: Verney Road											
7	L2	109	15.0	0.097	8.6	LOS A	0.5	3.6	0.43	1.22	47.7
8	T1	369	15.0	0.450	8.8	LOS A	2.9	23.2	0.65	1.48	46.5
9	R2	98	15.0	0.450	13.1	LOS B	2.9	23.2	0.65	1.48	46.5
Approach		577	15.0	0.450	9.5	LOS A	2.9	23.2	0.61	0.72	46.7
West: Balaclava Road											
10	L2	74	15.0	0.073	9.2	LOS A	0.4	2.9	0.53	1.29	47.3
11	T1	234	15.0	0.364	9.5	LOS A	2.3	18.3	0.70	1.57	45.9
12	R2	103	15.0	0.364	13.8	LOS B	2.3	18.3	0.70	1.57	45.9
Approach		411	15.0	0.364	10.5	LOS B	2.3	18.3	0.67	0.76	46.1
All Vehicles		1995	15.0	0.684	12.4	LOS B	6.7	53.1	0.74	0.88	44.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Mod2)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	83	15.0	0.774	16.3	LOS B	9.3	73.8	0.95	2.22	41.5
2	T1	402	15.0	0.774	15.4	LOS B	9.3	73.8	0.95	2.22	41.5
3	R2	106	15.0	0.774	19.7	LOS B	9.3	73.8	0.95	2.22	41.5
Approach		592	15.0	0.774	16.3	LOS B	9.3	73.8	0.95	1.11	41.5
East: New Dookie Road											
4	L2	260	15.0	1.121	140.9	LOS F	70.7	558.4	1.00	7.17	12.3
5	T1	193	15.0	1.121	140.0	LOS F	70.7	558.4	1.00	7.17	12.3
6	R2	289	15.0	1.121	144.3	LOS F	70.7	558.4	1.00	7.17	12.3
Approach		742	15.0	1.121	142.0	LOS F	70.7	558.4	1.00	3.58	12.3
North: Verney Road											
7	L2	192	15.0	0.189	9.2	LOS A	1.0	8.3	0.56	1.36	47.1
8	T1	461	15.0	0.586	11.4	LOS B	5.3	41.8	0.84	1.85	45.3
9	R2	57	15.0	0.586	15.7	LOS B	5.3	41.8	0.84	1.85	45.3
Approach		709	15.0	0.586	11.1	LOS B	5.3	41.8	0.77	0.86	45.8
West: Balaclava Road											
10	L2	68	15.0	0.082	10.4	LOS B	0.5	3.7	0.67	1.42	46.6
11	T1	319	15.0	0.628	15.3	LOS B	6.3	49.8	0.95	2.17	41.3
12	R2	136	15.0	0.628	19.6	LOS B	6.3	49.8	0.95	2.17	41.3
Approach		523	15.0	0.628	15.8	LOS B	6.3	49.8	0.91	1.04	41.9
All Vehicles		2566	15.0	1.121	51.1	LOS D	70.7	558.4	0.91	1.74	25.0

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod2, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 8 years

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: Hawdon Street											
1	L2	134	15.0	0.781	18.0	LOS B	9.5	75.1	0.97	2.36	40.1
2	T1	324	15.0	0.781	17.2	LOS B	9.5	75.1	0.97	2.36	40.1
3	R2	101	15.0	0.781	21.5	LOS C	9.5	75.1	0.97	2.36	40.1
Approach		559	15.0	0.781	18.2	LOS B	9.5	75.1	0.97	1.18	40.1
East: New Dookie Road											
4	L2	127	15.0	0.846	24.0	LOS C	12.4	98.2	1.00	2.65	35.8
5	T1	242	15.0	0.846	23.1	LOS C	12.4	98.2	1.00	2.65	35.8
6	R2	208	15.0	0.846	27.4	LOS C	12.4	98.2	1.00	2.65	35.8
Approach		576	15.0	0.846	24.8	LOS C	12.4	98.2	1.00	1.32	35.8
North: Verney Road											
7	L2	123	15.0	0.114	8.8	LOS A	0.6	4.5	0.47	1.26	47.5
8	T1	416	15.0	0.536	10.0	LOS A	4.2	33.5	0.74	1.66	45.9
9	R2	110	15.0	0.536	14.3	LOS B	4.2	33.5	0.74	1.66	45.9
Approach		650	15.0	0.536	10.5	LOS B	4.2	33.5	0.69	0.79	46.2
West: Balaclava Road											
10	L2	83	15.0	0.088	9.6	LOS A	0.5	3.7	0.58	1.35	47.0
11	T1	263	15.0	0.450	10.5	LOS B	3.3	26.0	0.80	1.73	45.2
12	R2	116	15.0	0.450	14.8	LOS B	3.3	26.0	0.80	1.73	45.2
Approach		462	15.0	0.450	11.4	LOS B	3.3	26.0	0.76	0.83	45.5
All Vehicles		2247	15.0	0.846	16.3	LOS B	12.4	98.2	0.85	1.03	41.4

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Mod2, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 0 years

Movement Performance - Vehicles

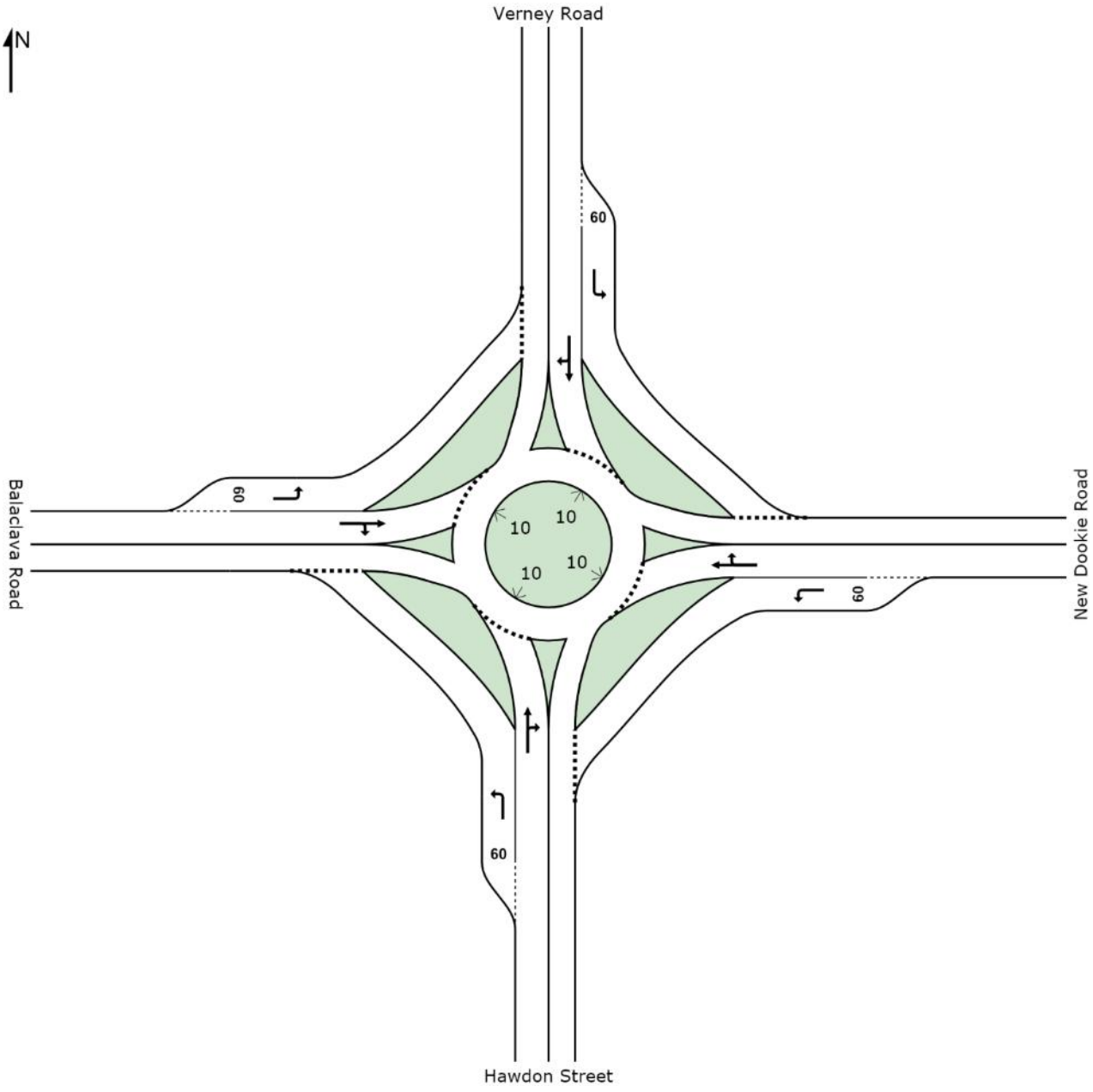
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	83	15.0	0.774	16.3	LOS B	9.3	73.8	0.95	2.22	41.5
2	T1	402	15.0	0.774	15.4	LOS B	9.3	73.8	0.95	2.22	41.5
3	R2	106	15.0	0.774	19.7	LOS B	9.3	73.8	0.95	2.22	41.5
Approach		592	15.0	0.774	16.3	LOS B	9.3	73.8	0.95	1.11	41.5
East: New Dookie Road											
4	L2	260	15.0	1.121	140.9	LOS F	70.7	558.4	1.00	7.17	12.3
5	T1	193	15.0	1.121	140.0	LOS F	70.7	558.4	1.00	7.17	12.3
6	R2	289	15.0	1.121	144.3	LOS F	70.7	558.4	1.00	7.17	12.3
Approach		742	15.0	1.121	142.0	LOS F	70.7	558.4	1.00	3.58	12.3
North: Verney Road											
7	L2	192	15.0	0.189	9.2	LOS A	1.0	8.3	0.56	1.36	47.1
8	T1	461	15.0	0.586	11.4	LOS B	5.3	41.8	0.84	1.85	45.3
9	R2	57	15.0	0.586	15.7	LOS B	5.3	41.8	0.84	1.85	45.3
Approach		709	15.0	0.586	11.1	LOS B	5.3	41.8	0.77	0.86	45.8
West: Balaclava Road											
10	L2	68	15.0	0.082	10.4	LOS B	0.5	3.7	0.67	1.42	46.6
11	T1	319	15.0	0.628	15.3	LOS B	6.3	49.8	0.95	2.17	41.3
12	R2	136	15.0	0.628	19.6	LOS B	6.3	49.8	0.95	2.17	41.3
Approach		523	15.0	0.628	15.8	LOS B	6.3	49.8	0.91	1.04	41.9
All Vehicles		2566	15.0	1.121	51.1	LOS D	70.7	558.4	0.91	1.74	25.0

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod)

New Site
Roundabout



MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	119	15.0	0.105	8.6	LOS A	0.5	3.9	0.42	1.22	47.7
2	T1	287	15.0	0.387	9.1	LOS A	2.5	19.4	0.67	1.52	46.3
3	R2	89	15.0	0.387	13.4	LOS B	2.5	19.4	0.67	1.52	46.3
Approach		496	15.0	0.387	9.7	LOS A	2.5	19.4	0.61	0.73	46.6
East: New Dookie Road											
4	L2	113	15.0	0.112	9.3	LOS A	0.6	4.5	0.54	1.33	47.2
5	T1	215	15.0	0.433	9.8	LOS A	2.9	22.9	0.73	1.65	45.2
6	R2	184	15.0	0.433	14.1	LOS B	2.9	22.9	0.73	1.65	45.2
Approach		512	15.0	0.433	11.2	LOS B	2.9	22.9	0.69	0.79	45.6
North: Verney Road											
7	L2	109	15.0	0.097	8.6	LOS A	0.5	3.6	0.43	1.22	47.7
8	T1	369	15.0	0.449	8.8	LOS A	2.9	23.0	0.65	1.48	46.5
9	R2	98	15.0	0.449	13.1	LOS B	2.9	23.0	0.65	1.48	46.5
Approach		577	15.0	0.449	9.5	LOS A	2.9	23.0	0.60	0.72	46.7
West: Balaclava Road											
10	L2	74	15.0	0.072	9.2	LOS A	0.4	2.8	0.51	1.29	47.3
11	T1	234	15.0	0.357	9.5	LOS A	2.2	17.4	0.68	1.56	45.9
12	R2	103	15.0	0.357	13.8	LOS B	2.2	17.4	0.68	1.56	45.9
Approach		411	15.0	0.357	10.5	LOS B	2.2	17.4	0.65	0.75	46.2
All Vehicles		1995	15.0	0.449	10.2	LOS B	2.9	23.0	0.64	0.74	46.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Mod)

New Site
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	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	83	15.0	0.071	8.3	LOS A	0.3	2.7	0.38	1.16	47.9
2	T1	402	15.0	0.563	10.8	LOS B	4.9	38.5	0.82	1.79	45.4
3	R2	106	15.0	0.563	15.1	LOS B	4.9	38.5	0.82	1.79	45.4
Approach		592	15.0	0.563	11.2	LOS B	4.9	38.5	0.76	0.85	45.8
East: New Dookie Road											
4	L2	260	15.0	0.297	10.4	LOS B	1.9	14.8	0.71	1.57	46.4
5	T1	193	15.0	0.587	12.6	LOS B	5.4	42.7	0.88	1.98	42.5
6	R2	289	15.0	0.587	16.9	LOS B	5.4	42.7	0.88	1.98	42.5
Approach		742	15.0	0.587	13.5	LOS B	5.4	42.7	0.82	0.92	43.8
North: Verney Road											
7	L2	192	15.0	0.188	9.2	LOS A	1.0	8.3	0.56	1.36	47.1
8	T1	461	15.0	0.584	11.3	LOS B	5.3	41.6	0.84	1.84	45.3
9	R2	57	15.0	0.584	15.6	LOS B	5.3	41.6	0.84	1.84	45.3
Approach		709	15.0	0.584	11.1	LOS B	5.3	41.6	0.77	0.86	45.8
West: Balaclava Road											
10	L2	68	15.0	0.082	10.6	LOS B	0.5	3.7	0.67	1.43	46.4
11	T1	319	15.0	0.623	15.9	LOS B	6.3	49.5	0.94	2.20	40.8
12	R2	136	15.0	0.623	20.2	LOS C	6.3	49.5	0.94	2.20	40.8
Approach		523	15.0	0.623	16.3	LOS B	6.3	49.5	0.91	1.05	41.5
All Vehicles		2566	15.0	0.623	12.9	LOS B	6.3	49.5	0.81	0.91	44.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Mod, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 10 years

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: Hawdon Street											
1	L2	138	15.0	0.127	8.8	LOS A	0.6	5.1	0.48	1.27	47.5
2	T1	334	15.0	0.494	10.4	LOS B	3.8	30.2	0.79	1.73	45.5
3	R2	104	15.0	0.494	14.7	LOS B	3.8	30.2	0.79	1.73	45.5
Approach		575	15.0	0.494	10.8	LOS B	3.8	30.2	0.72	0.81	46.0
East: New Dookie Road											
4	L2	131	15.0	0.141	9.8	LOS A	0.8	6.2	0.61	1.41	46.9
5	T1	249	15.0	0.563	12.3	LOS B	5.0	39.4	0.87	1.95	43.2
6	R2	214	15.0	0.563	16.6	LOS B	5.0	39.4	0.87	1.95	43.2
Approach		594	15.0	0.563	13.3	LOS B	5.0	39.4	0.81	0.91	43.9
North: Verney Road											
7	L2	127	15.0	0.118	8.8	LOS A	0.6	4.7	0.48	1.27	47.5
8	T1	429	15.0	0.559	10.3	LOS B	4.6	36.6	0.77	1.71	45.7
9	R2	114	15.0	0.559	14.6	LOS B	4.6	36.6	0.77	1.71	45.7
Approach		669	15.0	0.559	10.8	LOS B	4.6	36.6	0.71	0.81	46.0
West: Balaclava Road											
10	L2	86	15.0	0.090	9.7	LOS A	0.5	3.7	0.58	1.35	47.0
11	T1	271	15.0	0.458	10.8	LOS B	3.4	26.5	0.79	1.75	45.0
12	R2	120	15.0	0.458	15.1	LOS B	3.4	26.5	0.79	1.75	45.0
Approach		476	15.0	0.458	11.7	LOS B	3.4	26.5	0.75	0.84	45.4
All Vehicles		2315	15.0	0.563	11.6	LOS B	5.0	39.4	0.75	0.84	45.3

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Mod, Future)

New Site
Roundabout
Design Life Analysis (Practical Capacity): Results for 8 years

Movement Performance - Vehicles

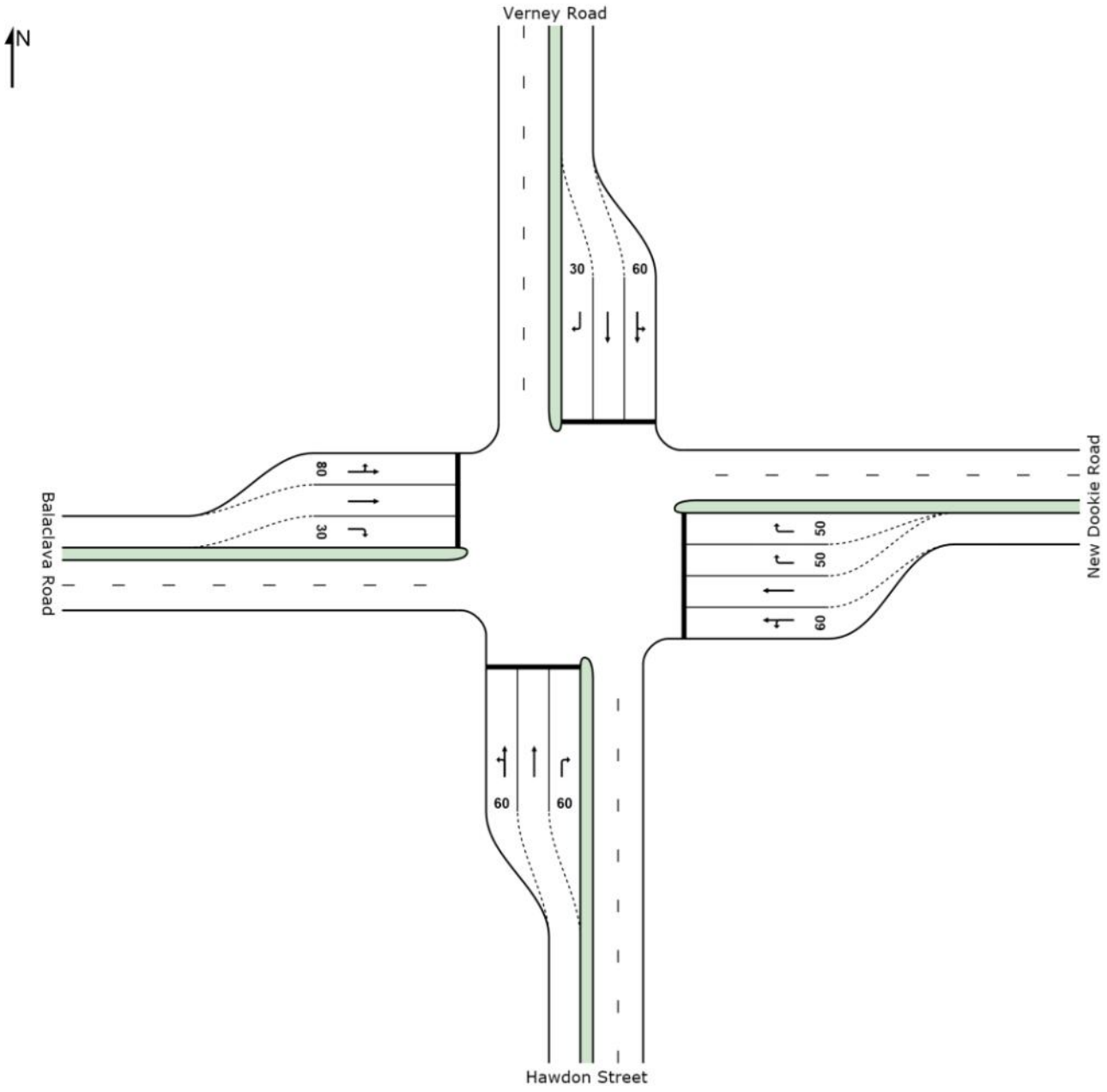
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Hawdon Street											
1	L2	94	15.0	0.082	8.4	LOS A	0.4	3.2	0.42	1.19	47.7
2	T1	453	15.0	0.701	14.0	LOS B	7.9	62.5	0.96	2.13	42.6
3	R2	120	15.0	0.701	18.3	LOS B	7.9	62.5	0.96	2.13	42.6
Approach		666	15.0	0.701	14.0	LOS B	7.9	62.5	0.88	1.00	43.2
East: New Dookie Road											
4	L2	293	15.0	0.373	11.1	LOS B	2.6	20.4	0.81	1.69	45.9
5	T1	217	15.0	0.754	18.5	LOS B	9.6	75.5	1.00	2.41	38.2
6	R2	326	15.0	0.754	22.8	LOS C	9.6	75.5	1.00	2.41	38.2
Approach		836	15.0	0.754	17.6	LOS B	9.6	75.5	0.93	1.08	40.5
North: Verney Road											
7	L2	216	15.0	0.224	9.5	LOS A	1.3	10.4	0.62	1.43	46.8
8	T1	519	15.0	0.721	15.0	LOS B	8.5	66.8	0.97	2.20	42.1
9	R2	64	15.0	0.721	19.3	LOS B	8.5	66.8	0.97	2.20	42.1
Approach		799	15.0	0.721	13.9	LOS B	8.5	66.8	0.87	1.00	43.3
West: Balaclava Road											
10	L2	77	15.0	0.105	11.4	LOS B	0.6	5.1	0.75	1.52	45.6
11	T1	359	15.0	0.826	29.8	LOS C	13.0	102.4	1.00	2.79	32.4
12	R2	153	15.0	0.826	34.1	LOS C	13.0	102.4	1.00	2.79	32.4
Approach		589	15.0	0.826	28.5	LOS C	13.0	102.4	0.97	1.31	33.7
All Vehicles		2891	15.0	0.826	18.0	LOS B	13.0	102.4	0.91	1.09	40.1

Level of Service (LOS) Method: Delay (HCM 2000).
Roundabout LOS Method: Same as Signalised Intersections.
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.

SITE LAYOUT

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Signals)

New Site
Signals - Fixed Time



MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Signals)

New Site
Signals - Fixed Time Cycle Time = 50 seconds (Practical 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: Hawdon Street											
1	L2	119	15.0	0.589	28.3	LOS C	5.2	41.4	0.95	0.81	34.9
2	T1	287	15.0	0.589	21.8	LOS C	5.2	41.4	0.96	0.81	34.9
3	R2	89	15.0	0.242	20.2	LOS C	1.5	11.8	0.89	0.74	38.7
Approach		496	15.0	0.589	23.0	LOS C	5.2	41.4	0.95	0.80	35.5
East: New Dookie Road											
4	L2	113	15.0	0.589	30.1	LOS C	4.6	36.4	0.96	0.82	33.8
5	T1	215	15.0	0.589	23.7	LOS C	4.6	36.4	0.98	0.81	33.8
6	R2	184	15.0	0.420	31.7	LOS C	2.3	17.9	0.97	0.76	32.2
Approach		512	15.0	0.589	28.0	LOS C	4.6	36.4	0.97	0.79	33.2
North: Verney Road											
7	L2	109	15.0	0.721	31.3	LOS C	6.6	51.8	0.99	0.91	33.5
8	T1	369	15.0	0.721	23.9	LOS C	6.6	51.8	0.99	0.90	33.7
9	R2	98	15.0	0.274	20.5	LOS C	1.6	13.0	0.90	0.75	38.5
Approach		577	15.0	0.721	24.7	LOS C	6.6	51.8	0.98	0.88	34.4
West: Balaclava Road											
10	L2	74	15.0	0.598	31.1	LOS C	4.2	32.9	0.98	0.82	33.6
11	T1	234	15.0	0.598	24.0	LOS C	4.2	32.9	0.99	0.82	33.7
12	R2	103	15.0	0.471	31.9	LOS C	2.6	20.2	0.97	0.77	32.1
Approach		411	15.0	0.598	27.3	LOS C	4.2	32.9	0.98	0.81	33.2
All Vehicles		1995	15.0	0.721	25.7	LOS C	6.6	51.8	0.97	0.82	34.1

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Signals)

New Site
Signals - Fixed Time Cycle Time = 60 seconds (Practical 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: Hawdon Street											
1	L2	83	15.0	0.525	29.9	LOS C	6.5	51.4	0.91	0.78	34.6
2	T1	402	15.0	0.525	22.1	LOS C	6.5	51.4	0.92	0.77	34.9
3	R2	106	15.0	0.337	22.3	LOS C	2.0	16.1	0.92	0.76	37.4
Approach		592	15.0	0.525	23.3	LOS C	6.5	51.4	0.92	0.77	35.3
East: New Dookie Road											
4	L2	260	15.0	0.561	27.9	LOS C	7.5	58.2	0.89	0.81	34.2
5	T1	193	15.0	0.561	25.8	LOS C	7.5	58.2	0.96	0.79	32.9
6	R2	289	15.0	0.679	38.4	LOS D	4.5	35.6	1.00	0.86	29.3
Approach		742	15.0	0.679	31.4	LOS C	7.5	58.2	0.95	0.83	31.8
North: Verney Road											
7	L2	192	15.0	0.679	30.2	LOS C	9.6	75.6	0.94	0.86	33.8
8	T1	461	15.0	0.679	23.5	LOS C	9.6	75.6	0.96	0.85	34.0
9	R2	57	15.0	0.158	20.8	LOS C	1.1	8.3	0.83	0.72	38.3
Approach		709	15.0	0.679	25.1	LOS C	9.6	75.6	0.94	0.84	34.2
West: Balaclava Road											
10	L2	68	15.0	0.640	34.6	LOS C	5.9	46.6	0.98	0.84	32.1
11	T1	319	15.0	0.640	27.3	LOS C	5.9	46.6	0.98	0.84	32.1
12	R2	136	15.0	0.637	37.8	LOS D	4.2	33.0	1.00	0.84	29.5
Approach		523	15.0	0.640	31.0	LOS C	5.9	46.6	0.99	0.84	31.4
All Vehicles		2566	15.0	0.679	27.7	LOS C	9.6	75.6	0.95	0.82	33.1

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (AM Closure, Signals, Future)

New Site
Signals - Fixed Time Cycle Time = 50 seconds (Practical Cycle Time)
Design Life Analysis (Practical Capacity): Results for 10 years

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: Hawdon Street											
1	L2	138	15.0	0.684	29.8	LOS C	6.4	50.8	0.97	0.88	34.1
2	T1	334	15.0	0.684	23.0	LOS C	6.4	50.8	0.98	0.87	34.2
3	R2	104	15.0	0.281	20.3	LOS C	1.8	13.9	0.90	0.75	38.7
Approach		575	15.0	0.684	24.2	LOS C	6.4	50.8	0.97	0.85	34.9
East: New Dookie Road											
4	L2	131	15.0	0.683	31.3	LOS C	5.6	44.2	0.99	0.88	33.1
5	T1	249	15.0	0.683	24.8	LOS C	5.6	44.2	0.99	0.87	33.2
6	R2	214	15.0	0.488	31.9	LOS C	2.7	21.0	0.98	0.77	32.1
Approach		594	15.0	0.683	28.8	LOS C	5.6	44.2	0.99	0.84	32.8
North: Verney Road											
7	L2	127	15.0	0.836	35.5	LOS D	8.5	67.1	1.00	1.03	31.4
8	T1	429	15.0	0.836	27.8	LOS C	8.5	67.1	1.00	1.02	31.8
9	R2	114	15.0	0.307	20.6	LOS C	1.9	15.3	0.91	0.75	38.4
Approach		669	15.0	0.836	28.0	LOS C	8.5	67.1	0.98	0.98	32.7
West: Balaclava Road											
10	L2	86	15.0	0.694	32.4	LOS C	5.1	39.9	0.99	0.88	32.9
11	T1	271	15.0	0.694	25.2	LOS C	5.1	39.9	1.00	0.88	33.1
12	R2	120	15.0	0.546	32.3	LOS C	3.0	23.8	0.98	0.79	31.9
Approach		476	15.0	0.694	28.3	LOS C	5.1	39.9	0.99	0.86	32.7
All Vehicles		2315	15.0	0.836	27.3	LOS C	8.5	67.1	0.98	0.89	33.2

Level of Service (LOS) Method: Delay (HCM 2000).
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.

MOVEMENT SUMMARY

Site: Hawdon St/Balaclava Rd/Verney Rd/New Dookie Rd (PM Closure, Signals, Future)

New Site
Signals - Fixed Time Cycle Time = 60 seconds (Practical Cycle Time)
Design Life Analysis (Practical Capacity): Results for 10 years

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: Hawdon Street											
1	L2	97	15.0	0.610	30.5	LOS C	7.8	61.3	0.94	0.81	34.2
2	T1	467	15.0	0.610	22.8	LOS C	7.8	61.3	0.94	0.80	34.5
3	R2	123	15.0	0.400	22.8	LOS C	2.4	18.9	0.95	0.76	37.0
Approach		687	15.0	0.610	23.9	LOS C	7.8	61.3	0.94	0.79	34.9
East: New Dookie Road											
4	L2	302	15.0	0.651	28.9	LOS C	9.1	70.9	0.92	0.84	33.7
5	T1	224	15.0	0.651	26.9	LOS C	9.1	70.9	0.98	0.84	32.3
6	R2	336	15.0	0.788	40.7	LOS D	5.5	43.6	1.00	0.94	28.4
Approach		861	15.0	0.788	33.0	LOS C	9.1	70.9	0.97	0.88	31.1
North: Verney Road											
7	L2	222	15.0	0.788	33.9	LOS C	12.4	97.8	0.98	0.96	31.9
8	T1	535	15.0	0.788	26.9	LOS C	12.4	97.8	0.99	0.96	32.2
9	R2	66	15.0	0.194	21.5	LOS C	1.2	9.7	0.87	0.73	37.8
Approach		823	15.0	0.788	28.3	LOS C	12.4	97.8	0.98	0.94	32.5
West: Balaclava Road											
10	L2	79	15.0	0.743	36.8	LOS D	7.3	57.4	1.00	0.92	31.1
11	T1	370	15.0	0.743	29.3	LOS C	7.3	57.4	1.00	0.91	31.2
12	R2	158	15.0	0.740	39.5	LOS D	5.0	39.8	1.00	0.90	28.9
Approach		607	15.0	0.743	32.9	LOS C	7.3	57.4	1.00	0.91	30.5
All Vehicles		2978	15.0	0.788	29.6	LOS C	12.4	97.8	0.97	0.88	32.2

Level of Service (LOS) Method: Delay (HCM 2000).
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.
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Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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