ATTACHMENT B

Analysis Report

Amendment C243

Hume Planning Scheme
Traffic Analysis Report

Sunbury Growth Corridor
Jacksons Creek Northern Bridge Removal

Prepared by: GTA Consultants (VIC) Pty Ltd for Victorian Planning Authority
on 21/12/2020
Reference: V198070
Issue #: A

GTAconsultants

Amendment C243

Hume Planning Scheme
Traffic Analysis Report

Client: Victorian Planning Authority

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Reference: V198070

Issue #: A

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
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1. INTRODUCTION

1.1. Background

Amendment C243 makes changes to the Hume Planning Scheme to incorporate the final Sunbury South and Lancefield Road Infrastructure Contributions Plan (ICP). The Amendment seeks to incorporate a supplementary levy ICP which will be applied to the PSP's. Of relevance to my evidence, the ICP is necessary to deliver the infrastructure items that are required within the respective precincts. The infrastructure items listed in the PSP include two new bridge crossings of the Jacksons Creek in Sunbury.

As part of the exhibition process for the Amendment, a number of submissions were received opposing the high cost of the proposed ICP levies primarily around the two bridges.

In October 2015, GTA Consultants prepared a report titled "Strategic Transport Modelling of the Sunbury and Diggers Rest Growth Corridor (Sunbury South PSP 1074 & Lancefield Road PSP 1075)". That report outlined the impacts of potential new road crossings of Jacksons Creek, with nine potential options for works to improve transport in the area.

The modelling work has been revisited as part of this Amendment to reflect changes to land use for metropolitan Melbourne and align with the Sunbury Growth Corridor. These have been circulated in three Supplementary Reports in September 2020.

In October 2020 a traffic conclave (meeting of traffic experts) for the ICP agreed that the *'road network can function without the northern bridge within acceptable parameters, based on the strategic operation for the ICP. Accordingly, the northern bridge should be removed from the ICP.'* From a traffic and transport perspective, the removal of the northern bridge has the potential to impact the performance of the interim intersections on Lancefield Road as all traffic from the PSP's will now travel through them.

1.2. Scope of Report

In order to finalise the Sunbury South and Lancefield Road Infrastructure Contributions Plan (ICP), the VPA are seeking to understand the suitability of the interim intersection arrangements without the delivery of the northern bridge. The key questions that this report seeks to answer are:

1. The suitability of the interim intersections proposed in the ICP.
2. The level of development (traffic flow) that could occur prior to the need for the interim intersections of LR-IN-04, LR-IN-03 and S-IN-03 being upgraded to their ultimate configuration.

The recent transport modelling completed as part of the hearing was completed for the full development scenario of the Sunbury Growth Corridor. This assessment will focus on the 75% level of the full development traffic flows which represents the typical lifespan of interim intersections prior to the State constructing the ultimate arrangement.

1.3. References

In preparing this evidence, reference has been made to the following:

- The Hume Planning Scheme
- Lancefield Road Precinct Structure Plan (PSP)
- Sunbury South PSP
- Drawing No 2113308A-CIV-1503-B (Interim Concept Plan for LR-IN-04)
- Drawing No 2113308A-CIV-1504 (Interim Concept Plan for LR-IN-03)
- Drawing No 2113308A-CIV-1603 (Interim Concept Plan for SS-IN-03)
- relevant Government policies and documents
- various technical data as referenced in this report.

2. THE PSP

2.1. Sunbury Growth Corridor

The Sunbury South and Lancefield Road Precinct Structure Plans (PSP 1074 & 1075) are located in the Sunbury-Diggers Rest Growth Corridor in Melbourne's northwest. Both Sunbury South and Lancefield Road are located in the City of Hume and will ultimately form part of an expansion of Sunbury, along with the Sunbury North, Sunbury West and Diggers Rest PSPs.

The location of the Sunbury and Diggers Rest Growth Corridor in its local context are illustrated in Figure 2.1.

Figure 2.1: Sunbury and Diggers Rest Growth Corridor

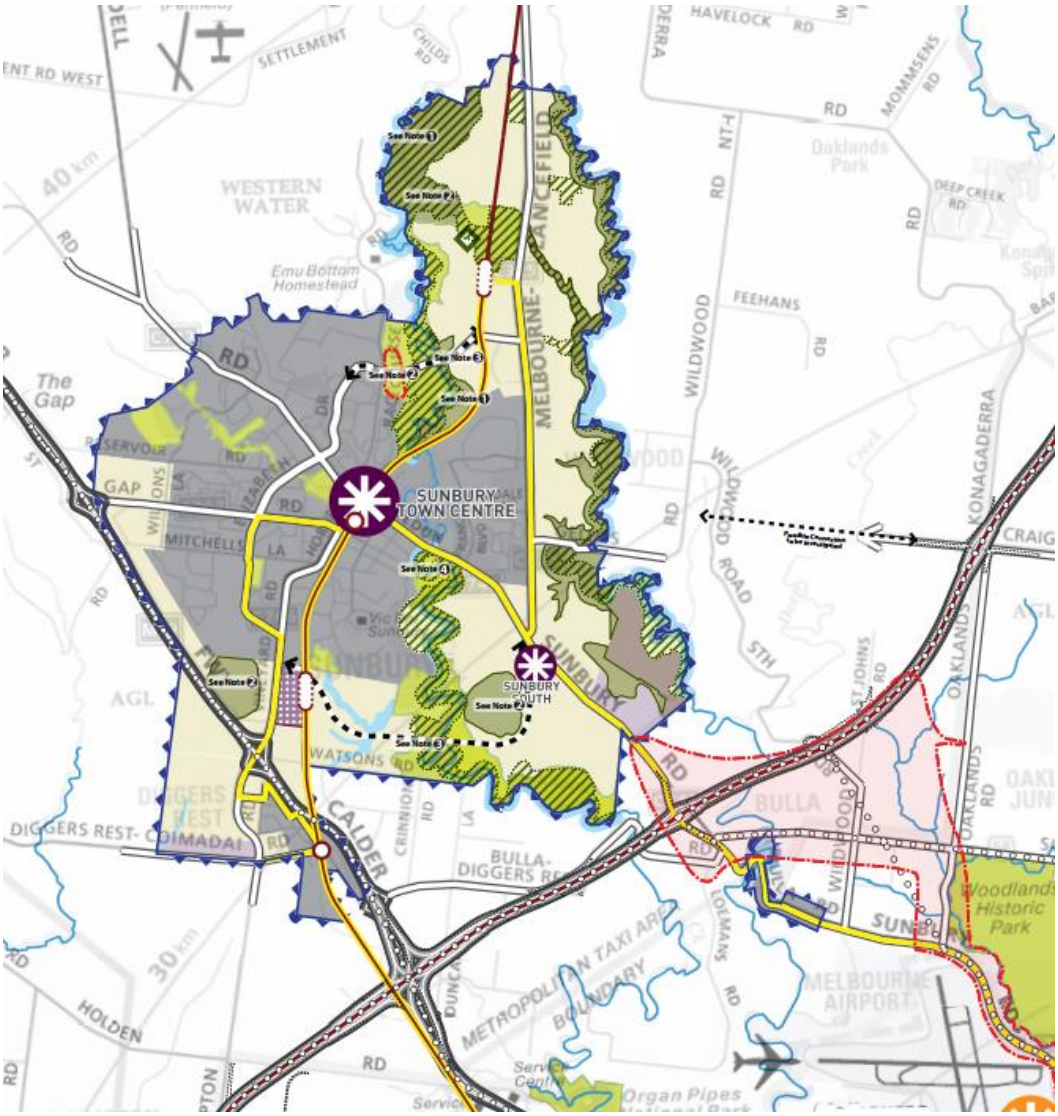
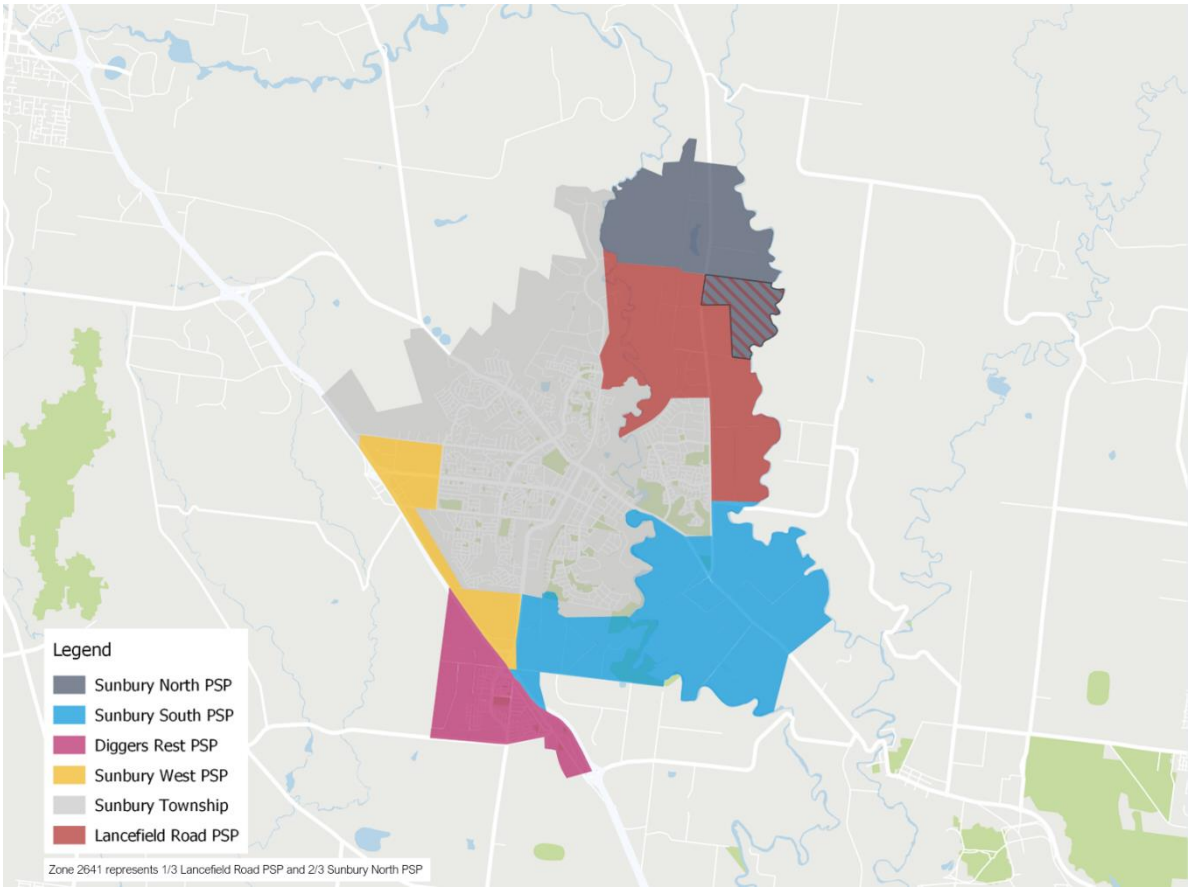


Figure 2.2 on the following page has also been prepared to show the location of the two PSP's in the context of Sunbury, as well as the location of Sunbury West and Sunbury North PSP's which are yet to be gazetted.

Figure 2.2: Sunbury Growth Corridor



Jacksons Creek plays an important role within Sunbury not only in a transport sense but the inability to provide connectivity between existing and future communities within the Corridor. Two bridges crossing Jacksons Creek have been gazetted in the Hume Planning Scheme, one in the Sunbury South PSP and one located in the Lancefield Road PSP.

The Sunbury North PSP, which is yet to commence planning, is located immediately north of the Lancefield Road PSP. It plays an important role in the ultimate assessment of the road network in the corridor, particularly Lancefield Road and the northern bridge. This is explored in more detail within this report.

3. PROJECT CONTEXT

3.1. Transport Modelling Work Completed

In October 2015, GTA Consultants prepared a report titled "Strategic Transport Modelling of the Sunbury and Diggers Rest Growth Corridor (Sunbury South PSP 1074 & Lancefield Road PSP 1075)". That report outlined the impacts of potential new road crossings of Jacksons Creek, with nine potential options for works to improve transport in the area.

Since the completion of the October 2015 report, the land use projections for Metropolitan Melbourne and Victoria have undertaken significant change. Victoria has grown by a million people between 2011 and 2019 and is expected to grow by a further million by 2026. The increased population forecast for Melbourne will have an impact on the level and the movement of traffic across the statistical division.

In this regard, the modelling work was updated to understand the impact to traffic demand in Sunbury as a result of these changes.

All of the updated work was undertaken for a design year of 2046 which assumes full development of the two PSP's and the supporting transport networks including the southern bridge crossing of Jacksons Creek (Option 2 and 5), the northern bridge crossing of Jacksons Creek (option 5), the OMR and road network upgrades within the Sunbury Growth Corridor including Lancefield Road and Sunbury Road.

The key network features used for the assessments of the intersections are summarised in Table 3.1.

Table 3.1: Option 2a and Option 5 Transport Infrastructure Items

Option	Creek Crossing in Sunbury South (PSP 1074)	Railway Station in PSP 1074 (Jacksons Hill Station)	Creek Crossing in Lancefield Road (PSP 1075)	Railway Station in PSP 1075 (Raes Road Station)	Additional Connection to Calder Highway south of PSP 1074	Outer Metropolitan Ring Road (OMR)
2a	✓	✓		✓	✓	Includes OMR
5	✓	✓	✓	✓	✓	Includes OMR

The modelled networks and outputs used in this assessment are documented in the three Supplementary Reports circulated in September 2020.

3.2. Intersection Locations

The traffic assessment focuses on three key intersections that are considered to be most impacted by the removal of the northern bridge which are referred to as LR-IN-04, LR-IN-03 and SS-IN-03 in the Sunbury South and Lancefield Road ICP. The location of these intersections in the context of the Lancefield Road PSP and Sunbury South PSP are illustrated in Figure 3.1 and Figure 3.2.

Figure 3.1: LR-IN-04 and LR-IN-03 (as shown in the Sunbury South and Lancefield Road ICP)

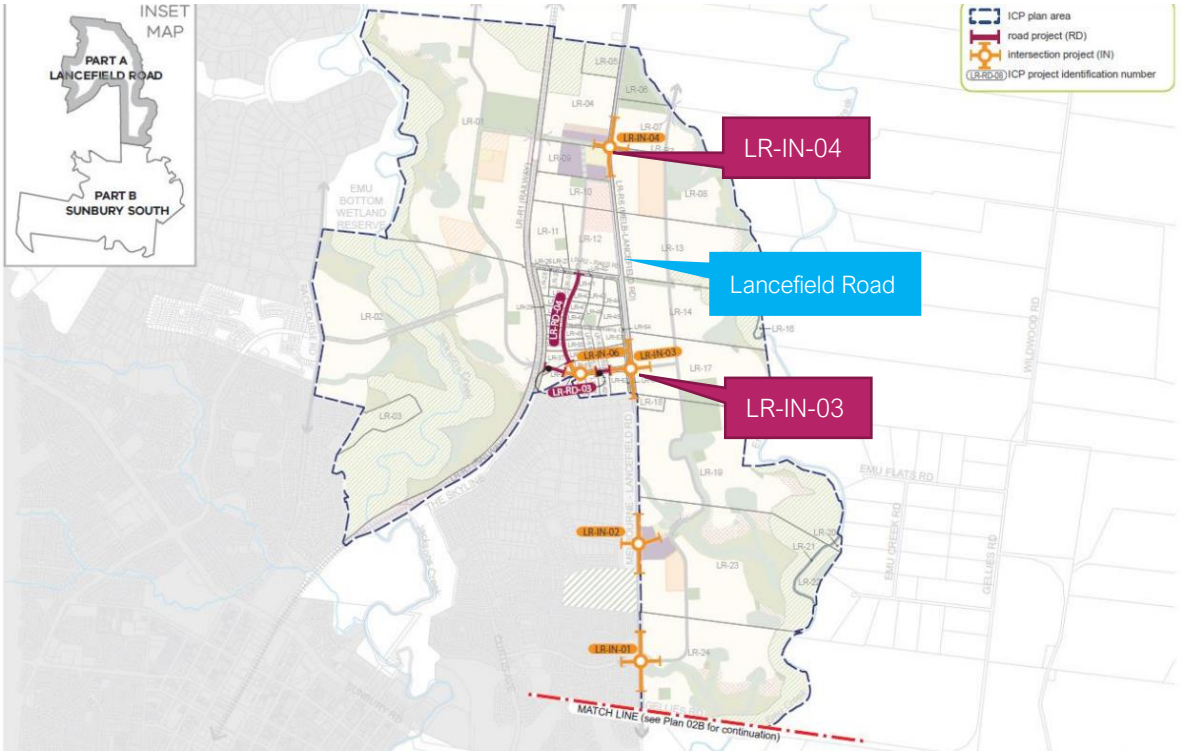
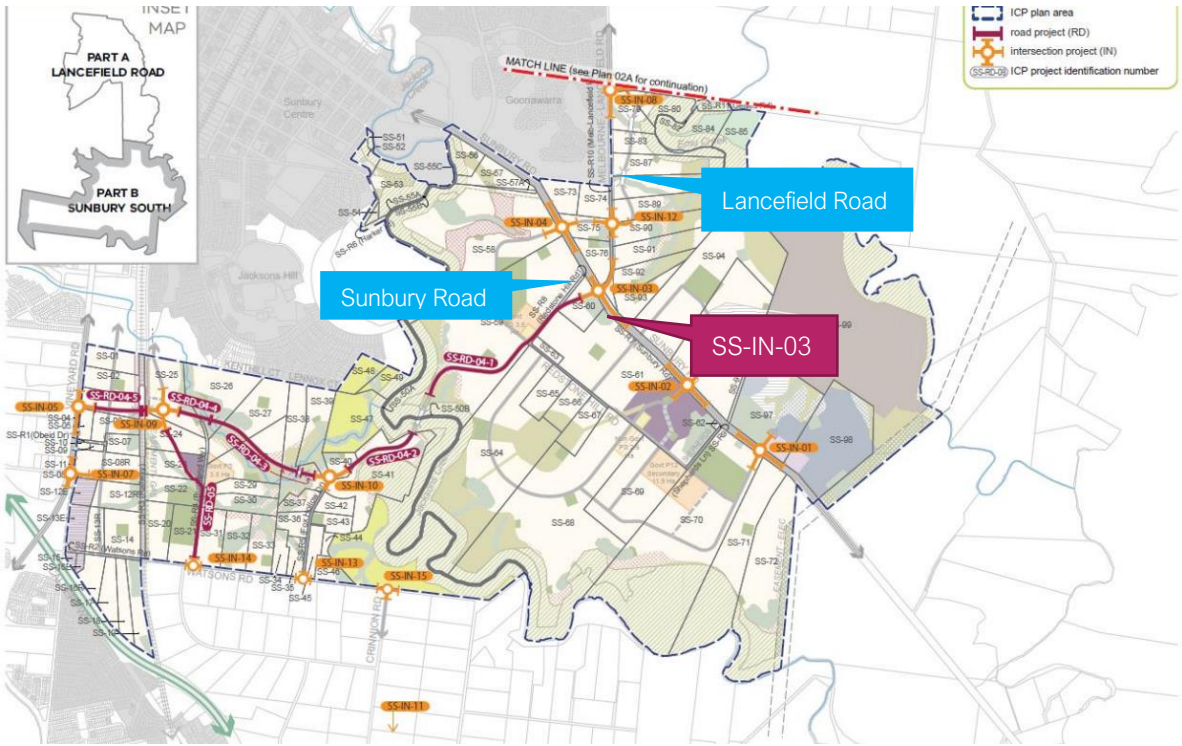


Figure 3.2: SS-IN-03 (as shown in the Sunbury South and Lancefield Road ICP)



4. INTERSECTION ASSESSMENT

4.1. Introduction

This section focuses on the intersection performance with and without the northern bridge for intersections LR-IN-04, LR-IN-03 and SS-IN-03. The traffic volumes have been obtained from the updated VITM modelling completed as part of the recent panel hearing.

The interim concept layout plans for the intersections are in Appendix A.

4.2. Traffic Volumes

The traffic volumes that will be used to analyse the interim intersection models have been extracted from the VITM model for Option 2a and Option 5 which are described in Section 3. An interim scenario was contemplated as part of the 2015 study which assumed land use equivalent of 75% of the assumed development, however an interim scenario was not prepared for the modelling completed in 2020.

For the purposes of this assessment the traffic volumes extracted from the VITM model have been multiplied by 0.75 to best represent the interim scenario. It is noted that these volumes are approximate in that they rely on the ultimate network being delivered including key infrastructure such as the OMR. In reality, the interim network would be more constrained and may provide different travel patterns. Notwithstanding, the 75% assumption is considered suitable for this assessment.

The volumes extracted from VITM are strategic in nature and as such further refinements have been undertaken to account for turns and movements that may have been captured at parallel intersections. For example, the right turn from west to south in LR-IN-04 considers two intersections as all of the turning traffic was assigned to this intersection whereby the adjacent intersection to the north assigned zero movements.

The input volumes used in this assessment are shown in Figure 4.1 to Figure 4.6.

Figure 4.1: LR-IN-04 (AM Peak)

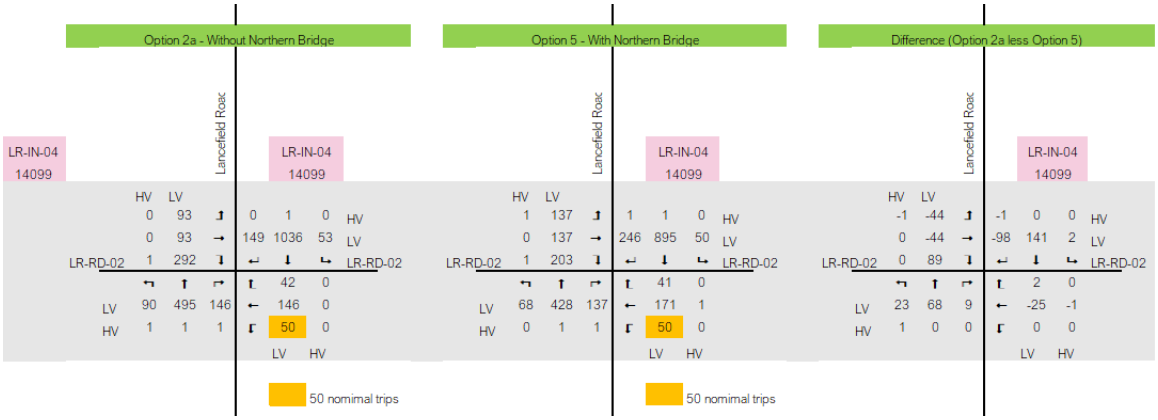


Figure 4.2: LR-IN-04 (PM Peak)

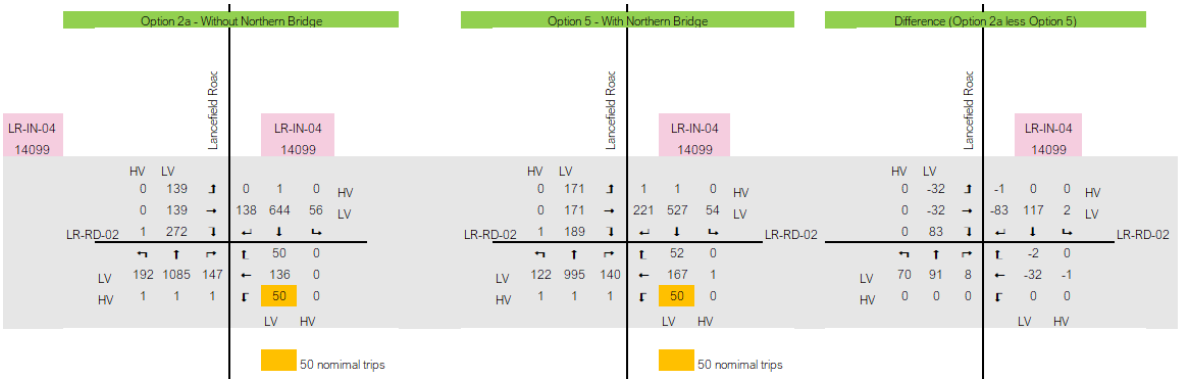


Figure 4.3: LR-IN-03 (AM Peak)

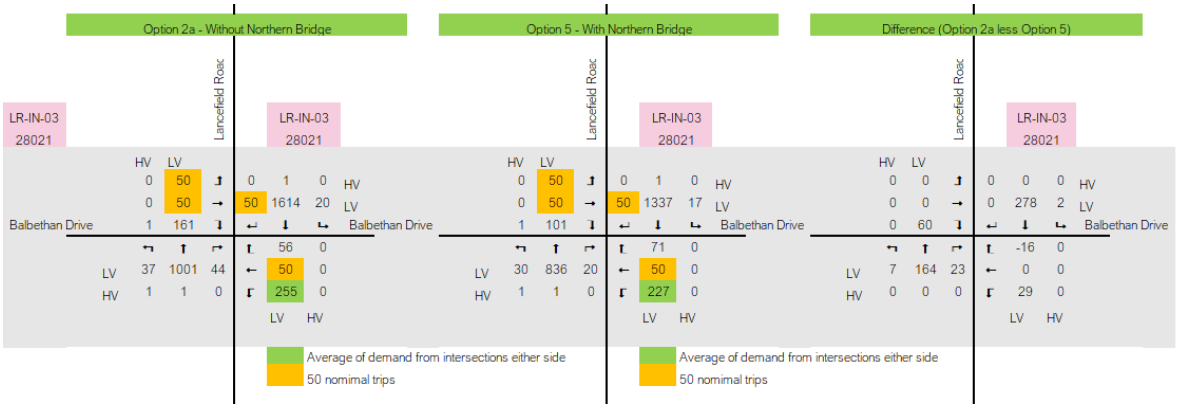


Figure 4.4: LR-IN-03 (PM Peak)

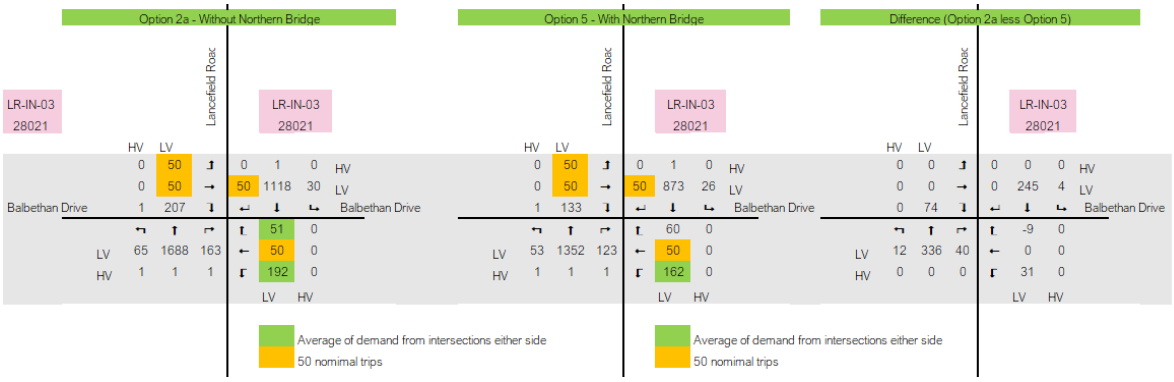


Figure 4.5: SS-IN-03 (AM Peak)

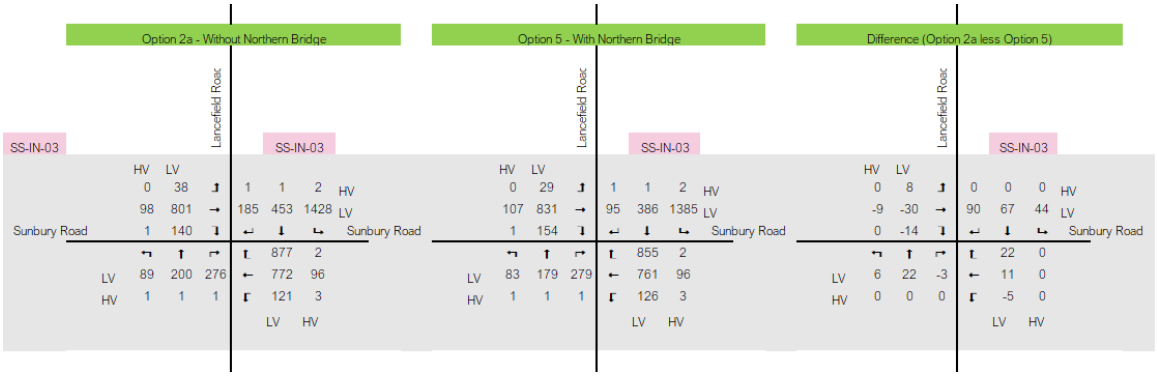
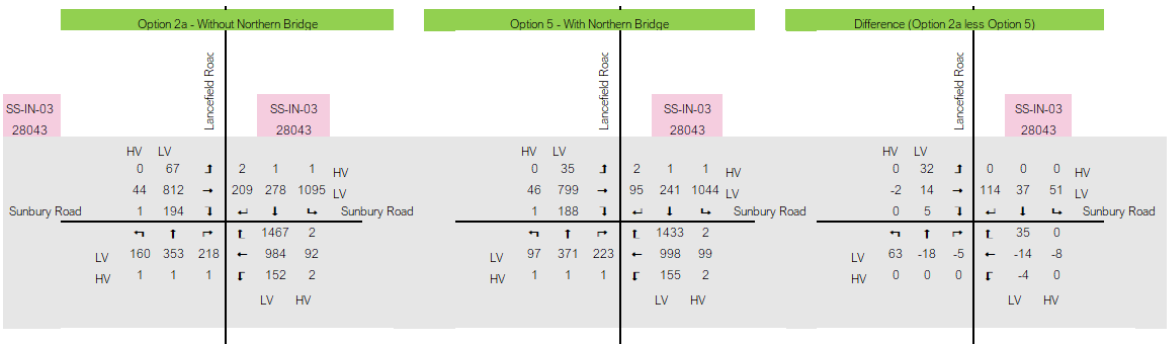


Figure 4.6: SS-IN-03 (PM Peak)



4.3. Intersection Analysis Assumptions

The operations of the LR-IN-03, LR-IN-04 and SS-IN-03 intersections have been assessed using *SIDRA INTERSECTION 8*[1].The commonly used measure of intersection performance is referred to as the *Degree of Saturation (DOS)*. The DOS represents the flow-to-capacity ratio for the most critical movement on each leg of the intersection. For signalised intersections, a DOS of around 0.95 has been typically considered the 'ideal' limit, beyond which queues, and delays increase disproportionately[2].

In order to develop a consistent approach to the intersection analysis, a number of basic principles were adopted which are the same as those used for recent projects completed for Major Road Projects Victoria (MRPV).

1 Program used under license from Akcelik & Associates Pty Ltd.

2 SIDRA INTERSECTION adopts the following criteria for Level of Service assessment:

Level of Service		Intersection Degree of Saturation (DOS)		
		Unsignalised Intersection	Signalised Intersection	Roundabout
A	Excellent	<=0.60	<=0.60	<=0.60
B	Very Good	0.60-0.70	0.60-0.70	0.60-0.70
C	Good	0.70-0.80	0.70-0.90	0.70-0.85
D	Acceptable	0.80-0.90	0.90-0.95	0.85-0.95
E	Poor	0.90-1.00	0.95-1.00	0.95-1.00
F	Very Poor	>=1.0	>=1.0	>=1.0

The principles are:

1. Traffic Volumes:
    - The AM and PM peak hour design traffic volumes have been input as specified in Section 4.2.
    - The SIDRA parameter for Peak Flow Factor has been set to 100%.
2. Pedestrian Demands:
    - Intersections which include pedestrian movements have been modelled with a pedestrian volume that is the greater of existing peak period pedestrian movements; or 50 pedestrians per hour.
3. Intersection Geometry and Operation:
    - Short lane lengths have been modelled as the available storage length excluding taper.
    - If the modelling identified capacity constraints, alternative lane or operational arrangements have been investigated. These could include consideration of:
        - Providing additional lanes.
        - Extending storage lengths available in short lanes.
4. Intersection Phasing:
    - Diamond right turn phasing is provided wherever simultaneous right turn movements are possible.
    - A maximum cycle length of 140 seconds is desirable.
    - Left turn overlap phasing has been adopted.
5. Target Degree of Saturation and Level of Service:
    - Achieve a degree of saturation (DOS) of 0.90 and a level of service (LOS) D.

4.4. Interim Intersection Operation

Table 4.1 provides a comparison of the interim intersection design with and without the northern bridge Options 5 and 2a respectively for the 75% demand flows.

Table 4.1: Interim Intersection Operation (Option 5 versus Option 2a)

Intersection/Location	AM Peak			PM Peak		
	DOS	LOS	Cycle Length (s)	DOS	LOS	Cycle Length (s)
Interim ICP Layout – With Northern Bridge (Option 5)						
LR-IN-04	0.86	D	90	0.90	D	140
LR-IN-03	0.87	C	110	0.89	C	110
SS-IN-03	1.06	F	140	1.14	F	140
Interim ICP Layout – Without Northern Bridge (Option 2a)						
LR-IN-04	0.89	D	130	0.95	D	140
LR-IN-03	1.19	F	140	1.22	F	140
SS-IN-03	1.08	F	140	1.18	F	140

The following comments are provided for the results presented in Table 4.1:

- LR-IN-04 operates satisfactorily with a DOS of lesser than 0.9 and LOS D for both options bridge during the morning AM Peak. However, during the PM peak Option 2a operates with a DOS of 0.95 which exceeds the target of 0.9.
- LR-IN-03 operates satisfactorily under the Option 5 scenario with a DOS of less than 0.9 and a LOS C. The intersection operates significantly worse with Option 2 with a DOS of 1.19 and 1.22 during the AM and PM peaks, respectively. This is not a surprise as the traffic previously on the northern bridge is being diverted to the intersection.
- SS-IN-03 – SS-IN-03 fails in both peak periods with a DOS over 1 for both options. Of note, the intersection operates worse without the northern bridge.

The following sections provide more detailed analysis on the performance of the intersections for the without northern bridge scenario including recommended mitigations to achieve the targe DOS and LOS.

4.5. LR-IN-04 (Lancefield Road – Intersection 4)

The interim intersection layout of LR-IN-04 as per the ICP documents is shown conceptually in Figure 4.7.

Figure 4.7: LR-IN-04 Interim Intersection SIDRA Model Layout

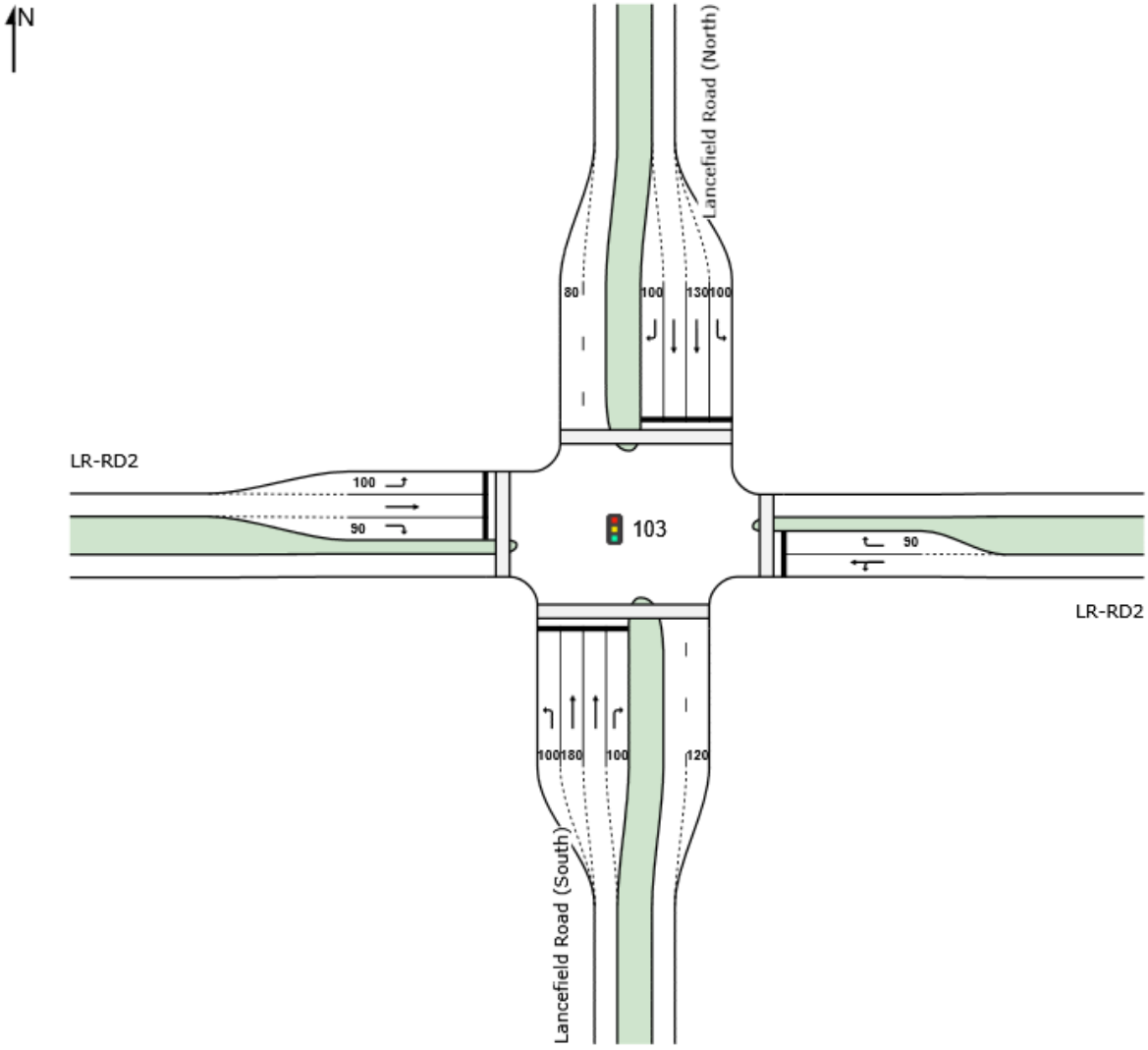


Table 4.2 summarises the intersection performance of LR-IN-04 with full SIDRA outputs included in Appendix B.

Table 4.2: LR-IN-04 - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Left	0.10	C	21s	19m	0.18	B	17s	37m	100m
	Thru	0.25	C	34s	51m	0.43	C	29s	120m	180m
	Thru	0.54	D	39s	123m	0.94	E	62s	389m	500m
	Right	0.86	E	78s	73m	0.53	E	66s	67m	100m
	Approach	0.86	D	43s	123m	0.94	D	48s	389m	-
LR-RD2 (East)	Thru + Left	0.61	D	51s	78m	0.60	D	55s	79m	500m
	Right	0.21	E	64s	17m	0.31	E	72s	23m	90m
	Approach	0.61	D	53s	78m	0.60	E	59s	79m	-
Lancefield Road (North)	Left	0.06	C	21s	11m	0.07	C	25s	14m	100m
	Thru	0.58	C	34s	152m	0.36	C	35s	88m	130m
	Thru	0.89	D	49s	273m	0.55	D	38s	147m	500m
	Right	0.52	E	61s	62m	0.95	F	97s	80m	100m
	Approach	0.89	D	44s	273m	0.95	D	46s	147m	-
LR-RD2 (West)	Left	0.13	C	30s	25m	0.24	D	40s	47m	100m
	Thru	0.21	D	43s	33m	0.31	D	48s	55m	500m
	Right	0.89	E	75s	148m	0.94	F	91s	158m	90m
	Approach	0.89	E	60s	148m	0.94	E	67s	158m	-
Intersection		**0.89**	**D**	**48s**	**273m**	**0.95**	**D**	**51s**	**389m**	**-**

[1] Note: 500m lane length represents full length lane in SIDRA
[2] Note: Values highlighted in red have 95th percentile queues longer than the proposed lane length

Table 4.2 shows that the interim intersection configuration for LR-IN-04 will operate satisfactorily during the AM peak with a DOS of 0.89 but marginally worse in the PM peak with a DOS of 0.95.

Specifically, it is noted that the 95th percentile queue length at the short through lane and right turn lane at the northern and southern approaches exceed the lane length.

4.5.1. Recommended Changes

Based on the SIDRA analysis and results, the following changes are recommended to be provided for LR-IN-04:

1. An additional right turn lane on the western approach (leg) of the intersection.
2. Lengthening the short through and downstream lanes at the northern and southern approaches to 200m.

The recommended layout of the modelling intersection geometry is shown in Figure 4.8

Figure 4.8: LR-IN-04 Amendment Intersection SIDRA Model Layout

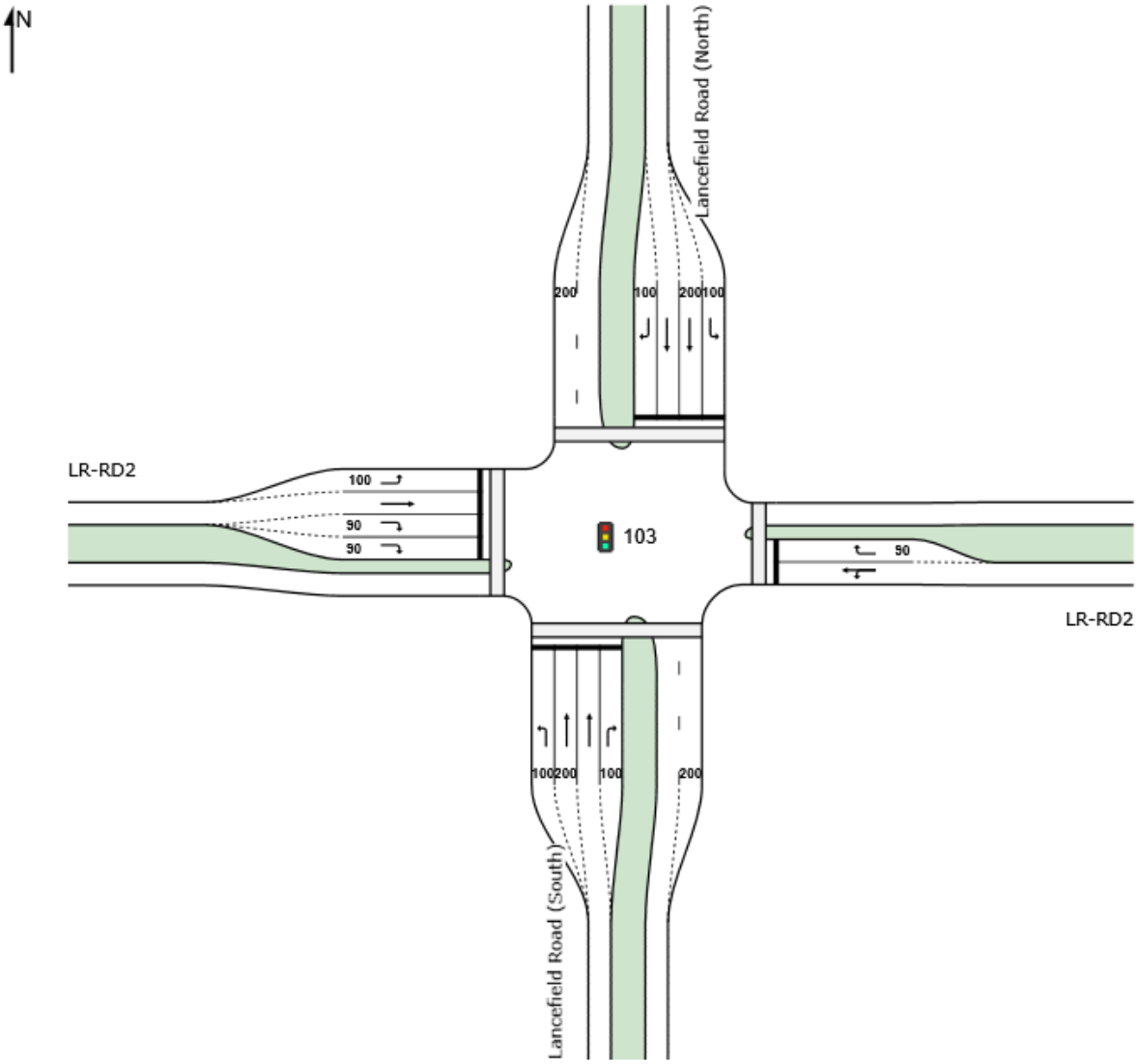


Table 4.3 summarises the intersection performance with full SIDRA outputs included in Appendix B.

Table 4.3: LR-IN-04 Amended Design - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Left	0.11	B	18s	14m	0.25	B	19s	31m	100m
	Thru	0.37	C	24s	58m	0.86	D	35s	163m	200m
	Thru	0.37	C	24s	58m	0.86	D	35s	163m	500m
	Right	0.80	D	54s	50m	0.58	D	42s	40m	100m
	Approach	0.80	C	29s	58m	0.86	C	34s	163m	-
LR-RD2 (East)	Thru + Left	0.52	C	32s	51m	0.46	C	27s	41m	500m
	Right	0.23	D	48s	12m	0.31	D	45s	14m	90m
	Approach	0.52	C	35s	51m	0.46	C	31s	41m	-
Lancefield Road (North)	Left	0.06	B	18s	8m	0.08	B	20s	9m	100m
	Thru	0.77	C	31s	150m	0.60	C	28s	78m	200m
	Thru	0.77	C	31s	150m	0.60	C	28s	78m	500m
	Right	0.80	D	54s	50m	0.85	D	52s	43m	100m
	Approach	0.80	C	33s	150m	0.85	C	31s	78m	-
LR-RD2 (West)	Left	0.17	C	27s	20m	0.26	C	25s	27m	100m
	Thru	0.25	C	34s	25m	0.36	C	30s	34m	500m
	Right	0.79	D	54s	49m	0.84	D	52s	43m	90m
	Right	0.79	D	54s	49m	0.84	D	52s	43m	90m
	Approach	0.79	D	45s	49m	0.84	D	40s	43m	-
Intersection		**0.80**	**C**	**34s**	**150m**	**0.86**	**C**	**34s**	**163m**	**-**

[3] Note: 500m lane length represents full length lane in SIDRA

Table 4.3 shows that the amendments to the interim intersection with the lengthening of the northern and southern short through lane and departure lanes and the inclusion of a second right turn lane at the western approach will be able operate satisfactorily with a DOS of 0.80 and 0.86 in the AM and PM peaks, respectively. Both intersections are predicted to operate with a LOS C. The delays and 95th percentile queue lengths are within acceptable limits.

4.6. LR-IN-03 (Lancefield Road – Intersection 3)

The interim intersection layout of LR-IN-03 as per the ICP documents is shown conceptually in Figure 4.9

Figure 4.9: LR-IN-03 Interim Intersection SIDRA Model Layout

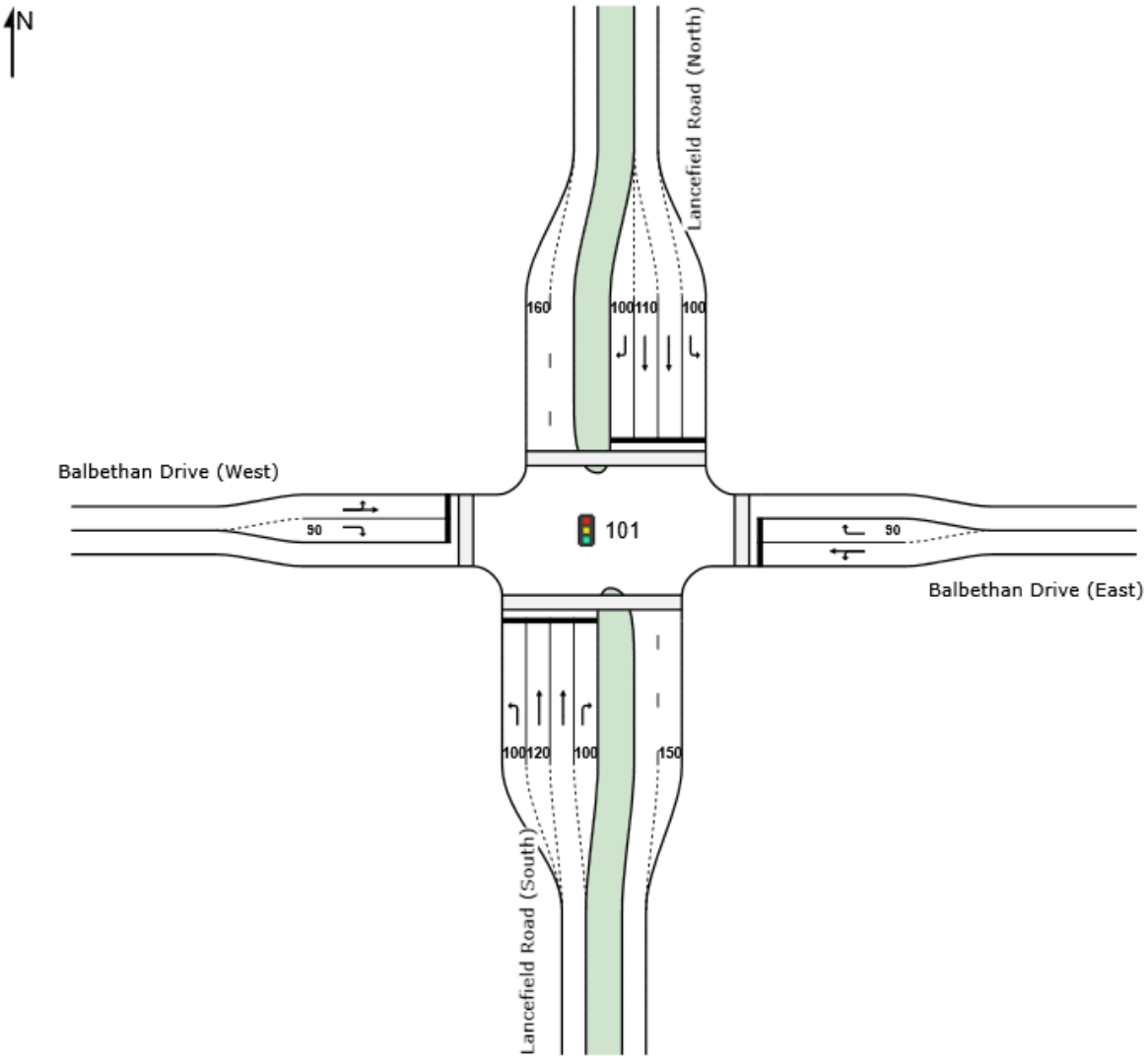


Table 4.4 summarises the intersection performance of LR-IN-03 with full SIDRA outputs included in Appendix B.

Table 4.4: LR-IN-03 - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Left	0.03	B	14s	6m	0.06	B	14s	11m	100m
	Thru	0.43	B	20s	127m	1.04	F	121s	581m	120m
	Thru	0.51	C	21s	158m	1.22	F	265s	1,086m	500m
	Right	0.55	F	82s	22m	0.73	E	73s	80m	100m
	Approach	0.55	C	22s	158m	1.22	F	185s	1,086m	-
Balbethan Drive (East)	Thru + Left	0.86	E	66s	148m	0.63	D	54s	101m	500m
	Right	0.38	E	74s	26m	0.32	E	73s	24m	90m
	Approach	0.86	E	67s	148m	0.63	E	57s	101m	-
Lancefield Road (North)	Left	0.02	B	14s	3m	0.03	B	18s	6m	100m
	Thru	0.94	E	55s	321m	0.60	C	30s	188m	500m
	Thru	1.19	F	232s	1,004m	0.76	C	31s	214m	110m
	Right	0.63	F	82s	25m	0.63	F	82s	25m	100m
	Approach	1.19	F	154s	1,004m	0.76	C	33s	214m	-
Balbethan Drive (West)	Thru + Left	0.31	D	53s	40m	0.30	D	52s	40m	500m
	Right	1.12	F	192s	140m	1.21	F	269s	218m	90m
	Approach	1.12	F	139s	140m	1.21	F	198s	218m	-
Intersection		**1.19**	**F**	**102s**	**1,004m**	**1.22**	**F**	**127s**	**1,086m**	**-**

[4] Note: 500m lane length represents full length lane in SIDRA
[5] Note: Values highlighted in red have 95th percentile queues longer than the proposed lane length

Table 4.4 shows that the interim intersection configuration for LR-IN-03 will not be able operate satisfactorily with a DOS of 1.19 and 1.22 in the AM and PM peaks, respectively.

Specifically, the DOS will be over 1, showing that vehicles will need two or more traffic signal cycles to clear the intersection during both peaks. In the AM and PM peaks, queues of over 1km long are predicted at the northern and southern approaches, respectively.

It is noted that the 95th percentile queue length for the right turn lane at the western leg during both AM and PM peaks exceeds the available lane length.

4.6.1. Recommended Changes

Based on the SIDRA analysis and results, the following changes are recommended to be provided for LR-IN-03:

1. An additional right turn lane at the western approach (leg) of the intersection
2. Lengthening the short downstream lanes at the northern and southern approaches to 200m
3. Lengthening the short through lanes at the northern approach and southern approaches to 300m and 350m, respectively.

The layout of the modelling intersection geometry is shown in Figure 4.10.

Figure 4.10:LR-IN-03 Amendment Intersection SIDRA Model Layout

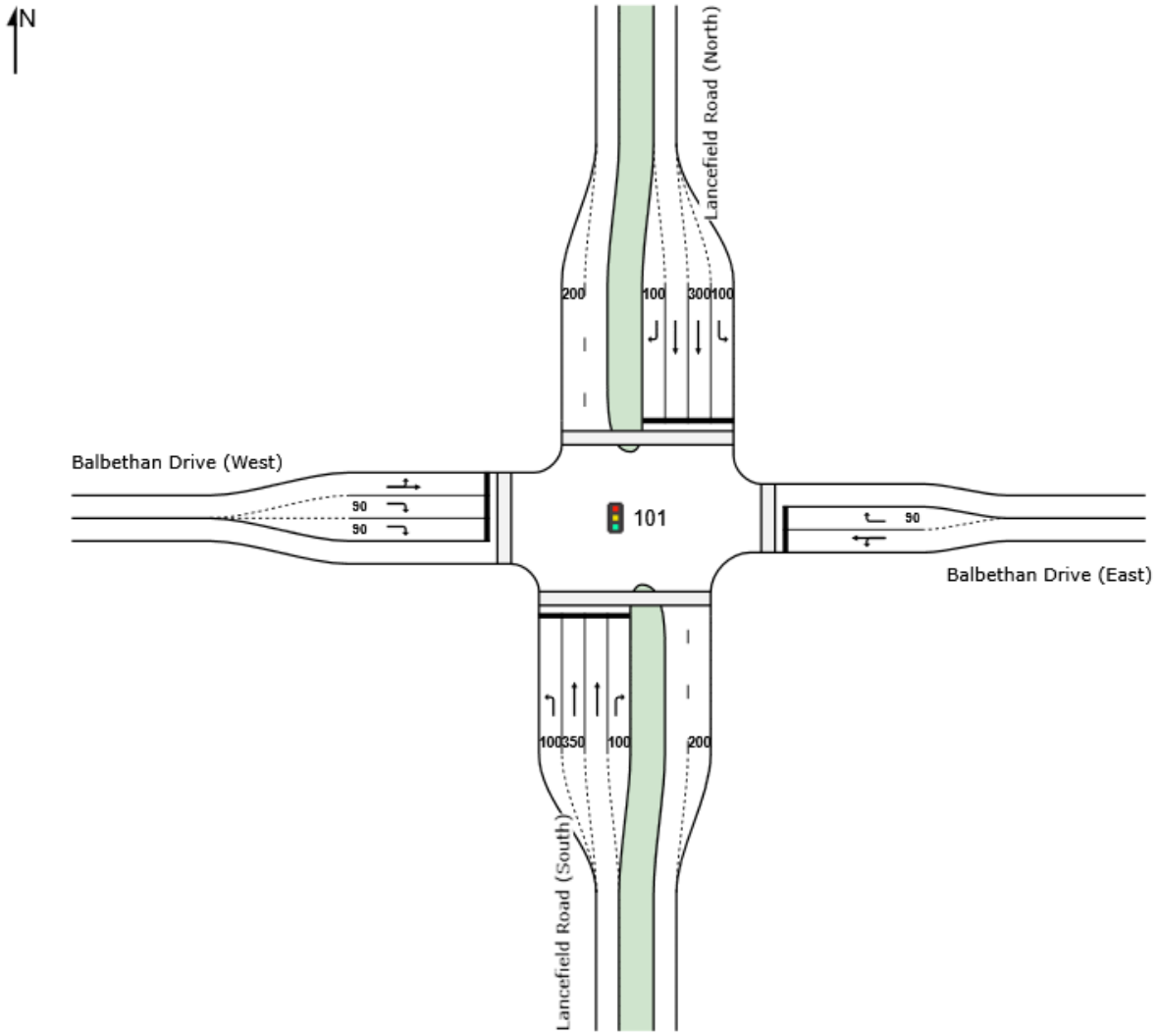


Table 4.5 summarises the intersection performance with full SIDRA outputs included in Appendix B.

Table 4.5: LR-IN-03 Amended Design - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Left	0.04	B	15s	5m	0.06	B	14s	10m	100m
	Thru	0.52	C	20s	128m	0.87	C	32s	348m	350m
	Thru	0.52	C	20s	128m	0.87	C	32s	315m	500m
	Right	0.43	E	64s	17m	0.64	E	64s	71m	100m
	Approach	0.52	C	22s	128m	0.87	C	34s	348m	-
LR-RD2 (East)	Thru + Left	0.24	D	37s	30m	0.61	D	49s	93m	500m
	Right	0.55	E	65s	22m	0.40	E	71s	23m	90m
	Approach	0.55	D	46s	30m	0.61	D	53s	93m	-
Lancefield Road (North)	Left	0.02	B	15s	3m	0.03	B	19s	6m	100m
	Thru	0.87	C	33s	301m	0.66	C	30s	196m	300m
	Thru	0.87	C	33s	285m	0.66	C	29s	185m	500m
	Right	0.73	E	67s	30m	0.58	E	76s	24m	100m
	Approach	0.87	C	34s	301m	0.66	C	31s	196m	-
LR-RD2 (West)	Left + Thru	0.26	D	38s	29m	0.30	D	48s	37m	500m
	Right	0.80	E	69s	34m	0.81	E	77s	50m	90m
	Right	0.80	E	69s	34m	0.81	E	77s	50m	90m
	Approach	0.80	E	57s	34m	0.81	E	68s	50m	-
Intersection		**0.87**	**C**	**32s**	**301m**	**0.87**	**D**	**37s**	**348m**	**-**

[6] Note: 500m lane length represents full length lane in SIDRA

Table 4.5 shows that the amendments to the interim intersection with the lengthening of the northern and southern short through lane and departure lanes and the inclusion of a second right turn lane at the western approach will be able operate satisfactorily with a DOS of 0.87 and a LOS of D in the AM and PM peaks. The delays and 95th percentile queue lengths are within acceptable limits.

4.7. SS-IN-03 (Sunbury South – Intersection 3

The interim intersection layout of SS-IN-03 as per the ICP documents is shown conceptually in Figure 4.11.

Figure 4.11:SS-IN-03 Interim Intersection SIDRA Model Layout

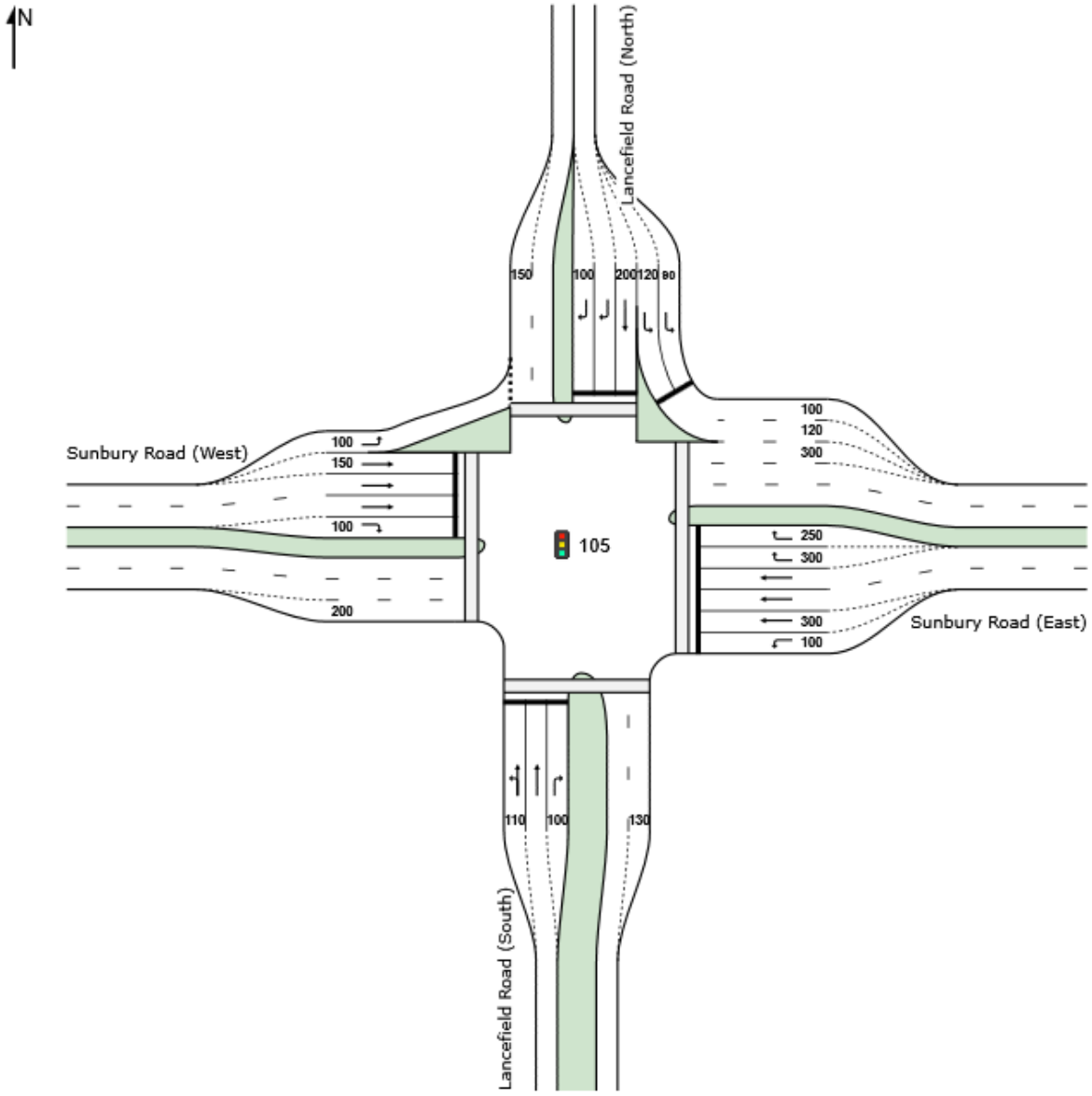


Table 4.6 summarises the intersection performance of SS-IN-03 with full SIDRA outputs included in Appendix B.

Table 4.6: SS-IN-03 - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Thru + Left	0.28	D	40s	50m	0.54	D	47s	101m	110m
	Thru	0.29	D	45s	56m	0.58	D	52s	110m	500m
	Right	1.05	F	143s	206m	1.18	F	246s	219m	100m
	Approach	1.05	F	91s	206m	1.18	F	108s	219m	-
Sunbury Road (East)	Left	0.15	C	26s	32m	0.20	C	29s	43m	100m
	Thru	0.51	D	42s	123m	0.60	D	43s	154m	300m
	Thru	0.51	D	42s	123m	0.60	D	43s	154m	500m
	Thru	0.51	D	42s	123m	0.60	D	43s	154m	500m
	Right	0.82	E	62s	198m	1.01	F	107s	481m	300m
	Right	0.92	E	77s	259m	1.13	F	191s	717m	250m
	Approach	0.92	D	54s	259m	1.13	F	101s	717m	-
Lancefield Road (North)	Left	0.93	D	53s	280m	0.42	B	19s	116m	90m
	Left	1.08	F	152s	689m	0.49	B	19s	144m	120m
	Thru	0.91	E	69s	244m	0.63	D	52s	121m	200m
	Right	0.35	E	65s	41m	0.57	E	73s	50m	500m
	Right	0.35	E	65s	41m	0.57	E	73s	50m	100m
	Approach	1.08	F	95s	689m	0.63	C	32s	144m	-
Sunbury Road (West)	Left	0.04	B	13s	6m	0.08	C	26s	17m	100m
	Thru	1.05	F	137s	244m	1.18	F	234s	294m	150m
	Thru	1.05	F	137s	244m	1.18	F	234s	294m	500m
	Thru	1.05	F	137s	244m	1.18	F	234s	294m	500m
	Right	0.67	E	72s	68m	0.59	E	63s	87m	100m
	Approach	1.05	F	125s	244m	1.18	F	192s	294m	-
Intersection		**1.08**	**F**	**87s**	**689m**	**1.18**	**F**	**101s**	**717m**	**-**

[7] Note: 500m lane length represents full length lane in SIDRA
[8] Note: Values highlighted in red have 95th percentile queues longer than the proposed lane length

Table 4.6 shows that the existing intersection configuration (with signalised left turn slip lane from the north) will not be able to operate satisfactorily with the proposed design volumes in both peak periods.

Specifically, the DOS will be over 1, showing that vehicles will need two or more traffic signal cycles to clear the intersection during both peaks. This is particularly evidence in the PM peak, where the DOS is over 1 at the southern, eastern and western approaches. At the western approaches delays of just under four minutes are predicted for vehicles turning right from Sunbury Road onto Lancefield Drive.

4.7.1. Recommended Changes

Based on the SIDRA analysis and results, the following changes are recommended to be provided for SS-IN-03:

1. An additional right turn lane at the southern approach (leg) of the intersection.
2. An additional right turn lane on the eastern approach (leg) of the intersection.
3. Lengthening the signalised left turn slip lanes on the northern approach from 180m to 220m and from 80m to 120m.

The layout of the modelling intersection geometry is shown in Figure 4.12.

Figure 4.12: SS-IN-03 Amendment Intersection SIDRA Model Layout

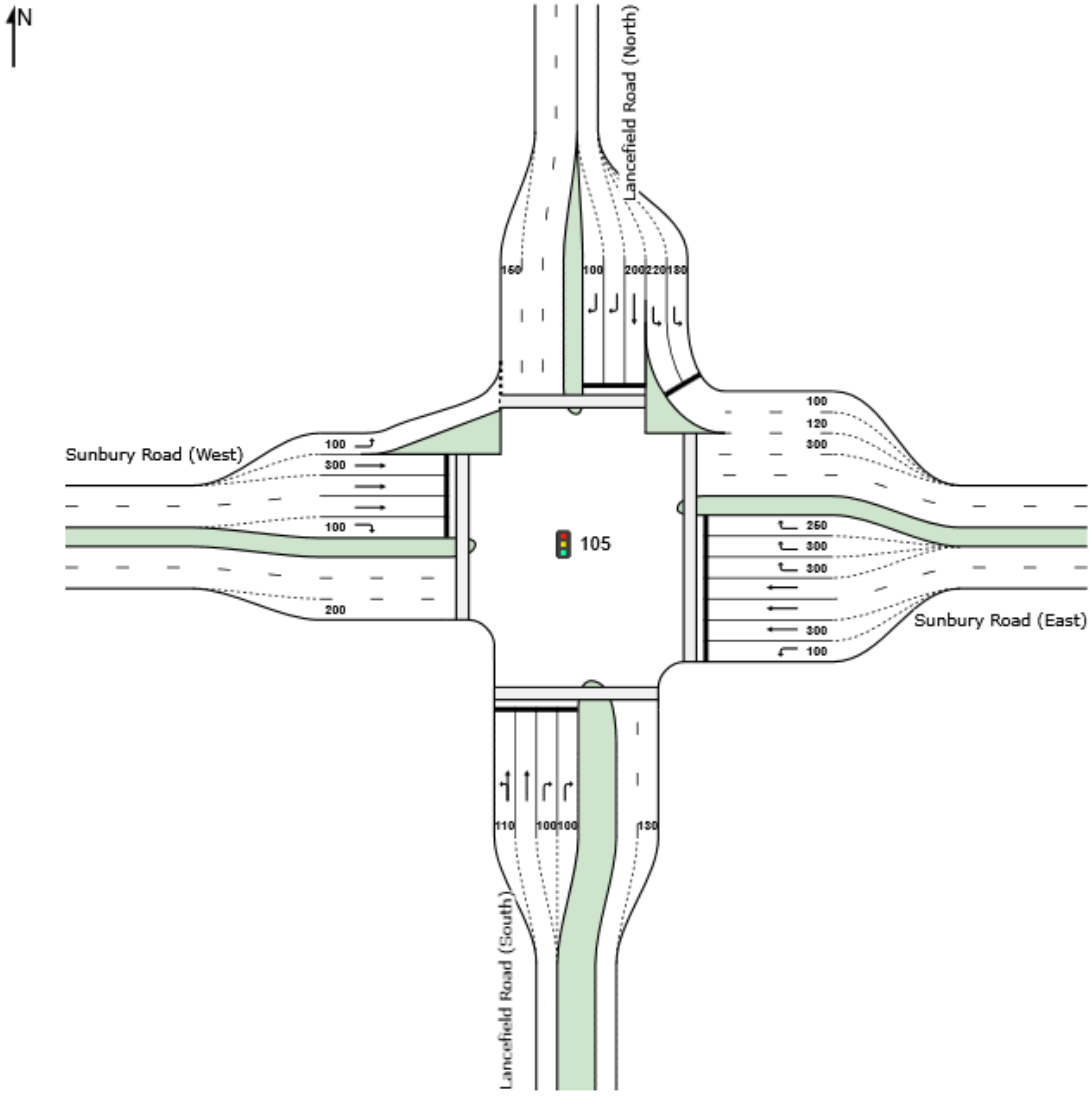


Table 4.7 summarises the intersection performance with full SIDRA outputs included in Appendix B.

Table 4.7: SS-IN-03 Amended Design - SIDRA Intersection Analysis

Approach	Movement	AM Peak				PM Peak				Lane Length
		DOS	LOS	Average Delay	95th %ile Queue	DOS	LOS	Average Delay	95th %ile Queue	
Lancefield Road (South)	Thru + Left	0.24	C	25s	34m	0.54	D	43s	94m	110m
	Thru	0.24	C	28s	37m	0.57	D	48s	101m	500m
	Right	0.83	E	61s	53m	0.85	E	80s	54m	100m
	Right	0.83	E	61s	53m	0.85	E	80s	54m	100m
	Approach	0.83	D	44s	53m	0.85	E	56s	101m	-
Sunbury Road (East)	Left	0.20	C	27s	28m	0.22	C	30s	43m	100m
	Thru	0.64	D	37s	98m	0.62	D	41s	145m	300m
	Thru	0.64	D	37s	98m	0.62	D	41s	145m	500m
	Thru	0.64	D	37s	98m	0.62	D	41s	145m	500m
	Right	0.88	E	59s	114m	0.80	D	52s	192m	300m
	Right	0.88	E	59s	114m	0.89	E	63s	247m	300m
	Right	0.88	E	59s	114m	0.89	E	63s	247m	250m
	Approach	0.88	D	47s	114m	0.89	D	51s	247m	-
Lancefield Road (North)	Left	0.66	C	23s	160m	0.44	B	20s	117m	180m
	Left	0.77	C	25s	205m	0.52	C	20s	145m	220m
	Thru	0.78	D	37s	149m	0.55	D	45s	107m	200m
	Right	0.56	E	55s	32m	0.57	E	68s	47m	500m
	Right	0.56	E	55s	32m	0.57	E	68s	47m	100m
	Approach	0.78	C	30s	205m	0.57	C	31s	145m	-
Sunbury Road (West)	Left	0.03	A	9s	3m	0.07	B	17s	12m	100m
	Thru	0.87	D	52s	126m	0.85	E	64s	142m	300m
	Thru	0.87	D	52s	126m	0.85	E	64s	142m	500m
	Thru	0.87	D	52s	126m	0.85	E	64s	142m	500m
	Right	0.64	D	53s	49m	0.62	E	61s	82m	100m
	Approach	0.87	D	51s	126m	0.85	E	61s	142m	-
Intersection		**0.88**	**D**	**41s**	**205m**	**0.89**	**D**	**48s**	**247m**	**-**

[9] Note: 500m lane length represents full length lane in SIDRA
[10] Note: Values in red have been highlighted as key operational movements at the intersection

Table 4.7 s shows that the amendments to the interim intersection with the lengthening of the northern and southern short through lane and departure lanes and the inclusion of a second right turn lane at the western approach will be able operate satisfactorily with a DOS of 0.88 and 0.89 in the AM and PM peaks, respectively. Both intersections are predicted to operate with a LOS D in the AM and PM peaks. The delays and 95th percentile queue lengths are within acceptable limits.

4.8. Summary

The recommended upgrades to the interim intersections are summarised as follows:

1. LR-IN-04 (Lancefield Road – Intersection 4)
    - An additional right turn lane at the western approach (leg) of the intersection.
    - Lengthening the short through and downstream lanes at the northern and southern approaches to 200m.
2. LR-IN-03 (Lancefield Road – Intersection 3)
    - An additional right turn lane at the western approach (leg) of the intersection.
    - Lengthening the short downstream lanes at the northern and southern approaches to 200m.
    - Lengthening the short through lanes at the northern approach and southern approaches to 300m and 350m respectively.
3. SS-IN-03 (Sunbury South – Intersection 3)
    - An additional right turn lane at the southern and eastern approaches of the intersection.
    - Lengthening the signalised left turn slip lanes at the northern approach to 180m and 220m from 80m and 120m.

5. SENSITIVITY ANALYSIS

5.1. Introduction

In addition to the intersection assessments set out in this report, sensitivity analysis has been undertaken to determine the level of development (flow) that the interim intersections are able to accommodate. The sensitivity tests included a scenario with 60% and 50% of the full traffic build out of the surrounding developments from Option 2a.

Table 5.1 provides a summary of the sensitivity assessment based on 60% and 50% of the full traffic buildout for the interim intersection layouts within the ICP.

Table 5.1: Interim Intersection Layout SIDRA Intersection Analysis - Summary

Intersection/Location	AM Peak			PM Peak		
	DOS	LOS	Cycle Length (s)	DOS	LOS	Cycle Length (s)
Interim Layout with 60% of Development (Option 2a)						
LR-IN-04	0.83	D	90	0.89	D	90
LR-IN-03	0.91	C	100	0.90	D	120
SS-IN-03	0.88	D	110	0.94	D	140
Interim Layout with 50% of Development (Option 2a)						
LR-IN-04	0.88	C	70	0.85	C	80
LR-IN-03	0.88	C	80	0.84	C	90
SS-IN-03	0.83	D	100	0.86	D	120

[1] Minimum Cycle Length operating at the Pedestrian Operated signals

Table 5.1 indicates that at 60% of the full development traffic flow the following will occur:

- LR-IN-04 will operate satisfactorily with a maximum DOS of 0.88 during the PM.
- LR-IN-03 will operate close to the desired DOS with 0.91 and 0.9 in the AM and PM peaks respectively. Notwithstanding, these do not meet the target of less than 0.9.
- SS-IN-03 will operate satisfactorily during the AM peak but is nearing practical capacity during the PM peak with a DOS of 0.94, also not meeting the target of 0.9.

At 50% of full development flows all three intersections operate satisfactorily with a DOS of under 0.9 and a minimum level of service D.

Full results of the sensitivity analysis are available in Appendix B.

6. CONCLUSION

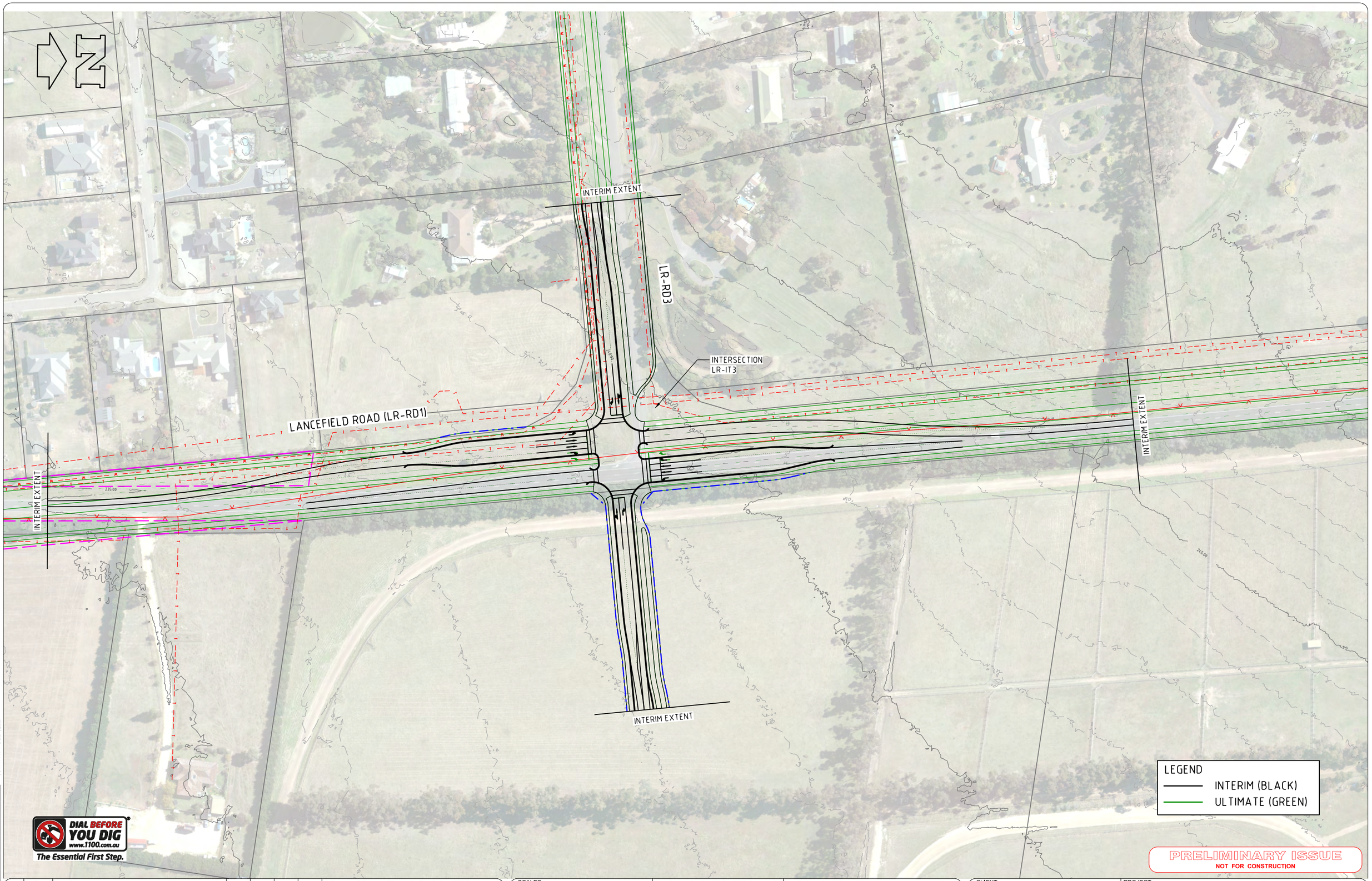
6.1. Summary

The suitability of the interim intersections for LR-IN-04, LR-IN-03 and SS-IN-03 proposed in the ICP have been assessed using SIDRA to determine their suitability without the delivery of the northern bridge in the ICP. The following comments are provided with respect to the analysis presented in this report:

1. The interim traffic volumes extracted from VITM are approximate in that they rely on the ultimate network being delivered which includes key infrastructure such as the OMR.
2. Some refinements have been undertaken in the development of input volumes to account for turns and movements that have been captured at parallel intersections in the model.
3. Without the northern bridge, all three intersections do not meet the target criteria of DOS of 0.9 and LOS C for the interim configurations.
4. The following changes are recommended to be provided for LR-IN-04 to accommodate the 75% of development:
    - An additional right turn lane at the western approach (leg) of the intersection.
    - Lengthening the short through and downstream lanes at the northern and southern approaches to 200m.
5. The following changes are recommended to be provided for LR-IN-03 to accommodate the 75% of development:
    - An additional right turn lane at the western approach (leg) of the intersection.
    - Lengthening the short downstream lanes at the northern and southern approaches to 200m.
    - Lengthening the short through lanes at the northern approach and southern approaches to 300m and 350m respectively.
6. The following changes are recommended to be provided for SS-IN-03 to accommodate the 75% of development:
    - An additional right turn lane at the southern and eastern approaches of the intersection.
    - Lengthening the signalised left turn slip lanes at the northern approach to 180m and 220m from 80m and 120m.
7. LR-IN-04 and LR-IN-03 are able to accommodate 60% of the full build out without any modifications.
8. All of the interim intersection designs are able to accommodate 50% of the full build out without any modifications required.

A. INTERIM CONCEPT LAYOUT PLANS

A



PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRAWN	CHECK	DESIGN	VERIFY
B	25/07/16	REALIGNED LR-RD3 AND AMENDED CROSS SECTION	DH	GW	DH	DR
A	10/12/15	ISSUED FOR INFORMATION	RAM	GW	RAM	DR

NCSI certified Quality System to ISO 9001

SCALES
0 25 50m
SCALE 1:2000

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CLIENT
MPA METROPOLITAN PLANNING AUTHORITY

PROJECT
SUNBURY STH AND LANCEFIELD RD PSP

ALIGNMENT PLAN
INTERIM INTERSECTION
LR-IT3

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113308A	CIV	1503	B

1503

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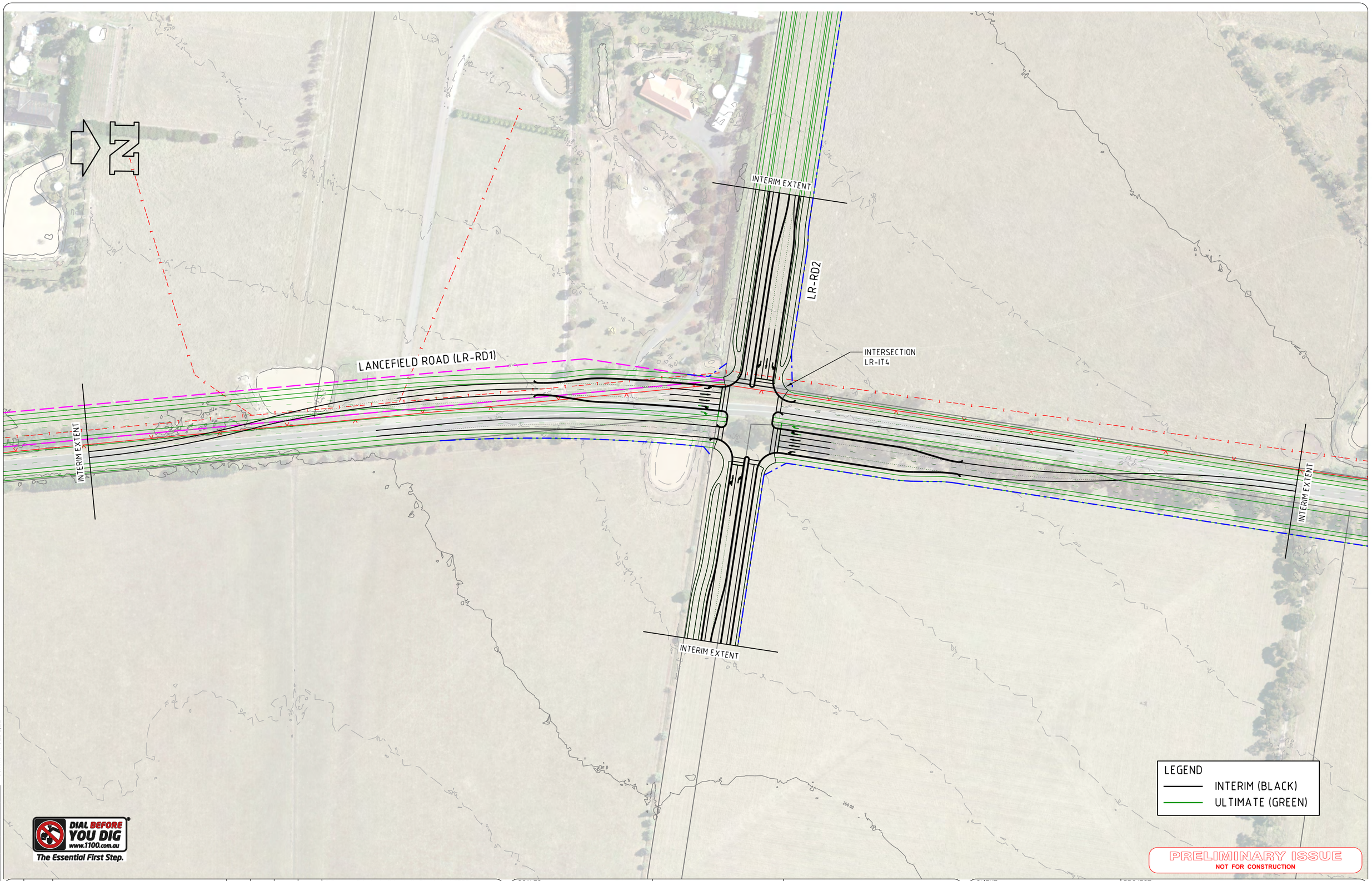
1504



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B	4/10/16	LR-RD2 CROSS SECTION REVISED	GW	DR	GW	DR
A	10/12/15	ISSUED FOR INFORMATION	RAM	GW	RAM	DR

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PROJECT
SUNBURY STH AND LANCEFIELD RD PSP
ALIGNMENT PLAN
INTERIM INTERSECTION
LR-IT4

PROJECT No.	DISCIPLINE	NUMBER	REV.
2113308A	CIV	1504	B

26/10/2016 1:00:37 PM

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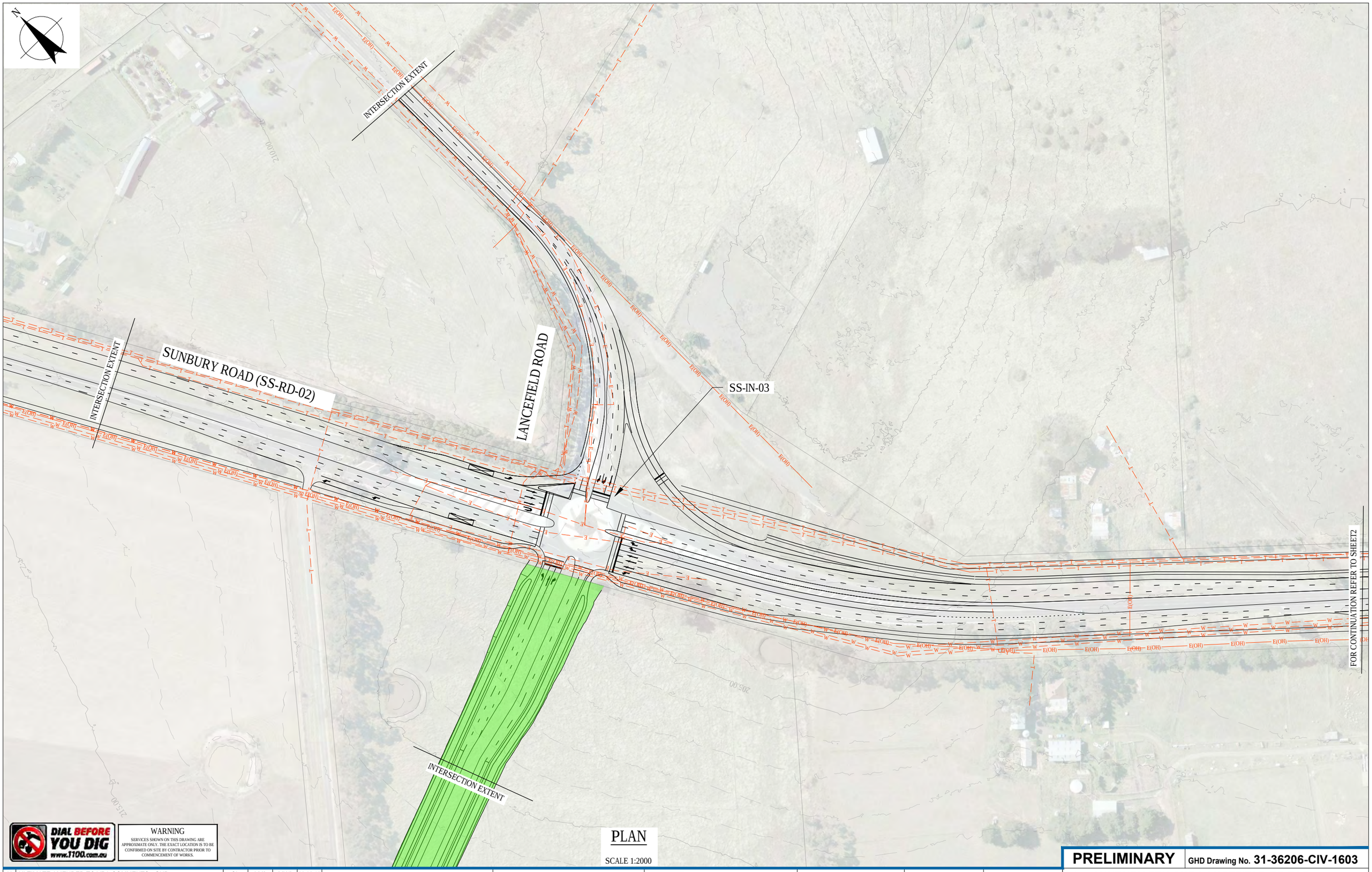

PLAN

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No	Revision	Drawn	Project Manager	Project Director	Date
H	ULTIMATE AMENDED TO VPA COMMENTS - GHD	SL	LM*	MW*	08.08.19
G	ULTIMATE AMENDED TO VPA COMMENTS - GHD	SL	LM*	MW*	08.02.19
F	ULTIMATE AMENDED TO VPA COMMENTS - GHD	DE	LM*	MW*	03.12.18
E	ULTIMATE AMENDED TO VPA COMMENTS - GHD	DE	LM*	MW*	28.09.18
D	ULTIMATE AMENDED TO VPA COMMENTS - GHD	DE	LM*	MW*	26.09.18

Note: * indicates signatures on original issue of drawing or last revision of drawing

0 20 40 60m

SCALE 1:2000 AT ORIGINAL SIZE

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Drafting Check | Design Check
Approved (Project Director)
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PRELIMINARY GHD Drawing No. 31-36206-CIV-1603

Project SUNBURY STH AND LANCEFIELD RD PSP
Title ALIGNMENT PLAN
INTERIM INTERSECTION
SS-IN-03

Original Size A3 Drawing No: 2113308A-CIV-1603 Rev: H

Plot Date: 8 August 2019 - 9:38 AM Plotted By: Shane Laybourne Cad File No: \\ghdnet\GHD\AU\Melbourne\Projects\31\36206\CADD\Drawings\31-36206-CIV-1603.dwg

B.SIDRA OUTPUTS

B

USER REPORT FOR SITE

Project: 201208-V198070-Sunbury Growth ICP Modelling

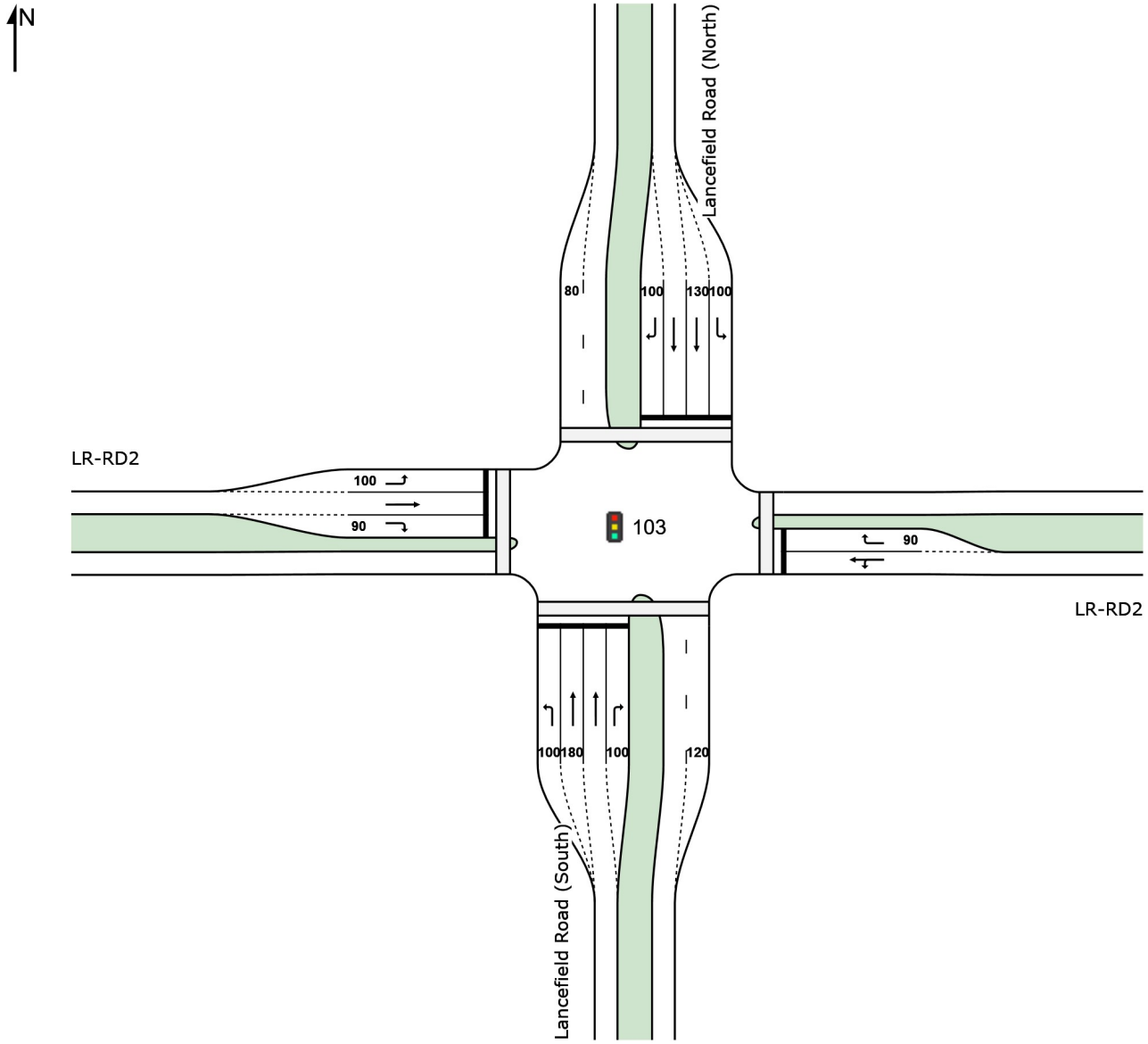
Template: GTA Appendix

Site: 103 [LR-IN-04-AM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

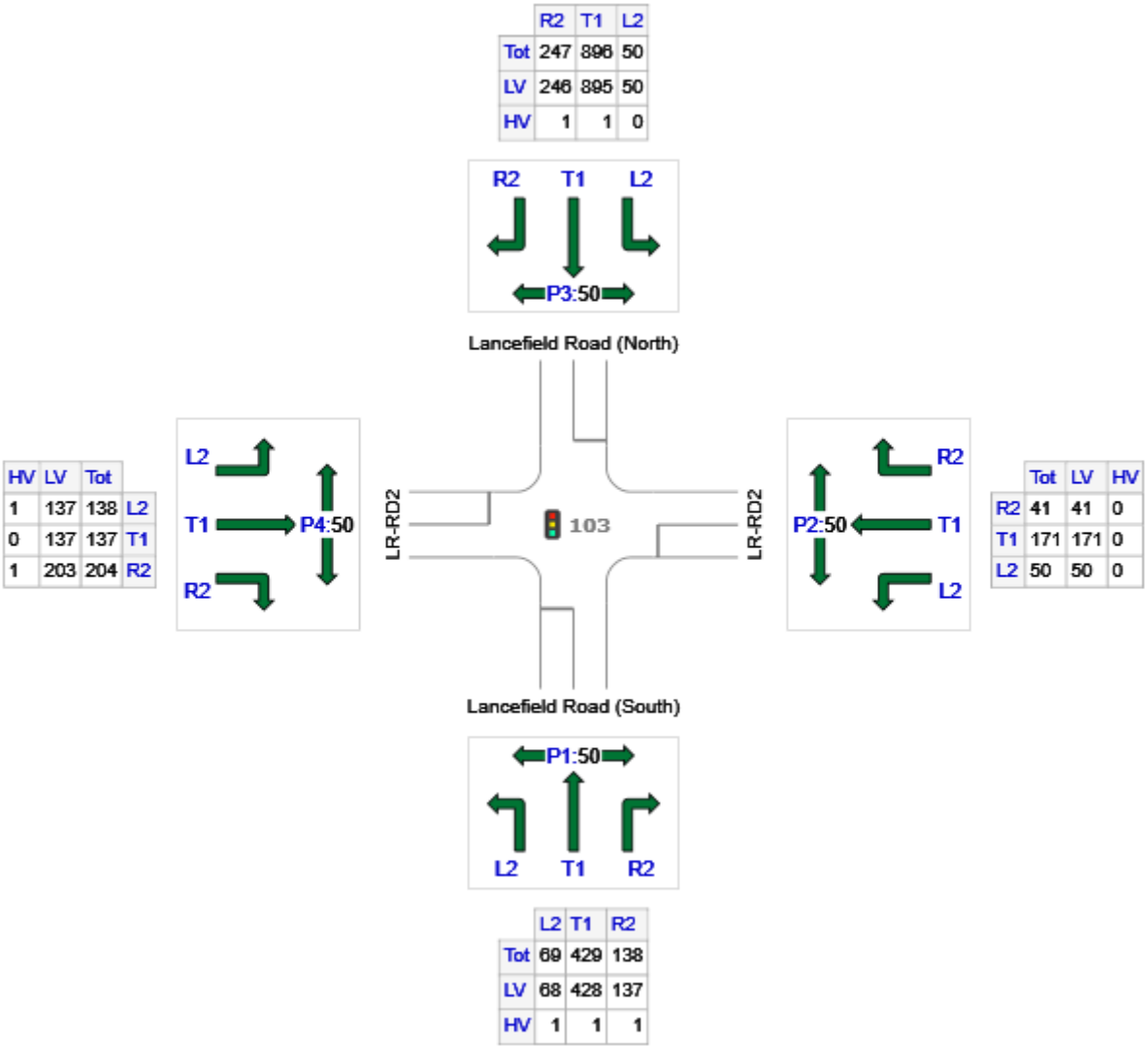
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
80
100
130
100
LR-RD2
100
90
103
90
LR-RD2
100
180
100
120
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	636	633	3
E: LR-RD2	262	262	0
N: Lancefield Road (North)	1193	1191	2
W: LR-RD2	479	477	2
Total	2570	2563	7

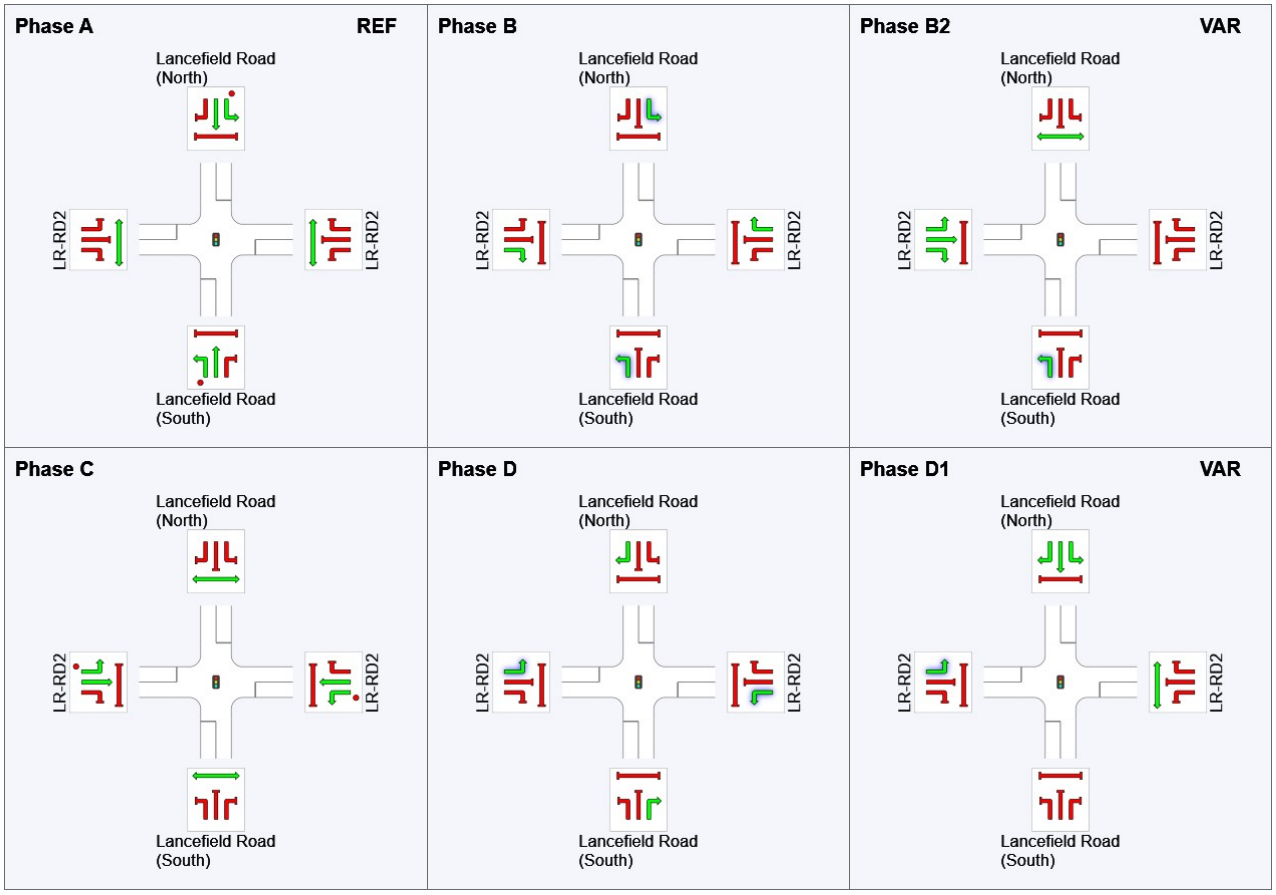
Phase Timing Summary

Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	0	26	39	44	67	81
Green Time (sec)	20	7	***	17	8	3
Phase Time (sec)	26	13	5	23	14	9
Phase Split	29%	14%	6%	26%	16%	10%

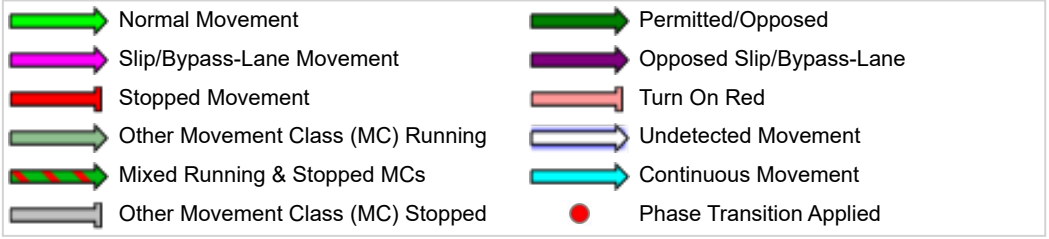
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	69	1.4	654	0.106	100	22.8	LOS C	1.8	13.1	Short	100	0.0	NA
Lane 2	135	0.2	433	0.312	46[6]	32.0	LOS C	5.0	35.3	Short	180	0.0	NA
Lane 3	294	0.2	433	0.679	100	35.7	LOS D	12.2	85.7	Full	500	0.0	0.0
Lane 4	138	0.7	164	0.840	100	56.9	LOS E	6.8	48.1	Short	100	0.0	NA
Approach	636	0.5		0.840		38.1	LOS D	12.2	85.7				
East: LR-RD2													
Lane 1	221	0.0	376	0.588	100	34.0	LOS C	8.5	59.8	Full	500	0.0	0.0
Lane 2	41	0.0	144	0.284	100	50.3	LOS D	1.8	12.6	Short	90	0.0	NA
Approach	262	0.0		0.588		36.5	LOS D	8.5	59.8				
North: Lancefield Road (North)													
Lane 1	50	0.0	743	0.067	100	19.9	LOS B	1.2	8.4	Short	100	0.0	NA
Lane 2	355	0.1	628	0.566	66[6]	27.4	LOS C	13.0	91.3	Short	130	0.0	NA
Lane 3	541	0.1	628	0.862	100	39.0	LOS D	25.8	181.0	Full	500	0.0	0.0
Lane 4	247	0.4	350	0.706	100	44.7	LOS D	10.7	75.4	Short	100	0.0	NA
Approach	1193	0.2		0.862		35.9	LOS D	25.8	181.0				
West: LR-RD2													
Lane 1	138	0.7	801	0.172	100	19.1	LOS B	3.3	23.4	Short	100	0.0	NA
Lane 2	137	0.0	477	0.287	100	30.1	LOS C	4.9	34.6	Full	500	0.0	0.0
Lane 3	204	0.5	247	0.827	100	53.4	LOS D	9.9	69.3	Short	90	0.0	NA
Approach	479	0.4		0.827		36.8	LOS D	9.9	69.3				
Intersection	2570	0.3		0.862		36.7	LOS D	25.8	181.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

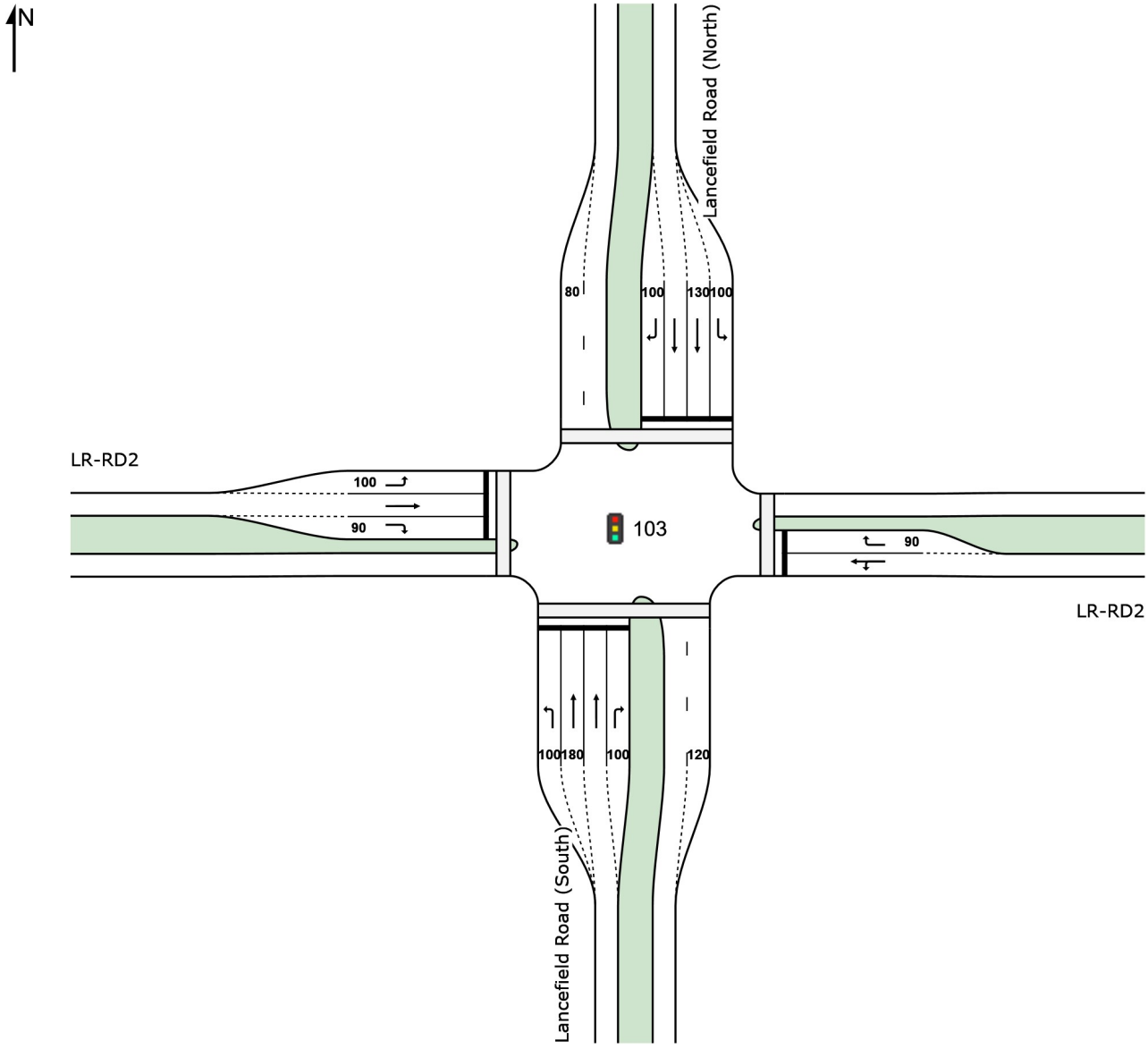
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-AM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

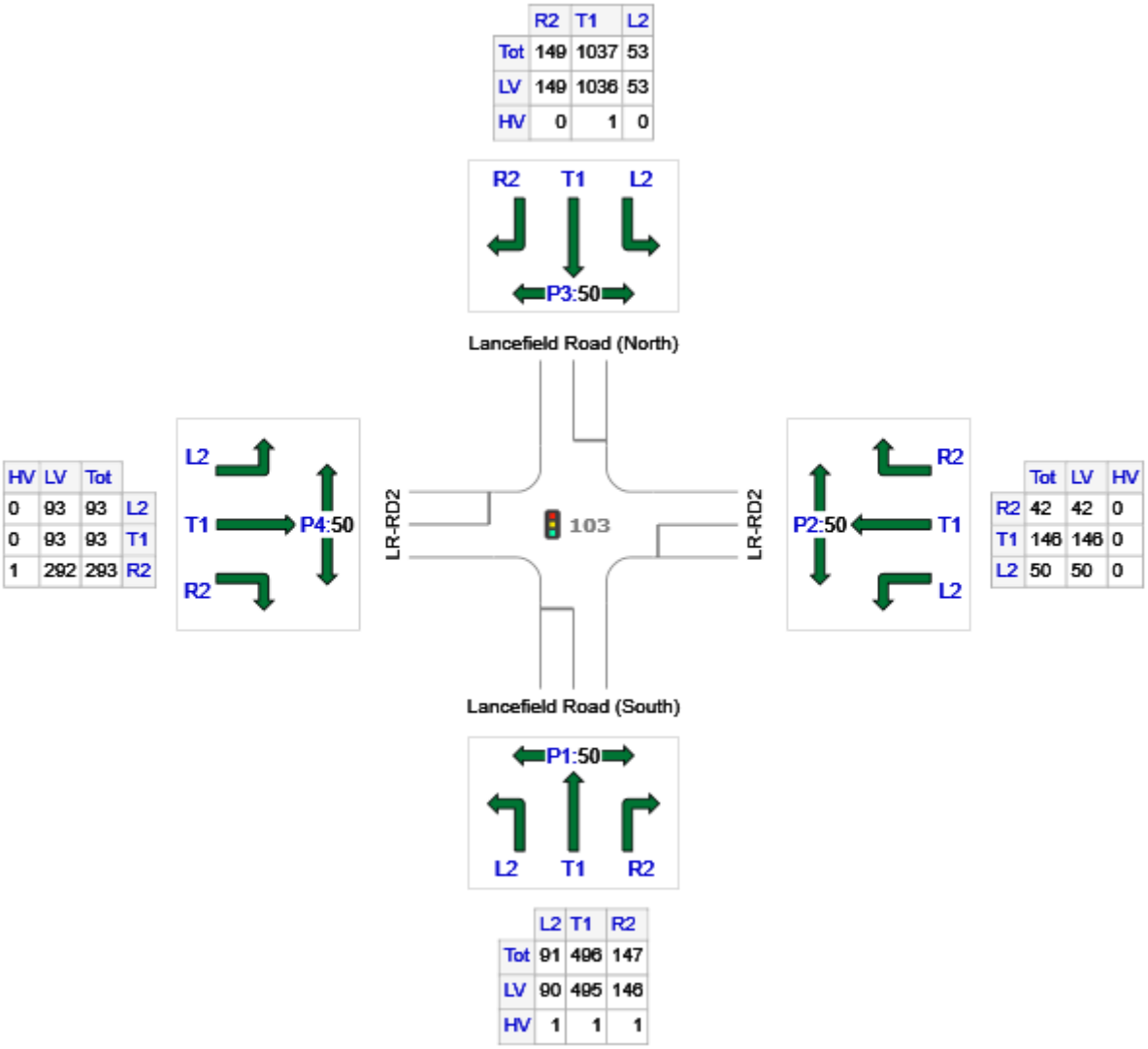
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



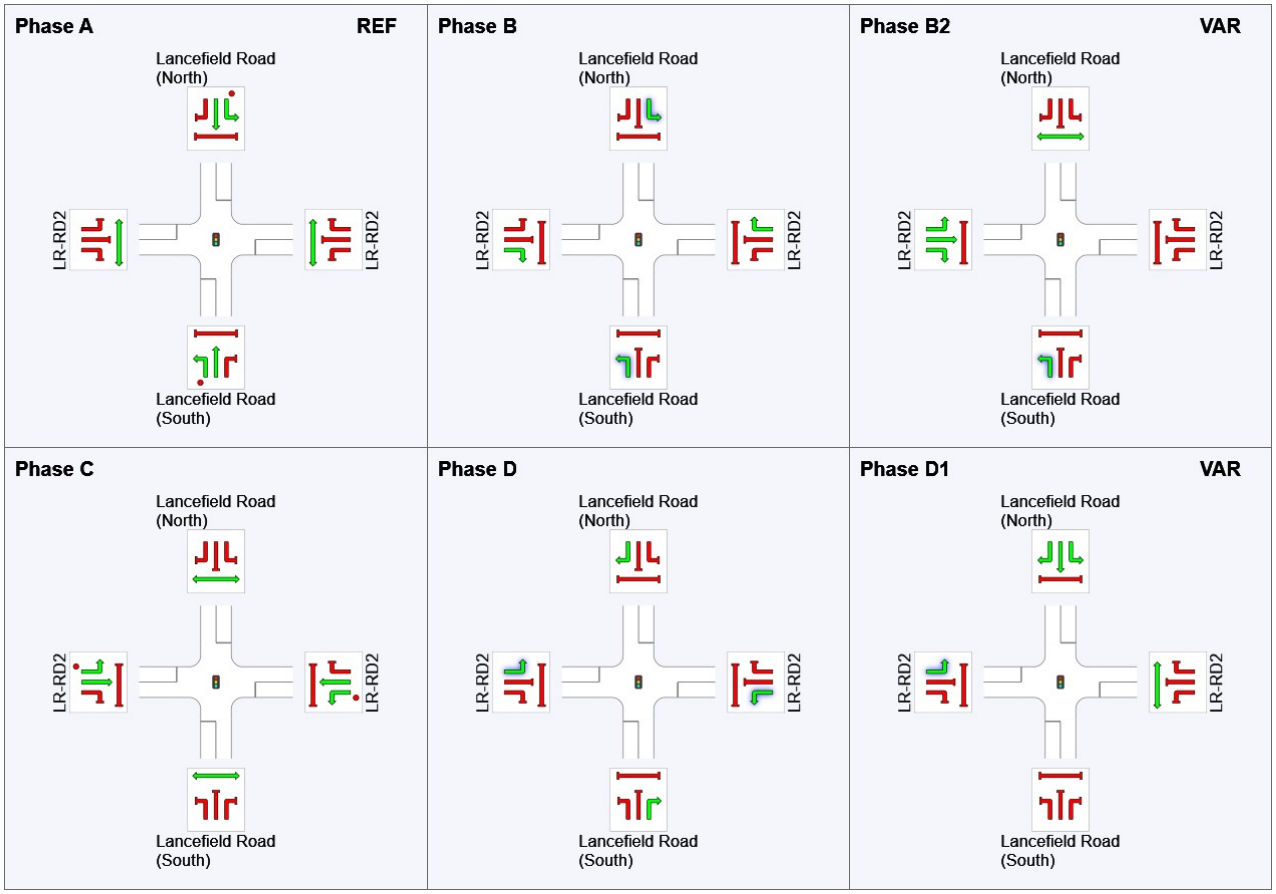
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	734	731	3
E: LR-RD2	238	238	0
N: Lancefield Road (North)	1239	1238	1
W: LR-RD2	479	478	1
Total	2690	2685	5

Phase Timing Summary

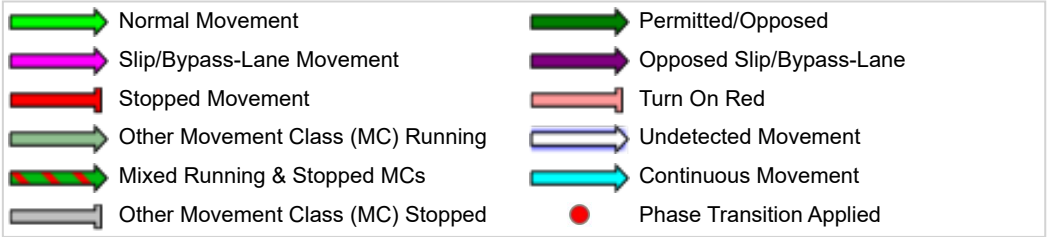
Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	0	48	68	77	104	122
Green Time (sec)	42	14	3	21	12	2
Phase Time (sec)	48	20	9	27	18	8
Phase Split	37%	15%	7%	21%	14%	6%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	91	1.1	921	0.099	100	20.7	LOS C	2.7	19.2	Short	100	0.0	NA
Lane 2	156	0.2	629	0.248	46[6]	34.5	LOS C	7.2	50.6	Short	180	0.0	NA
Lane 3	340	0.2	629	0.540	100	38.6	LOS D	17.6	123.3	Full	500	0.0	0.0
Lane 4	147	0.7	171	0.862	100	78.1	LOS E	10.3	72.7	Short	100	0.0	NA
Approach	734	0.4		0.862		43.4	LOS D	17.6	123.3				
East: LR-RD2													
Lane 1	196	0.0	321	0.612	100	51.1	LOS D	11.1	77.9	Full	500	0.0	0.0
Lane 2	42	0.0	200	0.210	100	63.9	LOS E	2.5	17.4	Short	90	0.0	NA
Approach	238	0.0		0.612		53.4	LOS D	11.1	77.9				
North: Lancefield Road (North)													
Lane 1	53	0.0	914	0.058	100	20.7	LOS C	1.6	11.0	Short	100	0.0	NA
Lane 2	437	0.1	750	0.583	66[6]	33.8	LOS C	21.8	152.5	Short	130	0.0	NA
Lane 3	600	0.1	676[1]	0.888	100	49.4	LOS D	39.0	272.9	Full	500	0.0	0.0
Lane 4	149	0.0	286	0.521	100	61.1	LOS E	8.9	62.0	Short	100	0.0	NA
Approach	1239	0.1		0.888		44.1	LOS D	39.0	272.9				
West: LR-RD2													
Lane 1	93	0.0	714	0.130	100	29.5	LOS C	3.5	24.7	Short	100	0.0	NA
Lane 2	93	0.0	450	0.207	100	43.3	LOS D	4.8	33.3	Full	500	0.0	0.0
Lane 3	293	0.3	328	0.894	100	75.1	LOS E	21.0	147.6	Short	90	0.0	NA
Approach	479	0.2		0.894		60.1	LOS E	21.0	147.6				
Intersection	2690	0.2		0.894		47.6	LOS D	39.0	272.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

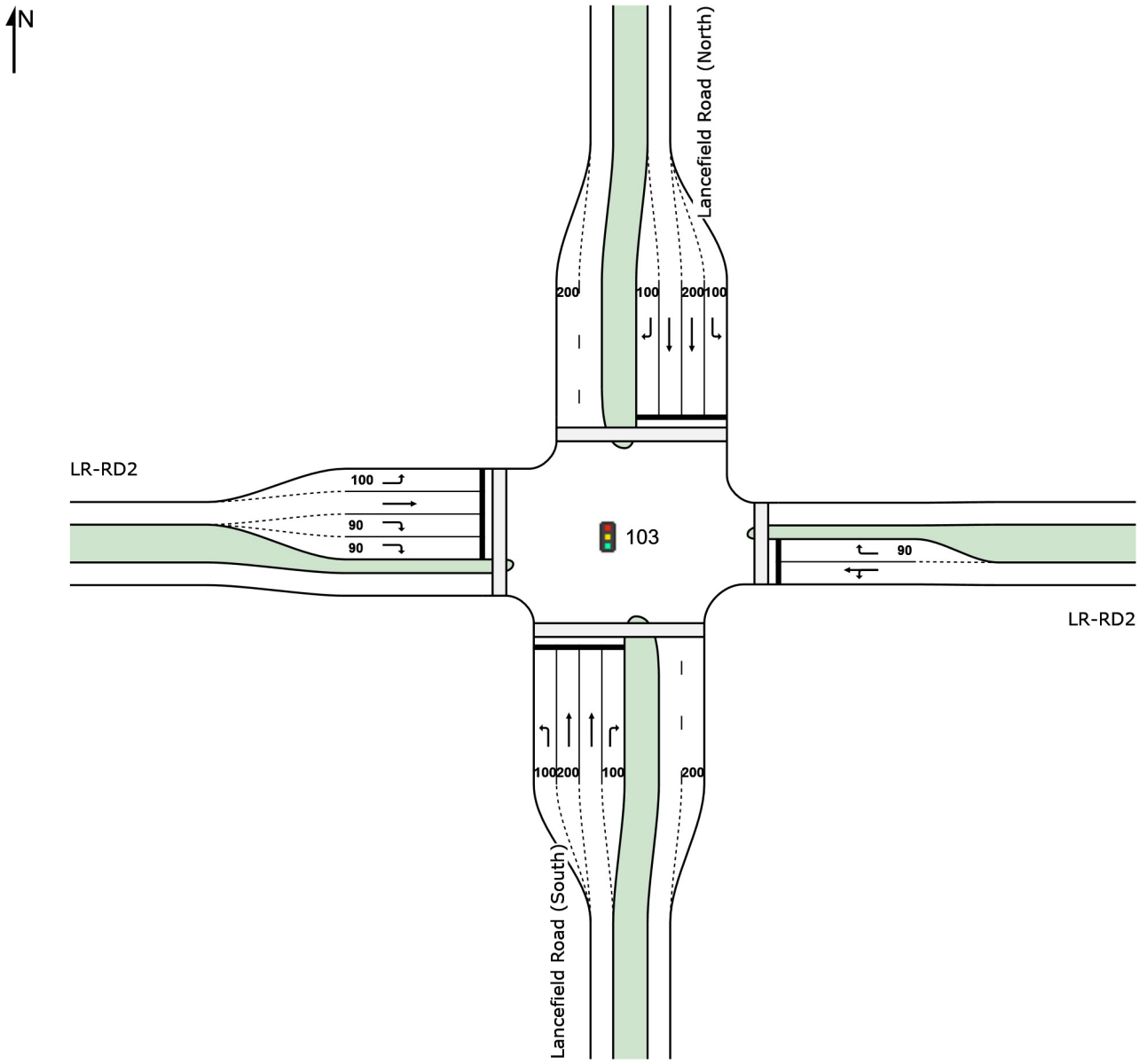
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-AM Peak - 75% (Option 2a) - GTA Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

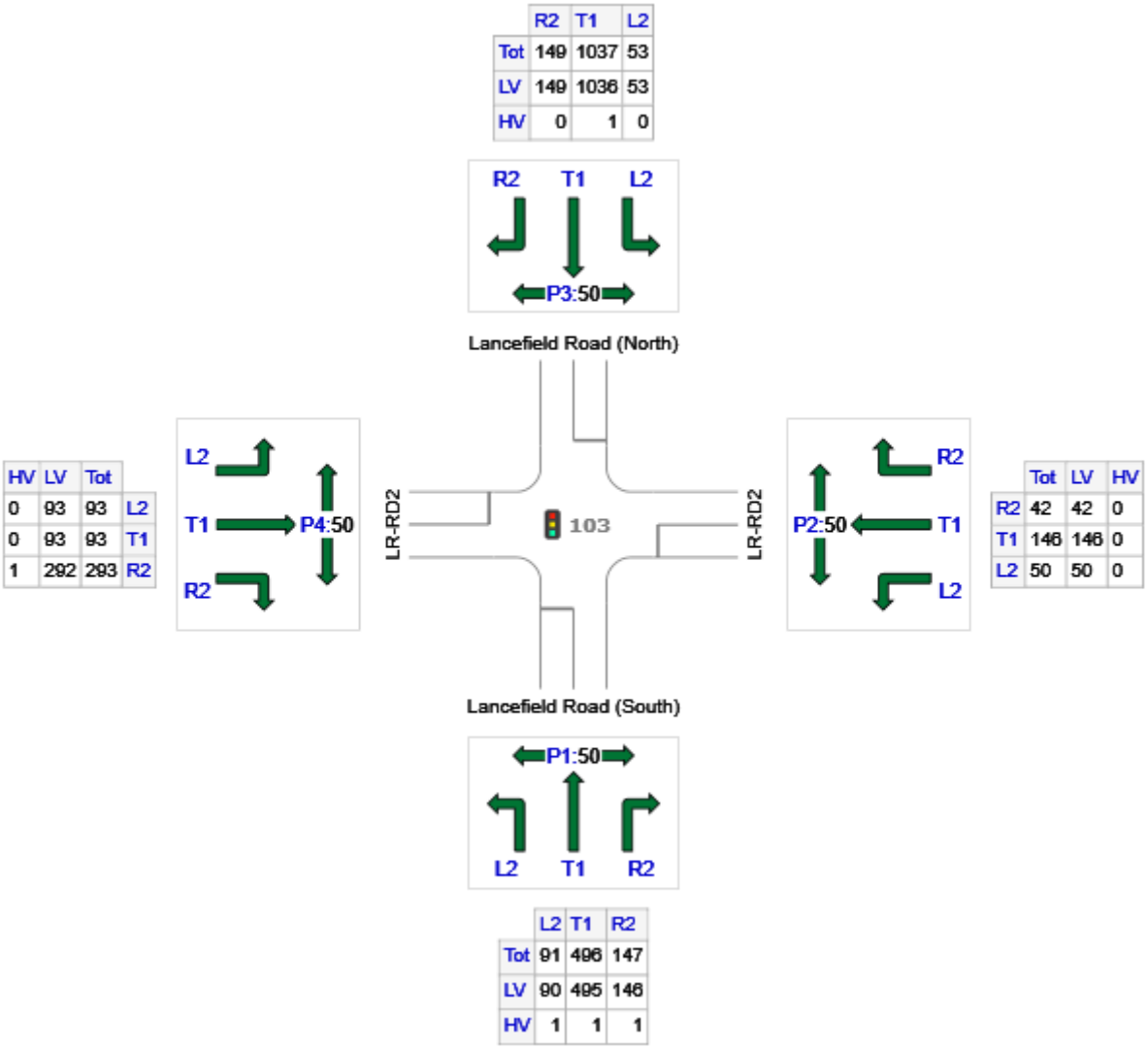
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



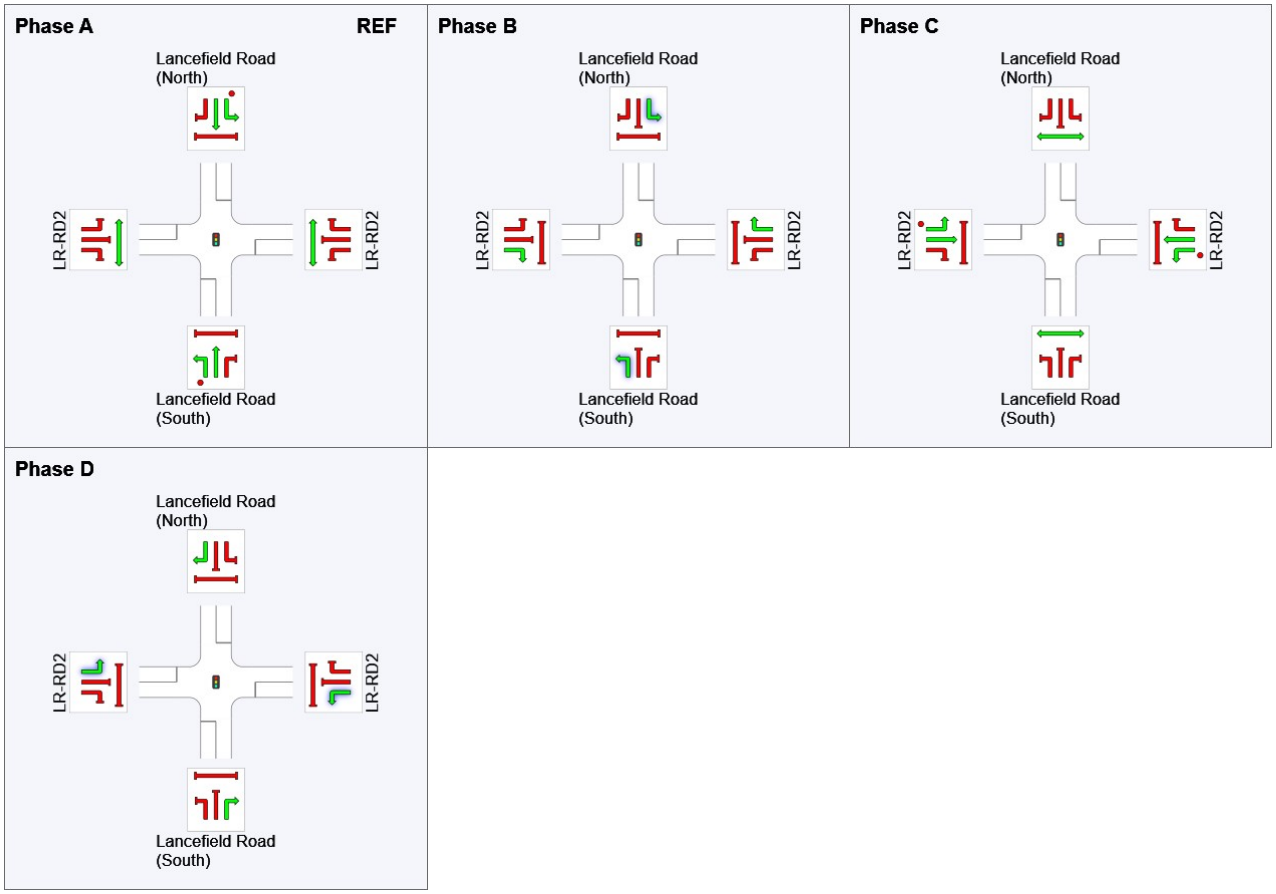
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	734	731	3
E: LR-RD2	238	238	0
N: Lancefield Road (North)	1239	1238	1
W: LR-RD2	479	478	1
Total	2690	2685	5

Phase Timing Summary

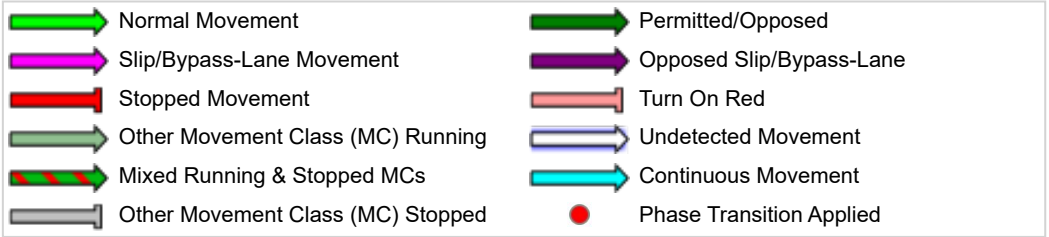
Phase	A	B	C	D
Phase Change Time (sec)	0	37	52	75
Green Time (sec)	31	9	17	9
Phase Time (sec)	37	15	23	15
Phase Split	41%	17%	26%	17%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Lancefield Road (South)													
Lane 1	91	1.1	819	0.111	100	17.9	LOS B	2.1	14.5	Short	100	0.0	NA
Lane 2	248	0.2	671	0.370	100	23.9	LOS C	8.2	57.5	Short	200	0.0	NA
Lane 3	248	0.2	671	0.370	100	23.9	LOS C	8.2	57.5	Full	500	0.0	0.0
Lane 4	147	0.7	185	0.795	100	54.1	LOS D	7.1	49.7	Short	100	0.0	NA
Approach	734	0.4		0.795		29.2	LOS C	8.2	57.5				
East: LR-RD2													
Lane 1	196	0.0	377	0.519	100	32.2	LOS C	7.3	51.1	Full	500	0.0	0.0
Lane 2	42	0.0	186	0.226	100	47.6	LOS D	1.8	12.4	Short	90	0.0	NA
Approach	238	0.0		0.519		34.9	LOS C	7.3	51.1				
North: Lancefield Road (North)													
Lane 1	53	0.0	825	0.064	100	17.6	LOS B	1.2	8.2	Short	100	0.0	NA
Lane 2	519	0.1	671	0.772	100	30.6	LOS C	21.4	150.1	Short	200	0.0	NA
Lane 3	519	0.1	671	0.772	100	30.6	LOS C	21.4	150.1	Full	500	0.0	0.0
Lane 4	149	0.0	186	0.802	100	54.4	LOS D	7.2	50.2	Short	100	0.0	NA
Approach	1239	0.1		0.802		32.9	LOS C	21.4	150.1				
West: LR-RD2													
Lane 1	93	0.0	537	0.173	100	27.4	LOS C	2.8	19.8	Short	100	0.0	NA
Lane 2	93	0.0	368	0.252	100	34.1	LOS C	3.5	24.8	Full	500	0.0	0.0
Lane 3	147	0.3	185	0.791	100	54.0	LOS D	7.0	49.2	Short	90	0.0	NA
Lane 4	147	0.3	185	0.791	100	54.0	LOS D	7.0	49.2	Short	90	0.0	NA
Approach	479	0.2		0.791		45.0	LOS D	7.0	49.2				
Intersection	2690	0.2		0.802		34.2	LOS C	21.4	150.1				

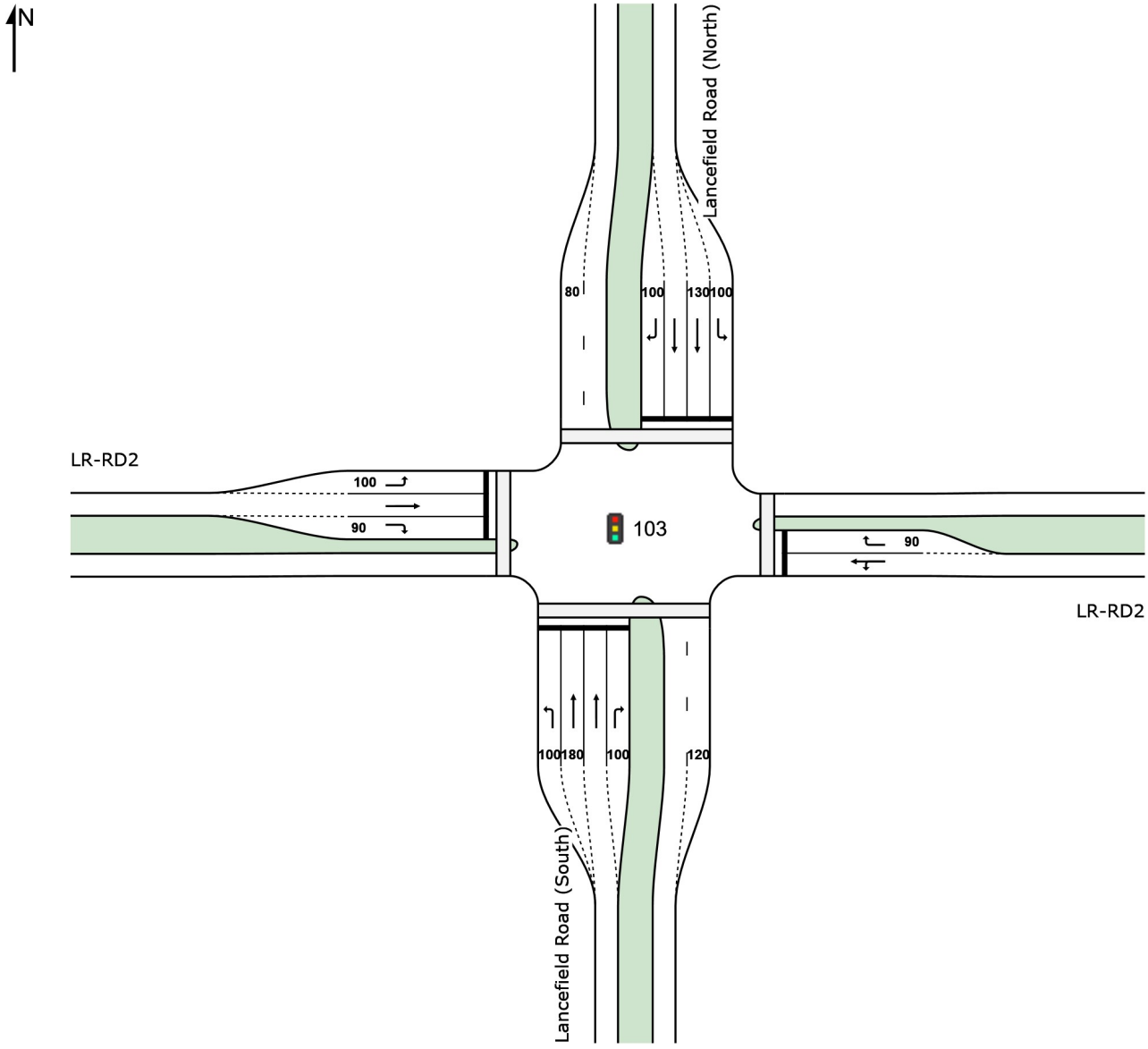
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control 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: 103 [LR-IN-04-PM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

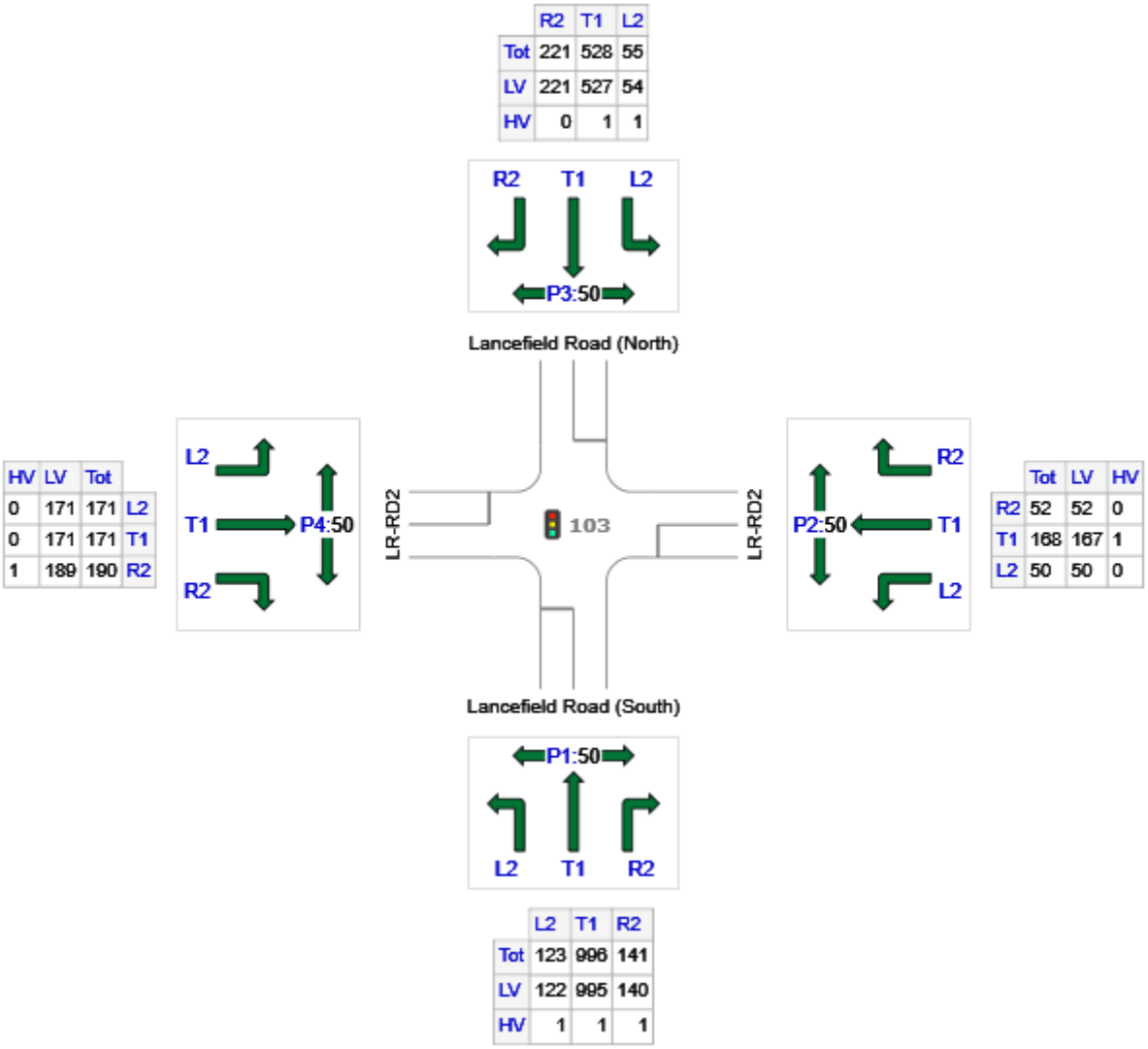
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1260	1257	3
E: LR-RD2	270	269	1
N: Lancefield Road (North)	804	802	2
W: LR-RD2	532	531	1
Total	2866	2859	7

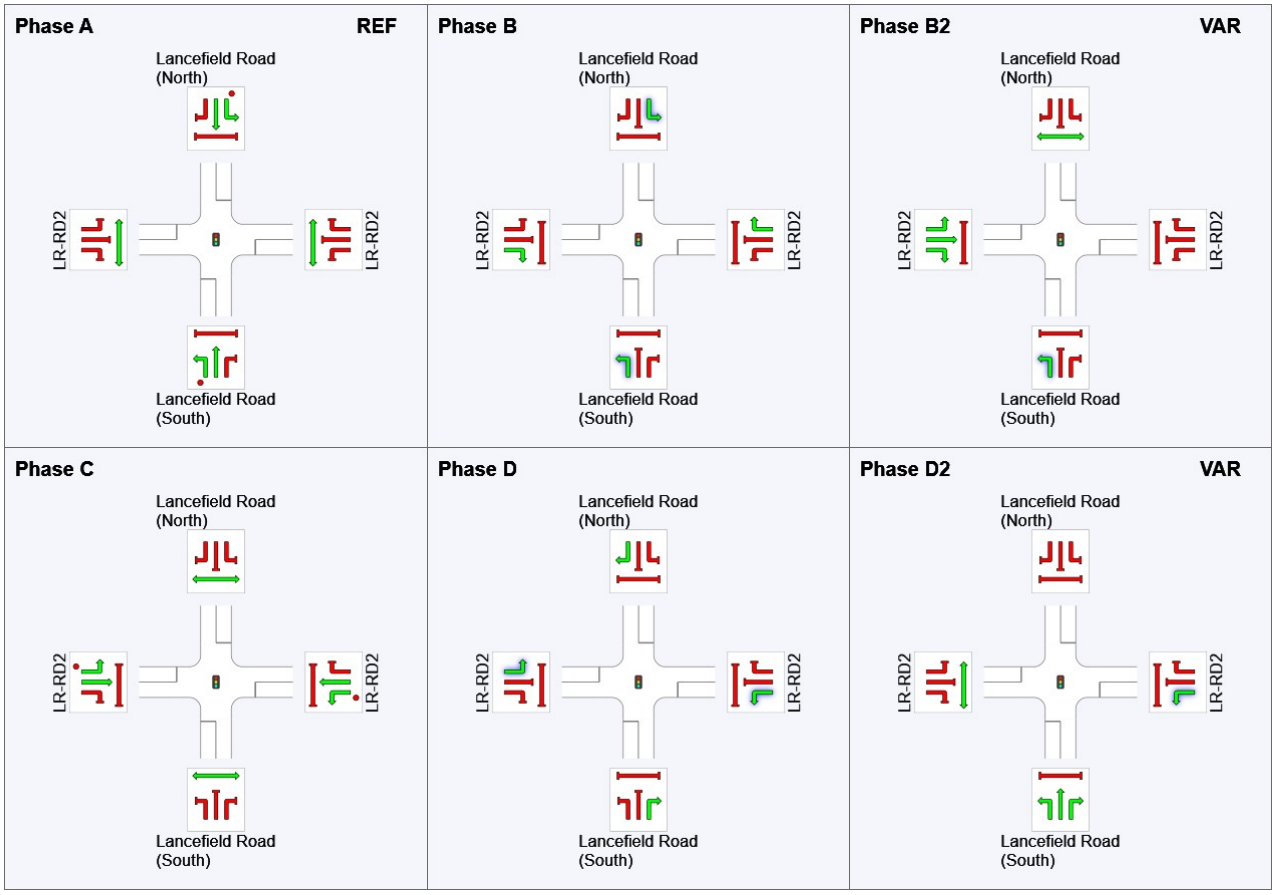
Phase Timing Summary

Phase	A	B	B2	C	D	D2
Phase Change Time (sec)	0	59	74	81	109	134
Green Time (sec)	53	9	1	22	19	***
Phase Time (sec)	59	15	7	28	25	6
Phase Split	42%	11%	5%	20%	18%	4%

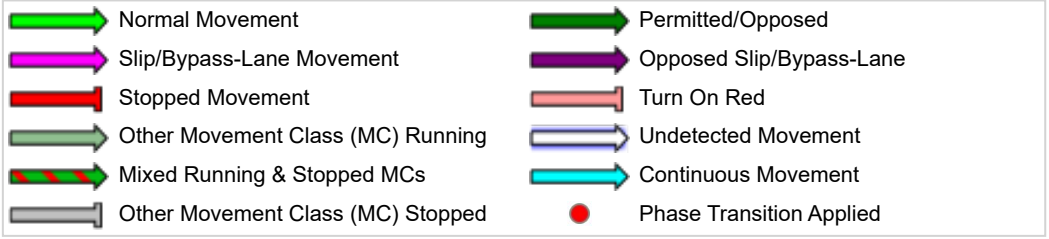
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Lancefield Road (South)													
Lane 1	123	0.8	989	0.124	100	19.8	LOS B	3.7	26.2	Short	100	0.0	NA
Lane 2	337	0.1	821	0.410	46[6]	30.0	LOS C	15.9	111.1	Short	180	0.0	NA
Lane 3	659	0.1	738[1]	0.893	100	49.3	LOS D	44.9	314.8	Full	500	0.0	0.0
Lane 4	141	0.7	330	0.427	100	61.1	LOS E	8.6	60.9	Short	100	0.0	NA
Approach	1260	0.2		0.893		42.6	LOS D	44.9	314.8				
East: LR-RD2													
Lane 1	218	0.5	310	0.704	100	58.6	LOS E	13.9	98.0	Full	500	0.0	0.0
Lane 2	52	0.0	119	0.436	100	76.8	LOS E	3.6	25.1	Short	90	0.0	NA
Approach	270	0.4		0.704		62.1	LOS E	13.9	98.0				
North: Lancefield Road (North)													
Lane 1	55	1.8	812	0.068	100	25.8	LOS C	2.0	13.9	Short	100	0.0	NA
Lane 2	209	0.2	737	0.284	66[6]	32.1	LOS C	9.8	68.7	Short	130	0.0	NA
Lane 3	319	0.2	737	0.432	100	34.3	LOS C	16.0	112.0	Full	500	0.0	0.0
Lane 4	221	0.0	252	0.877	100	80.6	LOS F	16.7	116.7	Short	100	0.0	NA
Approach	804	0.2		0.877		45.9	LOS D	16.7	116.7				
West: LR-RD2													
Lane 1	171	0.0	637	0.269	100	37.2	LOS D	7.9	55.6	Short	100	0.0	NA
Lane 2	171	0.0	404	0.423	100	52.0	LOS D	10.2	71.2	Full	500	0.0	0.0
Lane 3	190	0.5	211	0.899	100	85.4	LOS F	14.7	103.5	Short	90	0.0	NA
Approach	532	0.2		0.899		59.2	LOS E	14.7	103.5				
Intersection	2866	0.2		0.899		48.4	LOS D	44.9	314.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

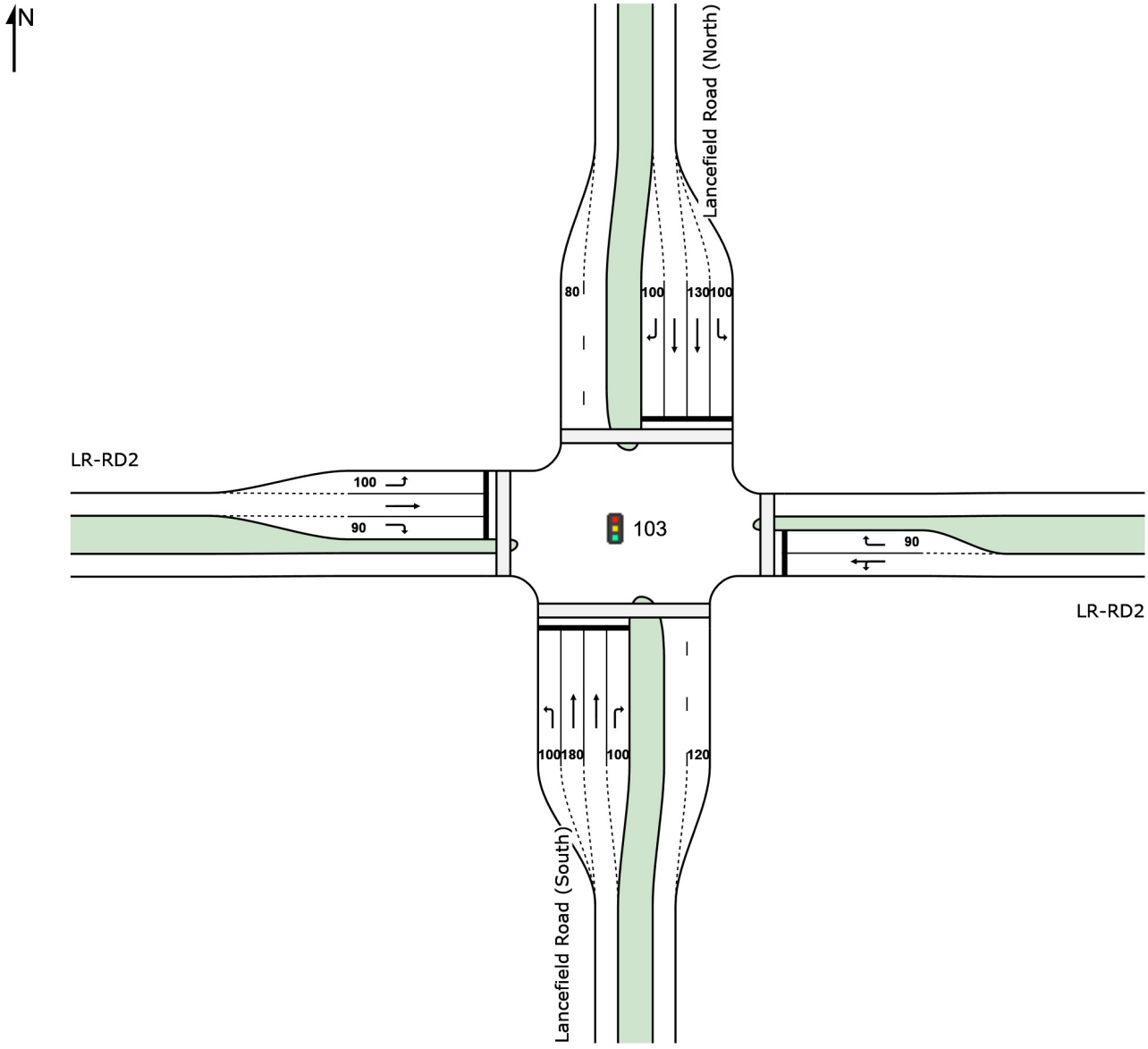
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-PM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

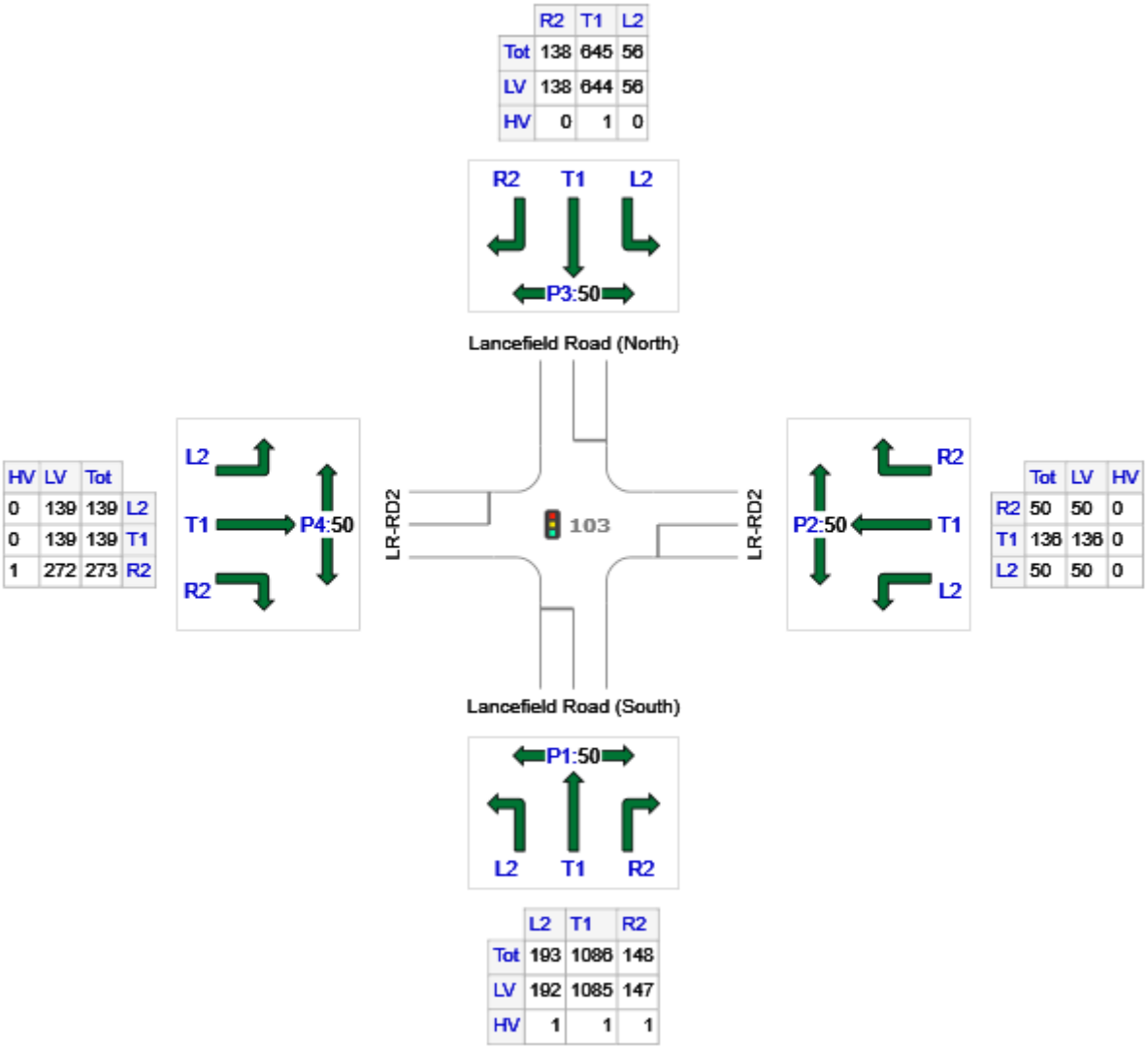
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



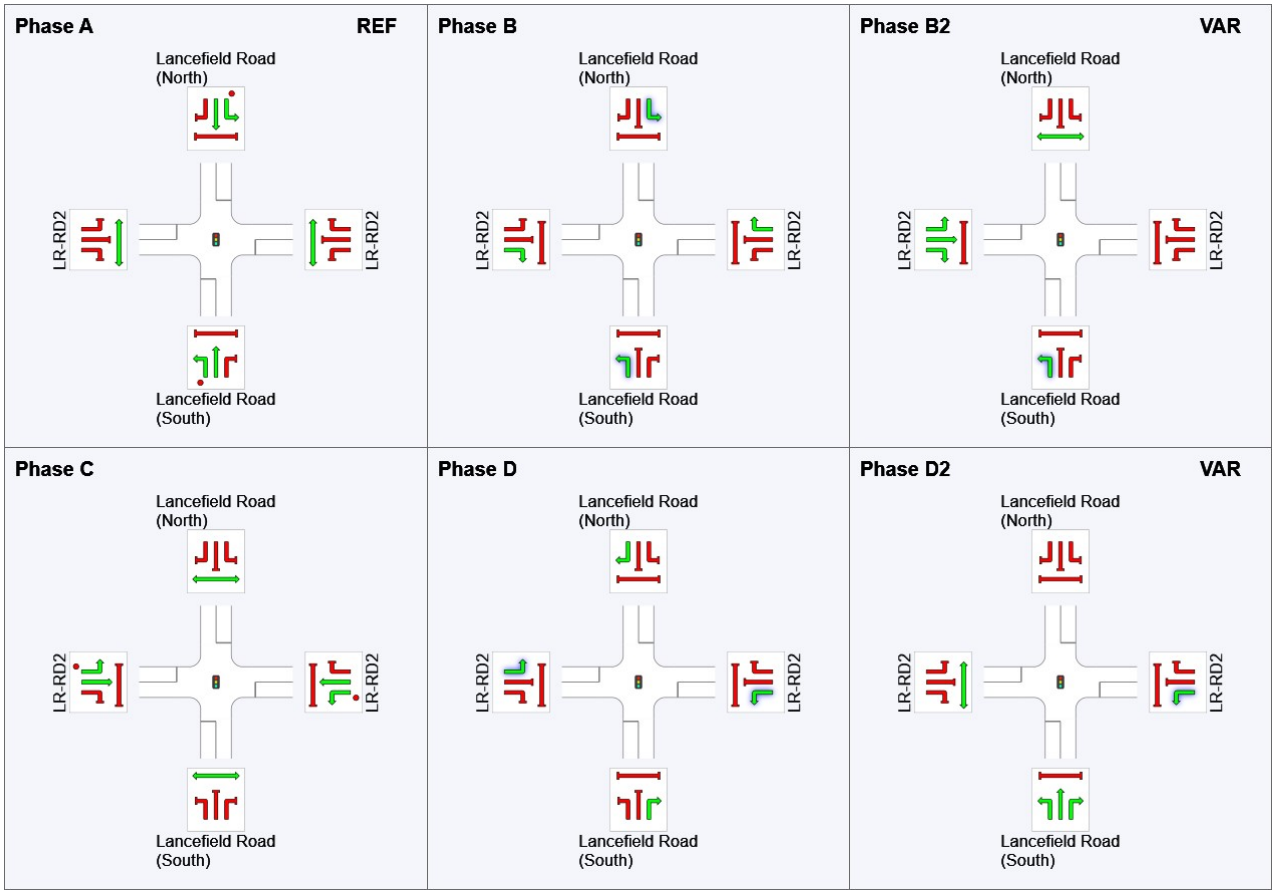
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1427	1424	3
E: LR-RD2	236	236	0
N: Lancefield Road (North)	839	838	1
W: LR-RD2	551	550	1
Total	3053	3048	5

Phase Timing Summary

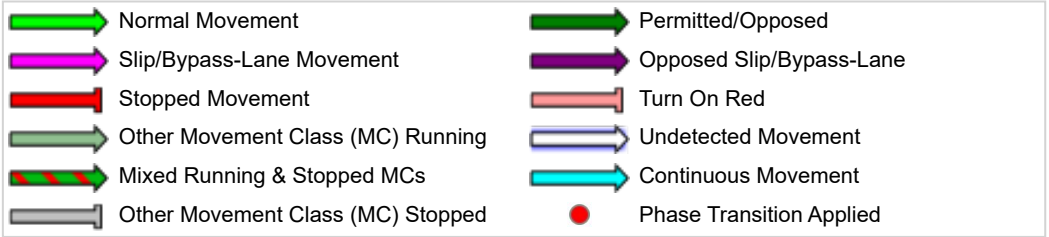
Phase	A	B	B2	C	D	D2
Phase Change Time (sec)	0	57	75	85	113	130
Green Time (sec)	51	12	4	22	11	4
Phase Time (sec)	57	18	10	28	17	10
Phase Split	41%	13%	7%	20%	12%	7%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Lancefield Road (South)													
Lane 1	193	0.5	1097	0.176	100	16.7	LOS B	5.3	37.0	Short	100	0.0	NA
Lane 2	367	0.1	849	0.433	46[6]	29.1	LOS C	17.2	120.3	Short	180	0.0	NA
Lane 3	719	0.1	763[1]	0.942	100	61.9	LOS E	55.6	389.5	Full	500	0.0	0.0
Lane 4	148	0.7	277	0.534	100	65.7	LOS E	9.5	66.9	Short	100	0.0	NA
Approach	1427	0.2		0.942		47.7	LOS D	55.6	389.5				
East: LR-RD2													
Lane 1	186	0.0	312	0.597	100	54.9	LOS D	11.3	79.2	Full	500	0.0	0.0
Lane 2	50	0.0	159	0.314	100	72.5	LOS E	3.3	23.2	Short	90	0.0	NA
Approach	236	0.0		0.597		58.6	LOS E	11.3	79.2				
North: Lancefield Road (North)													
Lane 1	56	0.0	836	0.067	100	25.3	LOS C	2.0	13.7	Short	100	0.0	NA
Lane 2	256	0.2	710	0.360	66[6]	34.6	LOS C	12.6	88.4	Short	130	0.0	NA
Lane 3	389	0.2	710	0.549	100	37.6	LOS D	20.9	146.5	Full	500	0.0	0.0
Lane 4	138	0.0	146	0.946	100	96.8	LOS F	11.4	79.5	Short	100	0.0	NA
Approach	839	0.1		0.946		45.6	LOS D	20.9	146.5				
West: LR-RD2													
Lane 1	139	0.0	570	0.244	100	40.1	LOS D	6.7	46.7	Short	100	0.0	NA
Lane 2	139	0.0	446	0.312	100	48.2	LOS D	7.9	55.1	Full	500	0.0	0.0
Lane 3	273	0.4	291	0.938	100	90.5	LOS F	22.5	157.7	Short	90	0.0	NA
Approach	551	0.2		0.938		67.1	LOS E	22.5	157.7				
Intersection	3053	0.2		0.946		51.5	LOS D	55.6	389.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

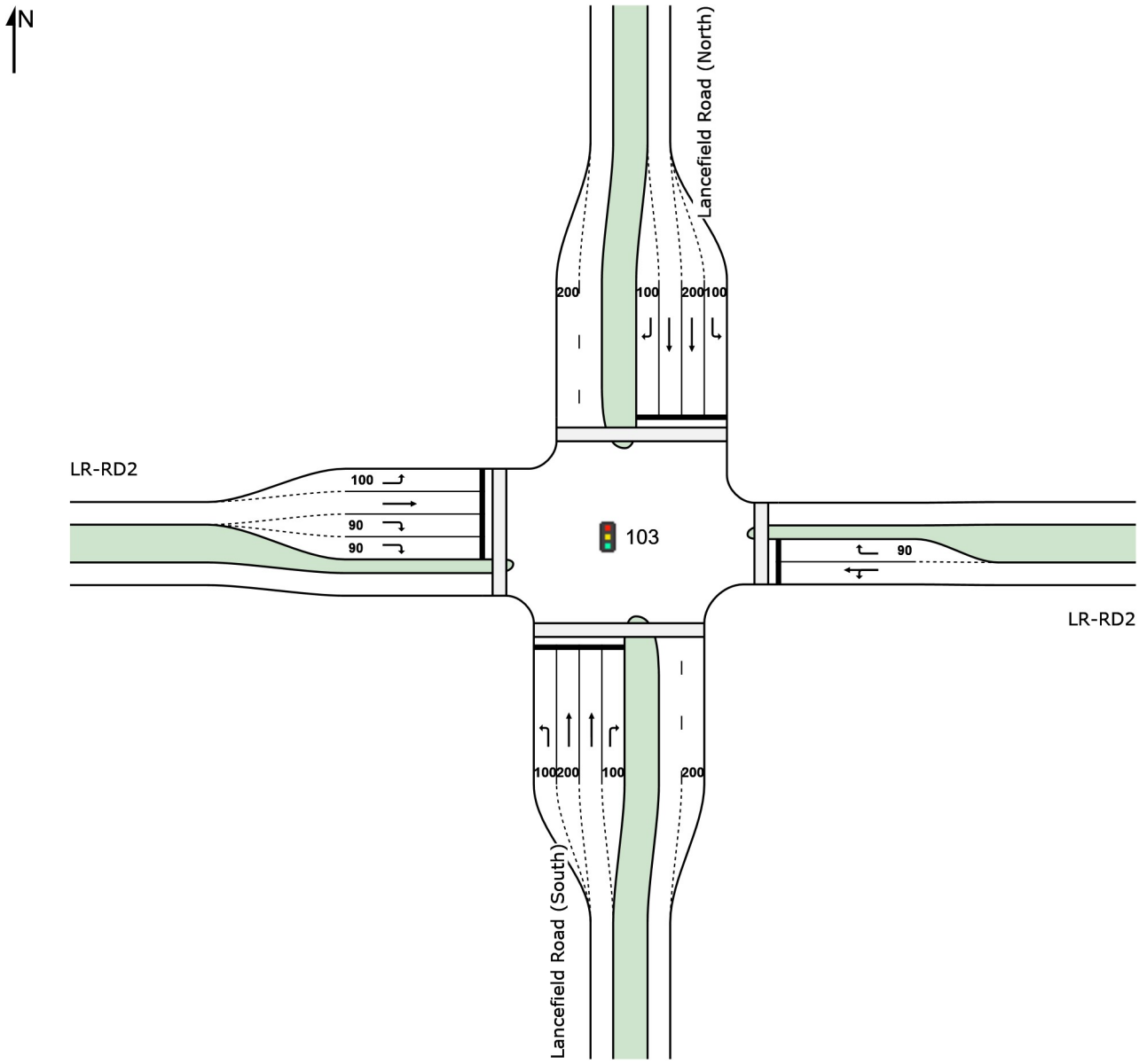
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-PM Peak - 75% (Option 2a) - GTA Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

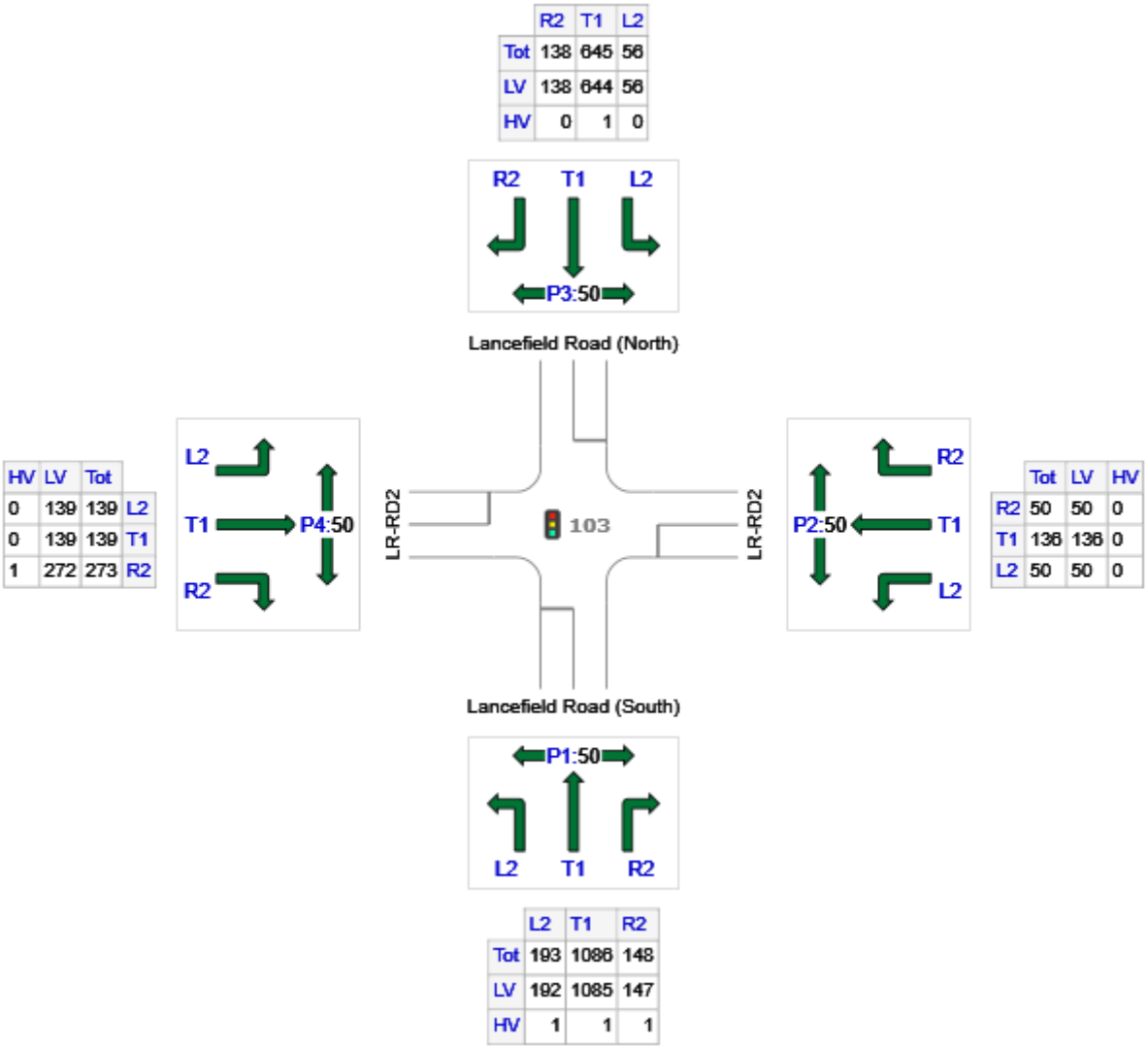
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1427	1424	3
E: LR-RD2	236	236	0
N: Lancefield Road (North)	839	838	1
W: LR-RD2	551	550	1
Total	3053	3048	5

Phase Timing Summary

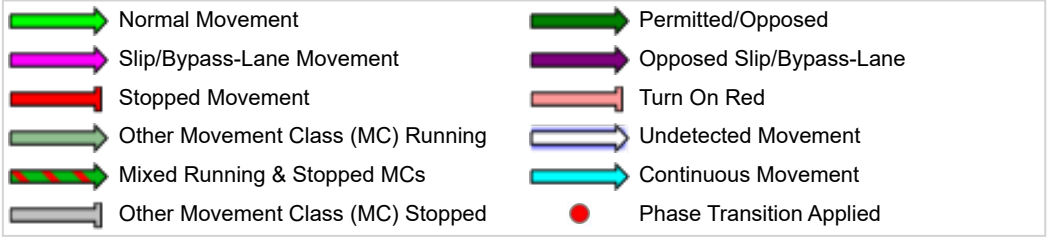
Phase	A	B	C	D	D2
Phase Change Time (sec)	0	28	41	63	76
Green Time (sec)	22	7	16	7	***
Phase Time (sec)	28	13	22	13	4
Phase Split	35%	16%	28%	16%	5%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence

REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	193	0.5	763	0.253	100	18.6	LOS B	4.4	30.6	Short	100	0.0	NA
Lane 2	543	0.1	633	0.857	100	35.1	LOS D	23.3	163.0	Short	200	0.0	NA
Lane 3	543	0.1	633	0.857	100	35.1	LOS D	23.3	163.0	Full	500	0.0	0.0
Lane 4	148	0.7	254	0.582	100	42.2	LOS D	5.7	40.2	Short	100	0.0	NA
Approach	1427	0.2		0.857		33.6	LOS C	23.3	163.0				
East: LR-RD2													
Lane 1	186	0.0	401	0.463	100	26.8	LOS C	5.9	41.3	Full	500	0.0	0.0
Lane 2	50	0.0	163	0.308	100	44.8	LOS D	1.9	13.6	Short	90	0.0	NA
Approach	236	0.0		0.463		30.6	LOS C	5.9	41.3				
North: Lancefield Road (North)													
Lane 1	56	0.0	673	0.083	100	20.0	LOS B	1.3	8.9	Short	100	0.0	NA
Lane 2	323	0.2	536	0.602	100	27.6	LOS C	11.1	78.1	Short	200	0.0	NA
Lane 3	323	0.2	536	0.602	100	27.6	LOS C	11.1	78.1	Full	500	0.0	0.0
Lane 4	138	0.0	163	0.849	100	52.5	LOS D	6.2	43.3	Short	100	0.0	NA
Approach	839	0.1		0.849		31.2	LOS C	11.1	78.1				
West: LR-RD2													
Lane 1	139	0.0	534	0.260	100	25.3	LOS C	3.8	26.9	Short	100	0.0	NA
Lane 2	139	0.0	390	0.356	100	30.4	LOS C	4.8	33.6	Full	500	0.0	0.0
Lane 3	137	0.4	162	0.842	100	52.1	LOS D	6.1	42.7	Short	90	0.0	NA
Lane 4	137	0.4	162	0.842	100	52.1	LOS D	6.1	42.7	Short	90	0.0	NA
Approach	551	0.2		0.842		39.9	LOS D	6.1	42.7				
Intersection	3053	0.2		0.857		33.9	LOS C	23.3	163.0				

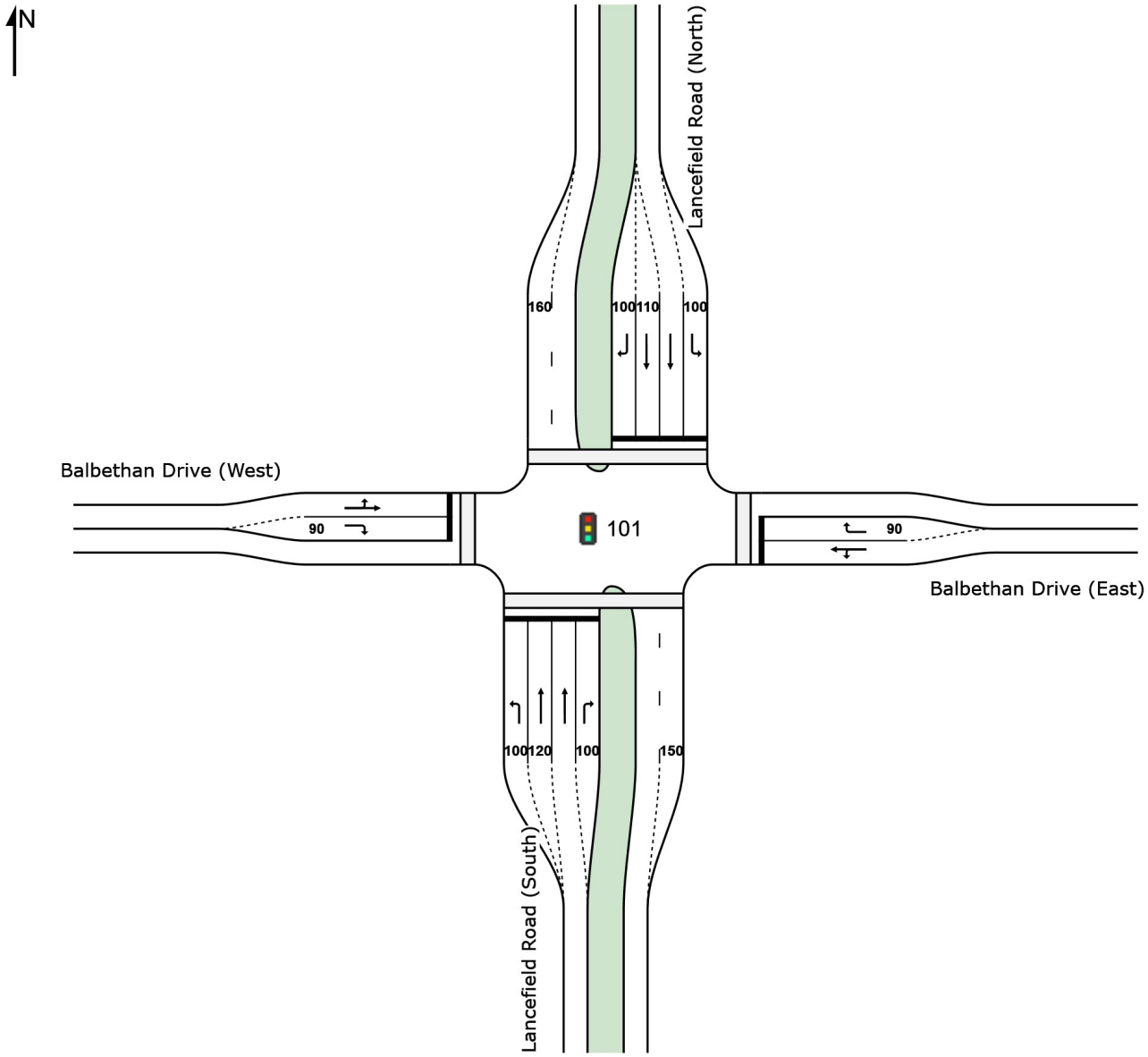
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
SIDRA Standard Delay Model is used. Control 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: 101 [LR-IN-03-AM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

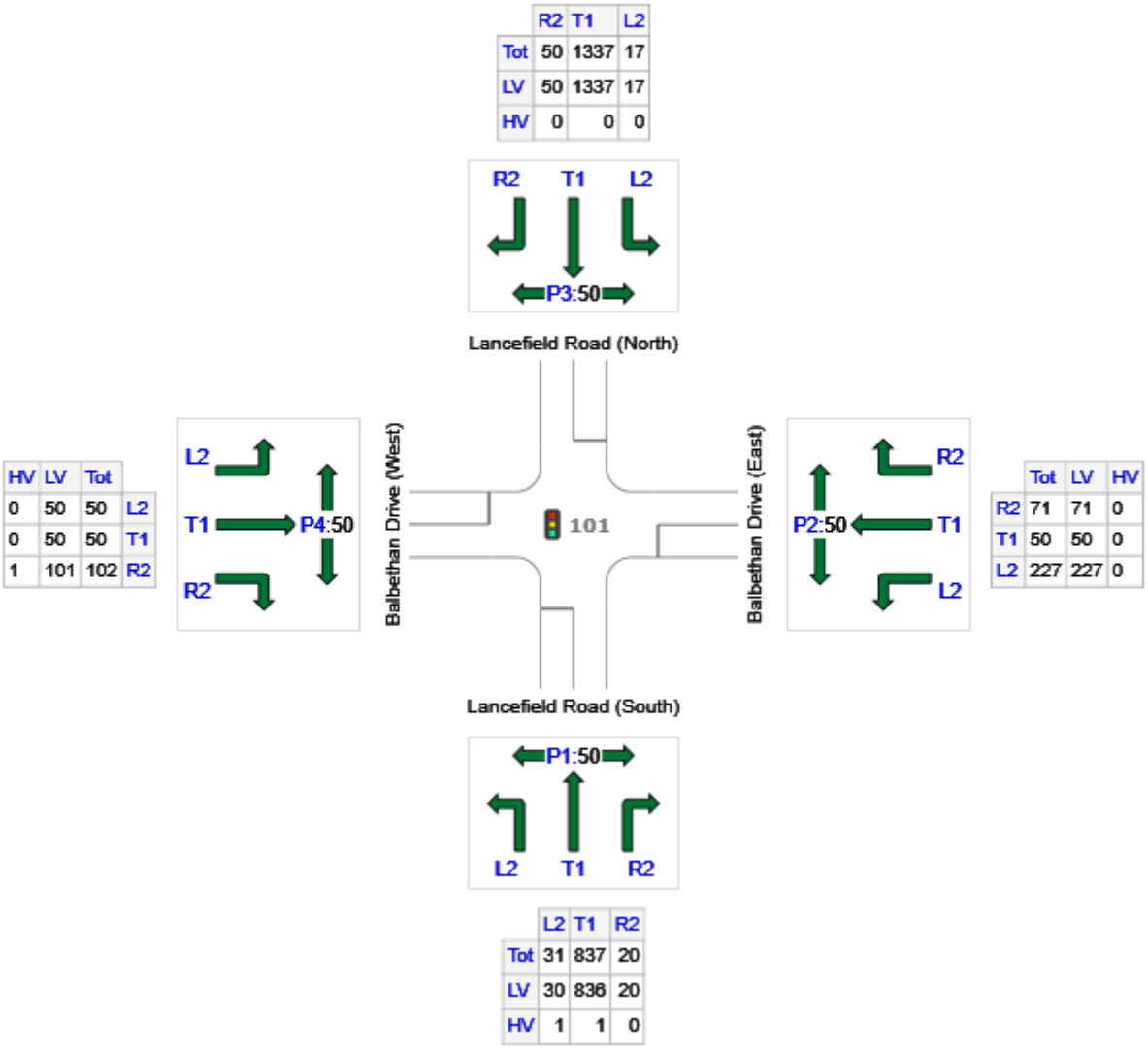
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



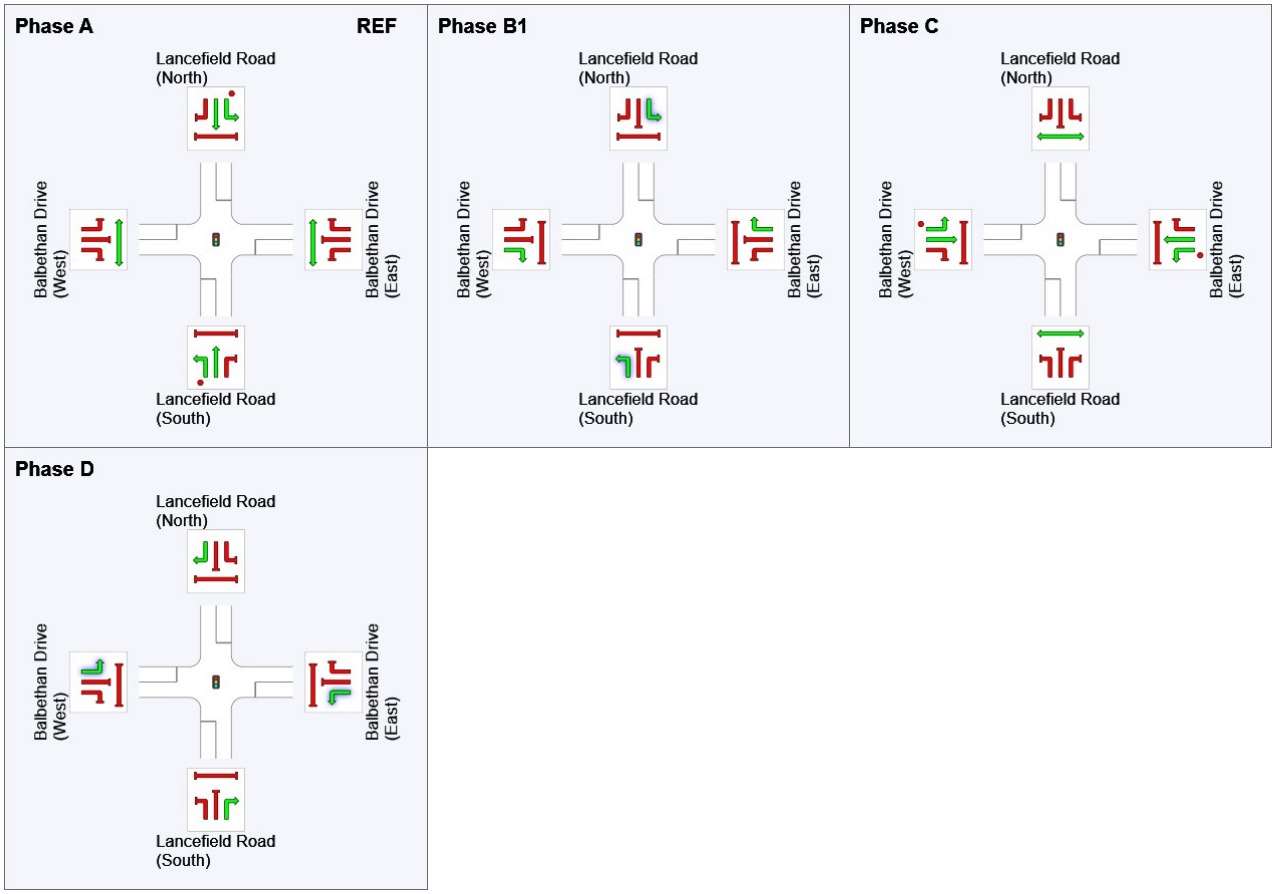
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	888	886	2
E: Balbethan Drive (East)	348	348	0
N: Lancefield Road (North)	1404	1404	0
W: Balbethan Drive (West)	202	201	1
Total	2842	2839	3

Phase Timing Summary

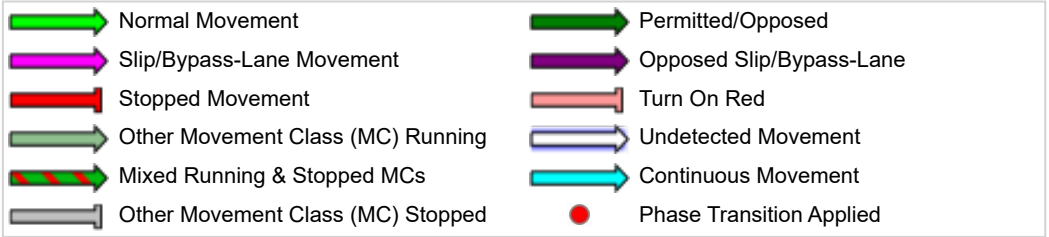
Phase	A	B1	C	D
Phase Change Time (sec)	0	59	72	98
Green Time (sec)	53	7	20	6
Phase Time (sec)	59	13	26	12
Phase Split	54%	12%	24%	11%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	31	3.2	990	0.031	100	15.2	LOS B	0.7	4.8	Short	100	0.0	NA
Lane 2	385	0.1	939	0.410	85[6]	19.6	LOS B	13.2	92.3	Short	120	0.0	NA
Lane 3	452	0.1	939	0.482	100	20.5	LOS C	16.2	113.5	Full	500	0.0	0.0
Lane 4	20	0.0	101	0.197	100	62.4	LOS E	1.1	7.6	Short	100	0.0	NA
Approach	888	0.2		0.482		20.8	LOS C	16.2	113.5				
East: Balbethan Drive (East)													
Lane 1	277	0.0	417	0.665	100	41.5	LOS D	12.8	89.8	Full	500	0.0	0.0
Lane 2	71	0.0	118	0.601	100	63.7	LOS E	4.0	28.0	Short	90	0.0	NA
Approach	348	0.0		0.665		46.0	LOS D	12.8	89.8				
North: Lancefield Road (North)													
Lane 1	17	0.0	1013	0.017	100	15.0	LOS B	0.4	2.5	Short	100	0.0	NA
Lane 2	636	0.0	938[1]	0.678	80[6]	23.4	LOS C	26.0	182.2	Full	500	0.0	0.0
Lane 3	701	0.0	824[1]	0.851	100	30.9	LOS C	33.9	237.2	Short	110	0.0	NA
Lane 4	50	0.0	101	0.494	100	64.1	LOS E	2.8	19.6	Short	100	0.0	NA
Approach	1404	0.0		0.851		28.5	LOS C	33.9	237.2				
West: Balbethan Drive (West)													
Lane 1	100	0.0	376	0.266	100	38.2	LOS D	4.3	30.0	Full	500	0.0	0.0
Lane 2	102	1.0	117	0.869	100	70.9	LOS E	6.2	44.0	Short	90	0.0	NA
Approach	202	0.5		0.869		54.7	LOS D	6.2	44.0				
Intersection	2842	0.1		0.869		30.1	LOS C	33.9	237.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

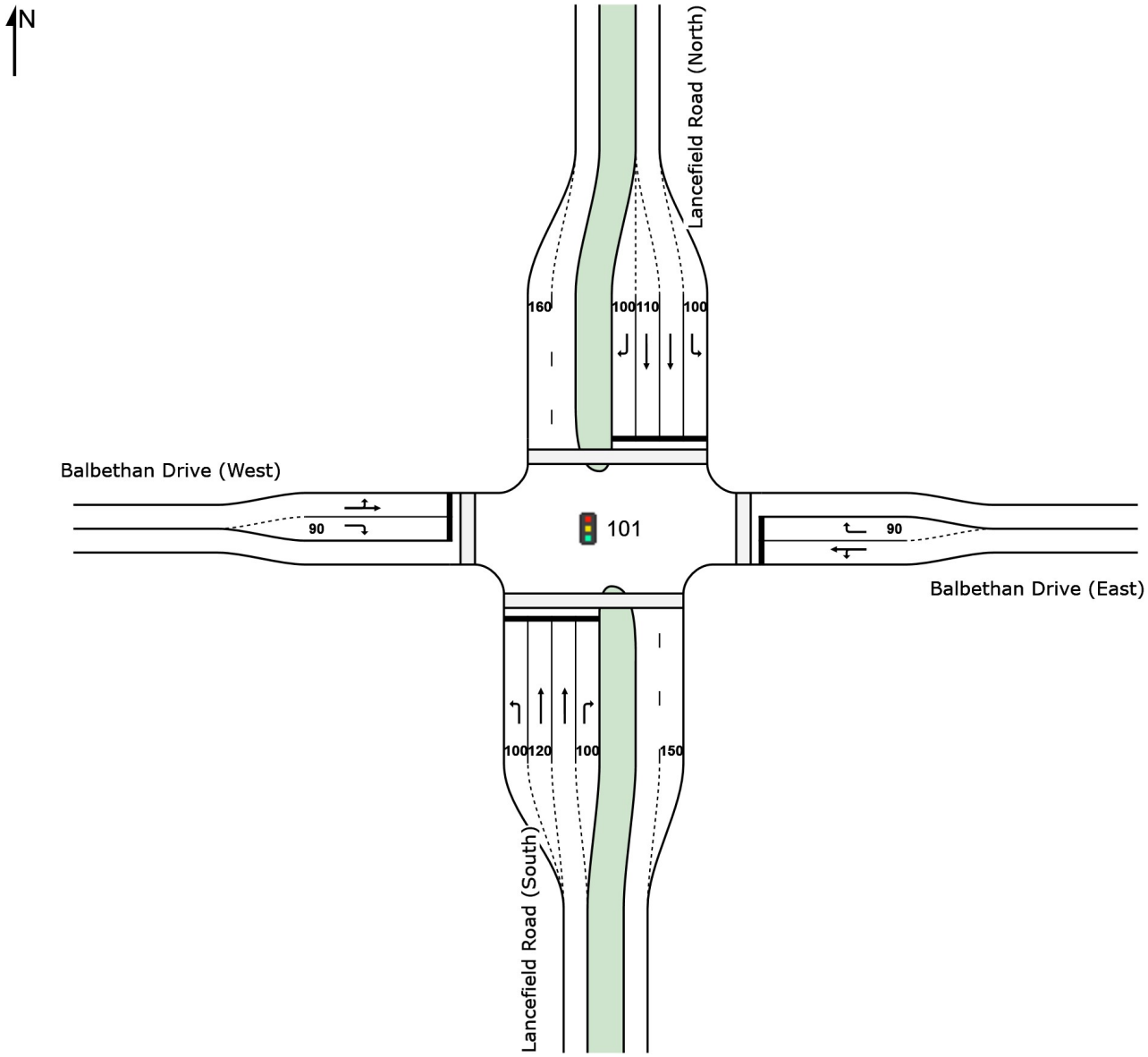
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-AM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

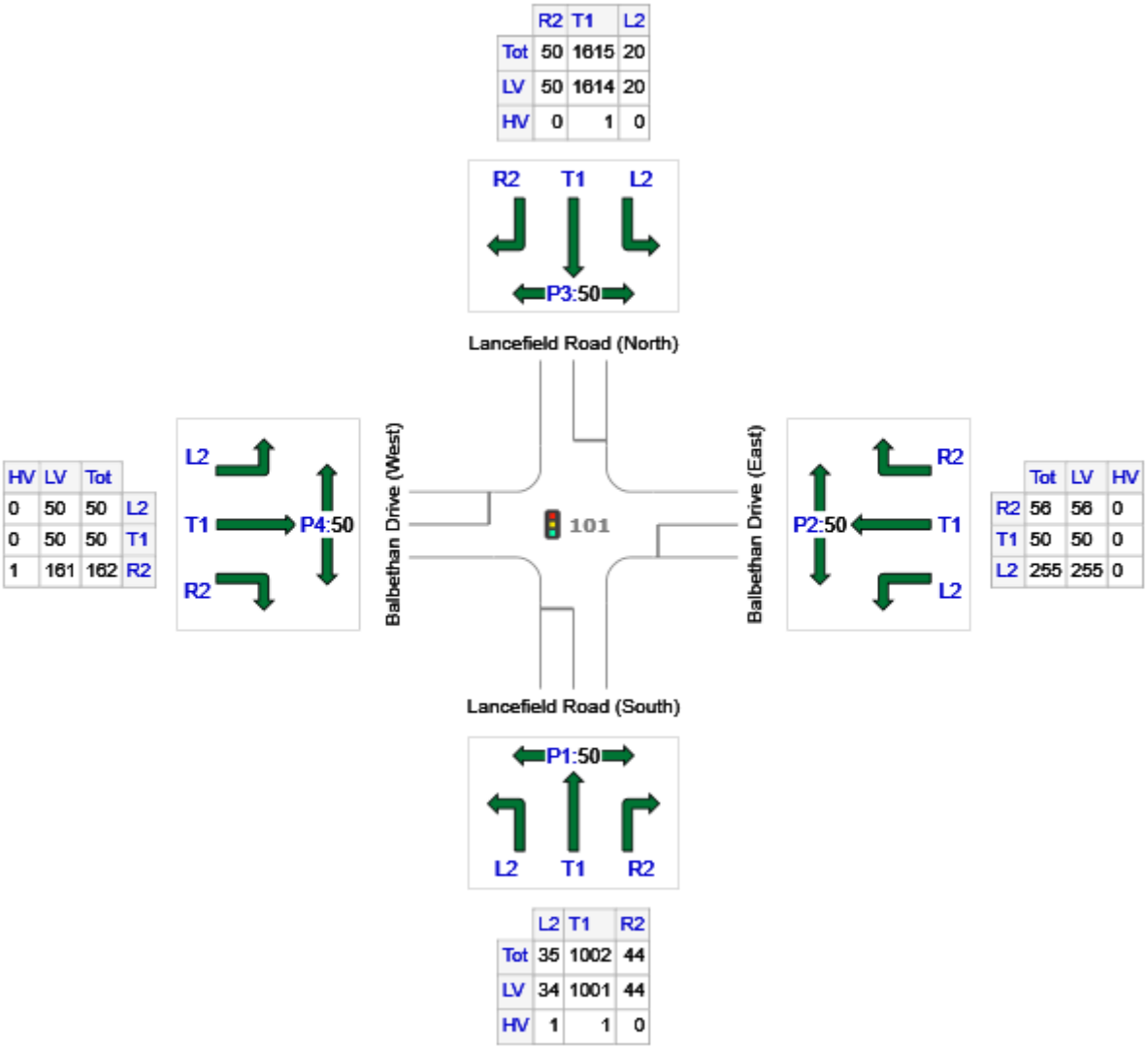
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



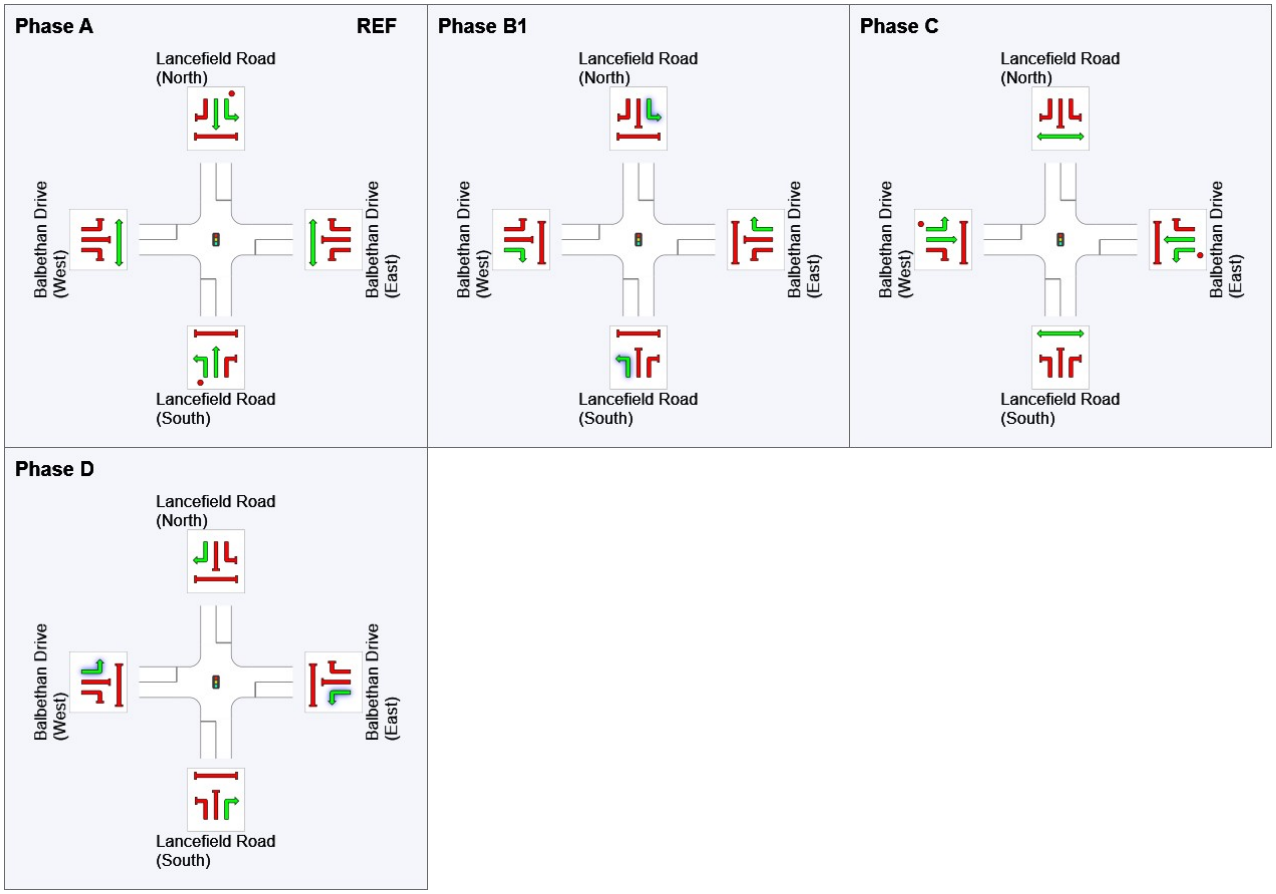
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1081	1079	2
E: Balbethan Drive (East)	361	361	0
N: Lancefield Road (North)	1685	1684	1
W: Balbethan Drive (West)	262	261	1
Total	3389	3385	4

Phase Timing Summary

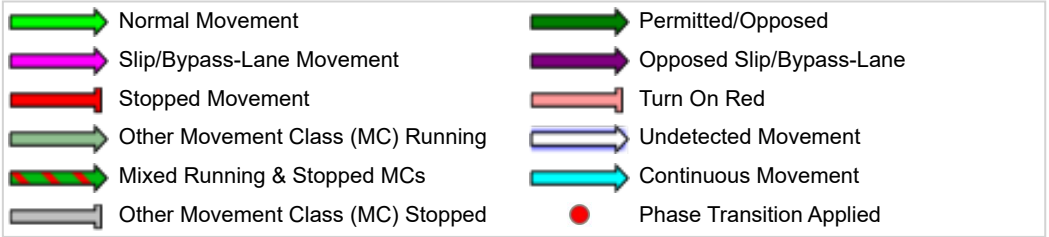
Phase	A	B1	C	D
Phase Change Time (sec)	0	83	100	128
Green Time (sec)	77	11	22	6
Phase Time (sec)	83	17	28	12
Phase Split	59%	12%	20%	9%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	35	2.9	1144	0.031	100	13.8	LOS B	0.8	5.6	Short	100	0.0	NA
Lane 2	461	0.1	1072	0.430	85[6]	19.6	LOS B	18.2	127.2	Short	120	0.0	NA
Lane 3	541	0.1	1072	0.505	100	20.7	LOS C	22.6	158.1	Full	500	0.0	0.0
Lane 4	44	0.0	80	0.553	100	81.7	LOS F	3.2	22.2	Short	100	0.0	NA
Approach	1081	0.2		0.553		22.5	LOS C	22.6	158.1				
East: Balbethan Drive (East)													
Lane 1	305	0.0	357	0.855	100	66.2	LOS E	21.2	148.5	Full	500	0.0	0.0
Lane 2	56	0.0	146	0.384	100	74.1	LOS E	3.8	26.4	Short	90	0.0	NA
Approach	361	0.0		0.855		67.4	LOS E	21.2	148.5				
North: Lancefield Road (North)													
Lane 1	20	0.0	1167	0.017	100	13.6	LOS B	0.4	3.1	Short	100	0.0	NA
Lane 2	674	0.1	714[1]	0.945	80[6]	55.0	LOS E	45.8	320.9	Full	500	0.0	69.7[8]
Lane 3	941	0.1	793[1]	1.186	100	232.0	LOS F	143.4	1004.3	Short	110	0.0	NA
Lane 4	50	0.0	80	0.628	100	82.4	LOS F	3.6	25.5	Short	100	0.0	NA
Approach	1685	0.1		1.186		154.2	LOS F	143.4	1004.3				
West: Balbethan Drive (West)													
Lane 1	100	0.0	323	0.310	100	52.5	LOS D	5.7	40.1	Full	500	0.0	0.0
Lane 2	162	0.6	145	1.115	100	192.4	LOS F	19.9	140.1	Short	90	0.0	NA
Approach	262	0.4		1.115		139.0	LOS F	19.9	140.1				
Intersection	3389	0.1		1.186		101.7	LOS F	143.4	1004.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

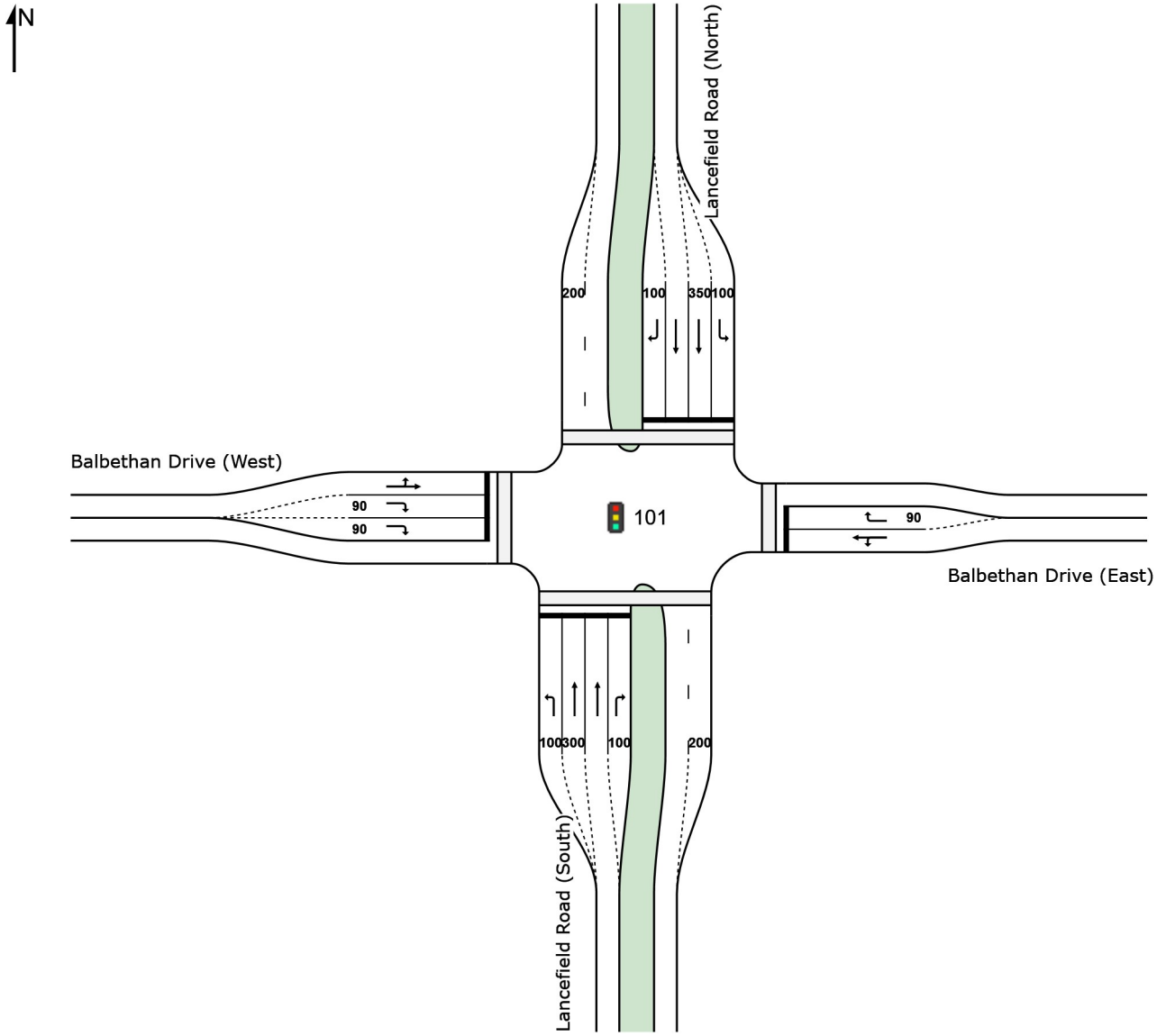
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Site: 101 [LR-IN-03-AM Peak - 75% (Option 2a) - GTA Design - DRT from West]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

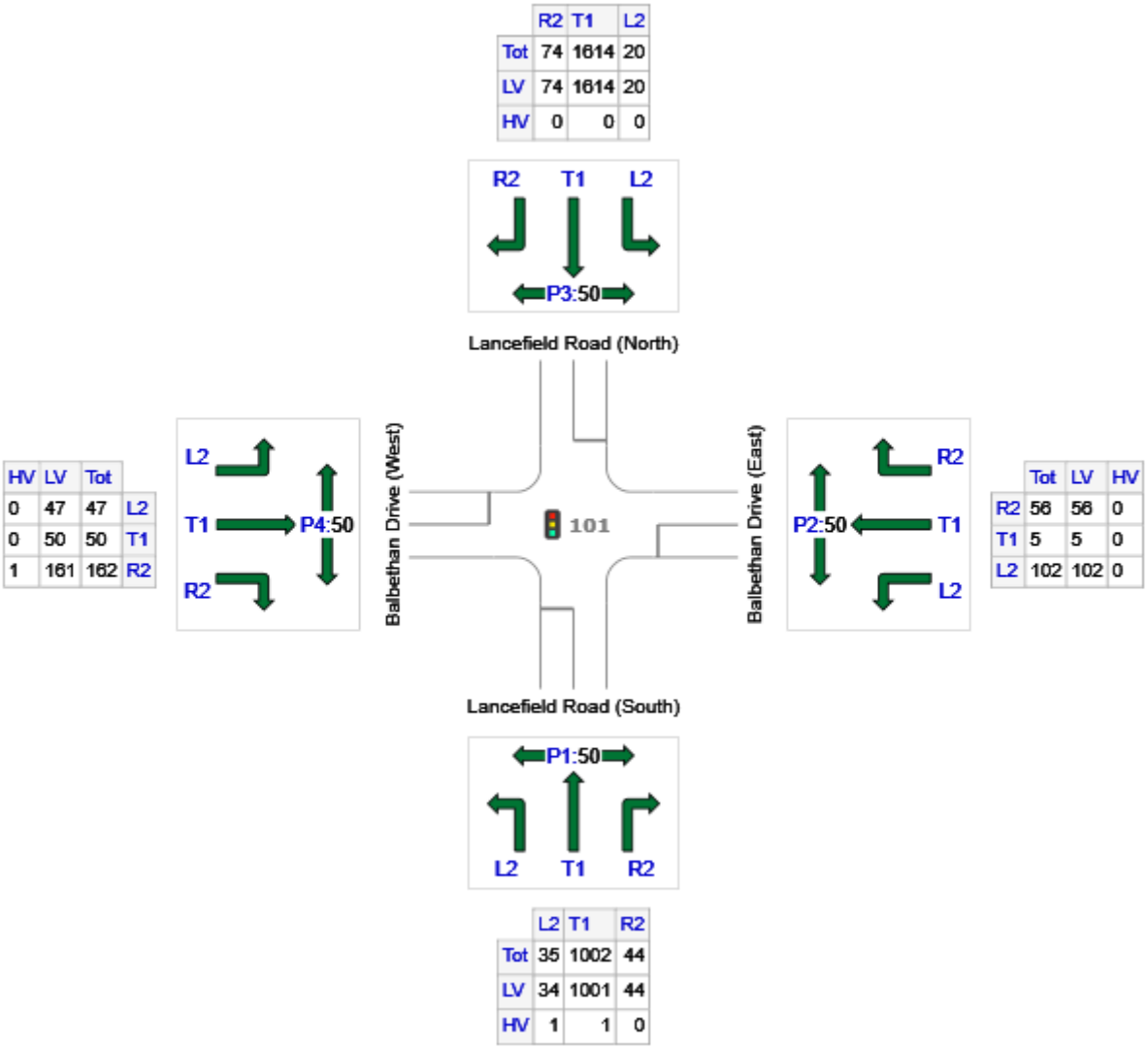
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



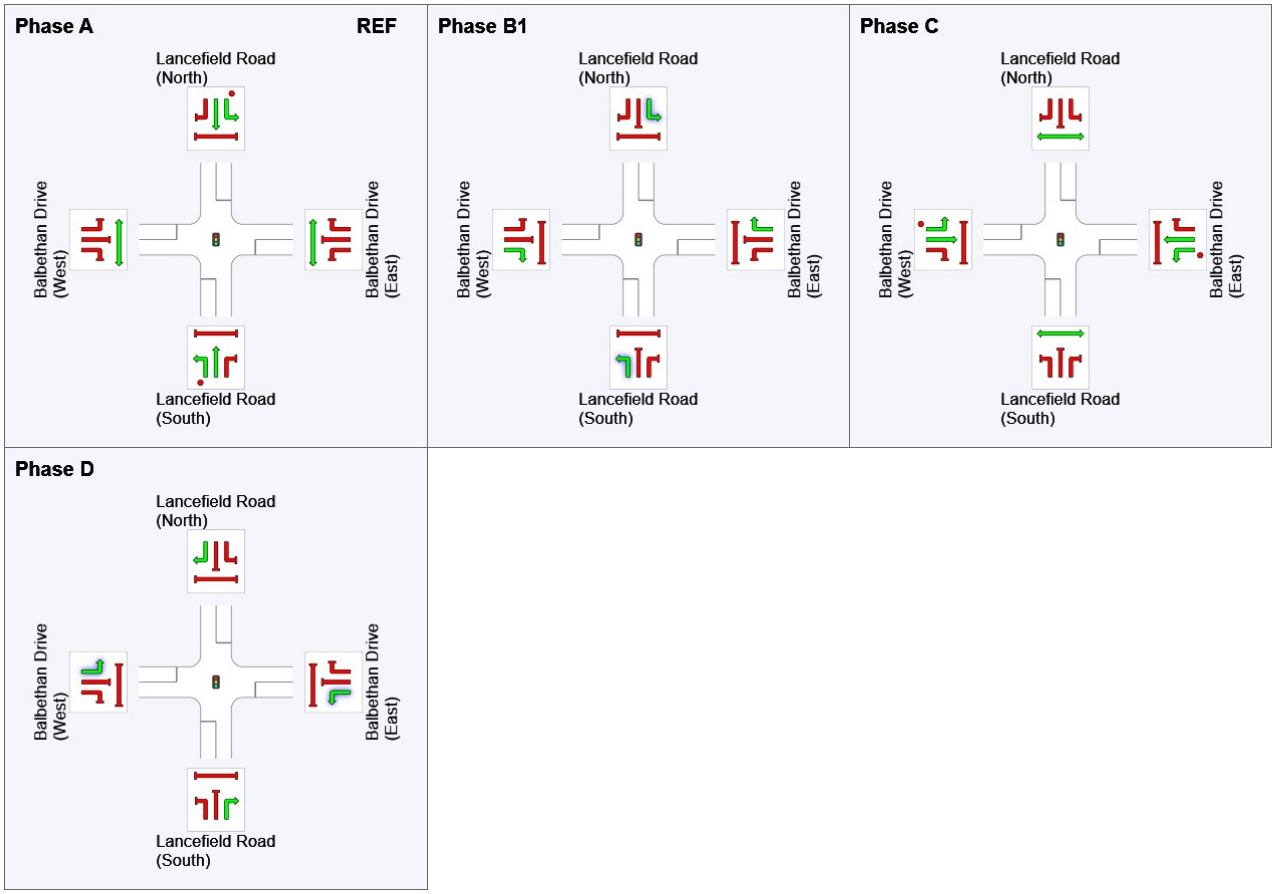
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1081	1079	2
E: Balbethan Drive (East)	163	163	0
N: Lancefield Road (North)	1708	1708	0
W: Balbethan Drive (West)	259	258	1
Total	3211	3208	3

Phase Timing Summary

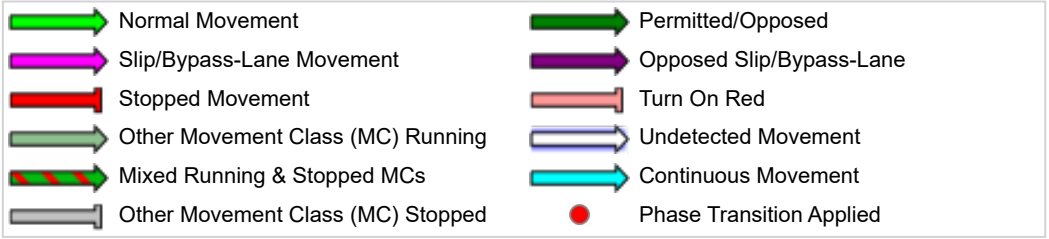
Phase	A	B1	C	D
Phase Change Time (sec)	0	60	72	98
Green Time (sec)	54	6	20	6
Phase Time (sec)	60	12	26	12
Phase Split	55%	11%	24%	11%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	35	2.9	993	0.035	100	15.2	LOS B	0.7	5.4	Short	100	0.0	NA
Lane 2	501	0.1	957	0.524	100	20.4	LOS C	18.2	127.7	Short	300	0.0	NA
Lane 3	501	0.1	957	0.524	100	20.4	LOS C	18.2	127.7	Full	500	0.0	0.0
Lane 4	44	0.0	101	0.434	100	63.8	LOS E	2.5	17.2	Short	100	0.0	NA
Approach	1081	0.2		0.524		22.0	LOS C	18.2	127.7				
East: Balbethan Drive (East)													
Lane 1	107	0.0	444	0.241	100	36.8	LOS D	4.3	30.3	Full	500	0.0	0.0
Lane 2	56	0.0	101	0.553	100	64.6	LOS E	3.2	22.2	Short	90	0.0	NA
Approach	163	0.0		0.553		46.3	LOS D	4.3	30.3				
North: Lancefield Road (North)													
Lane 1	20	0.0	1013	0.020	100	15.1	LOS B	0.4	3.0	Short	100	0.0	NA
Lane 2	822	0.0	949[1]	0.867	100	32.8	LOS C	43.0	301.3	Short	350	0.0	NA
Lane 3	792	0.0	914[1]	0.867	100	32.6	LOS C	40.8	285.3	Full	500	0.0	0.0
Lane 4	74	0.0	101	0.731	100	66.7	LOS E	4.3	30.2	Short	100	0.0	NA
Approach	1708	0.0		0.867		34.0	LOS C	43.0	301.3				
West: Balbethan Drive (West)													
Lane 1	97	0.0	375	0.259	100	38.1	LOS D	4.1	29.0	Full	500	0.0	0.0
Lane 2	81	0.6	101	0.803	100	68.6	LOS E	4.8	33.9	Short	90	0.0	NA
Lane 3	81	0.6	101	0.803	100	68.6	LOS E	4.8	33.9	Short	90	0.0	NA
Approach	259	0.4		0.803		57.2	LOS E	4.8	33.9				
Intersection	3211	0.1		0.867		32.5	LOS C	43.0	301.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

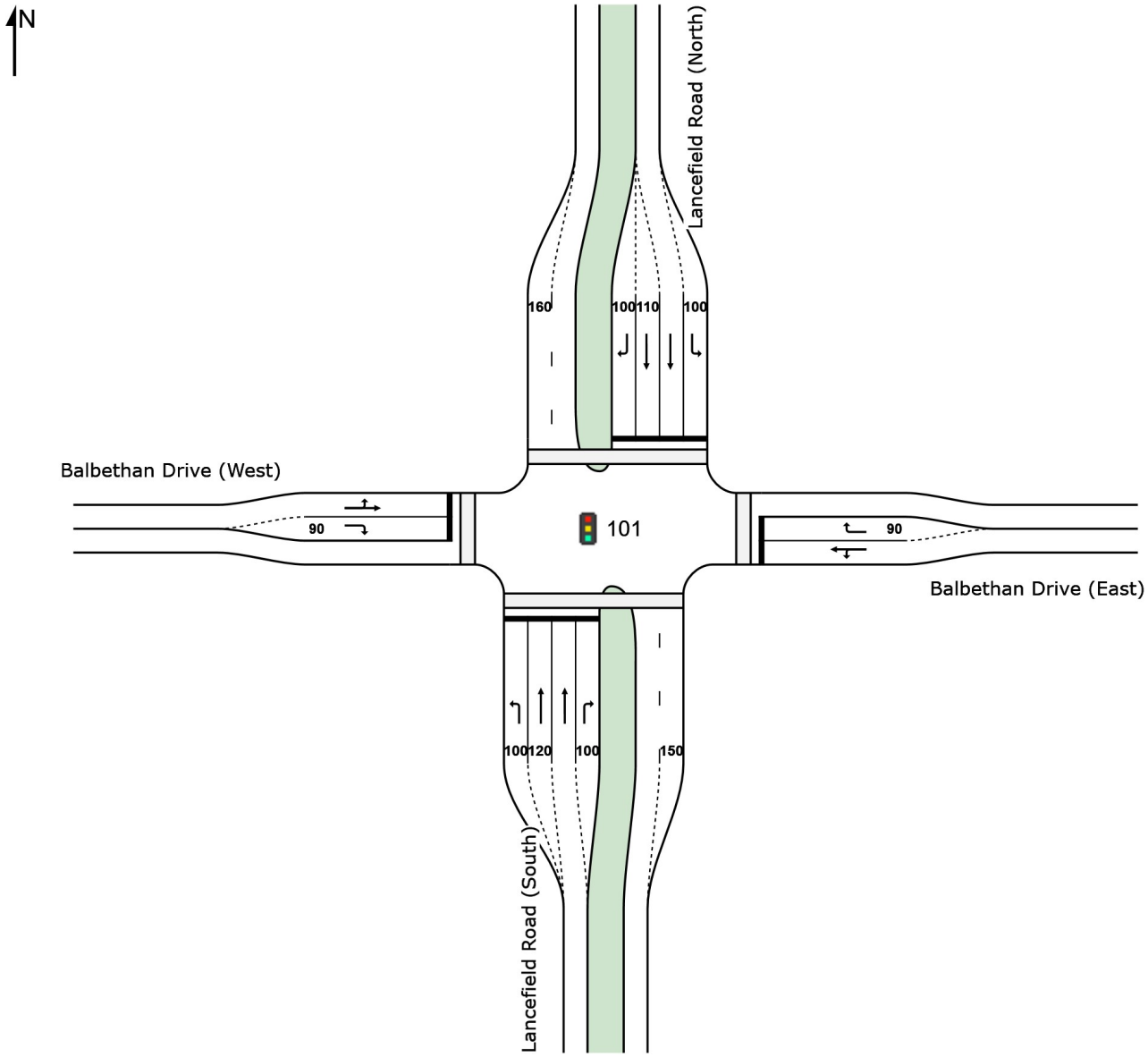
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: 101 [LR-IN-03-PM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

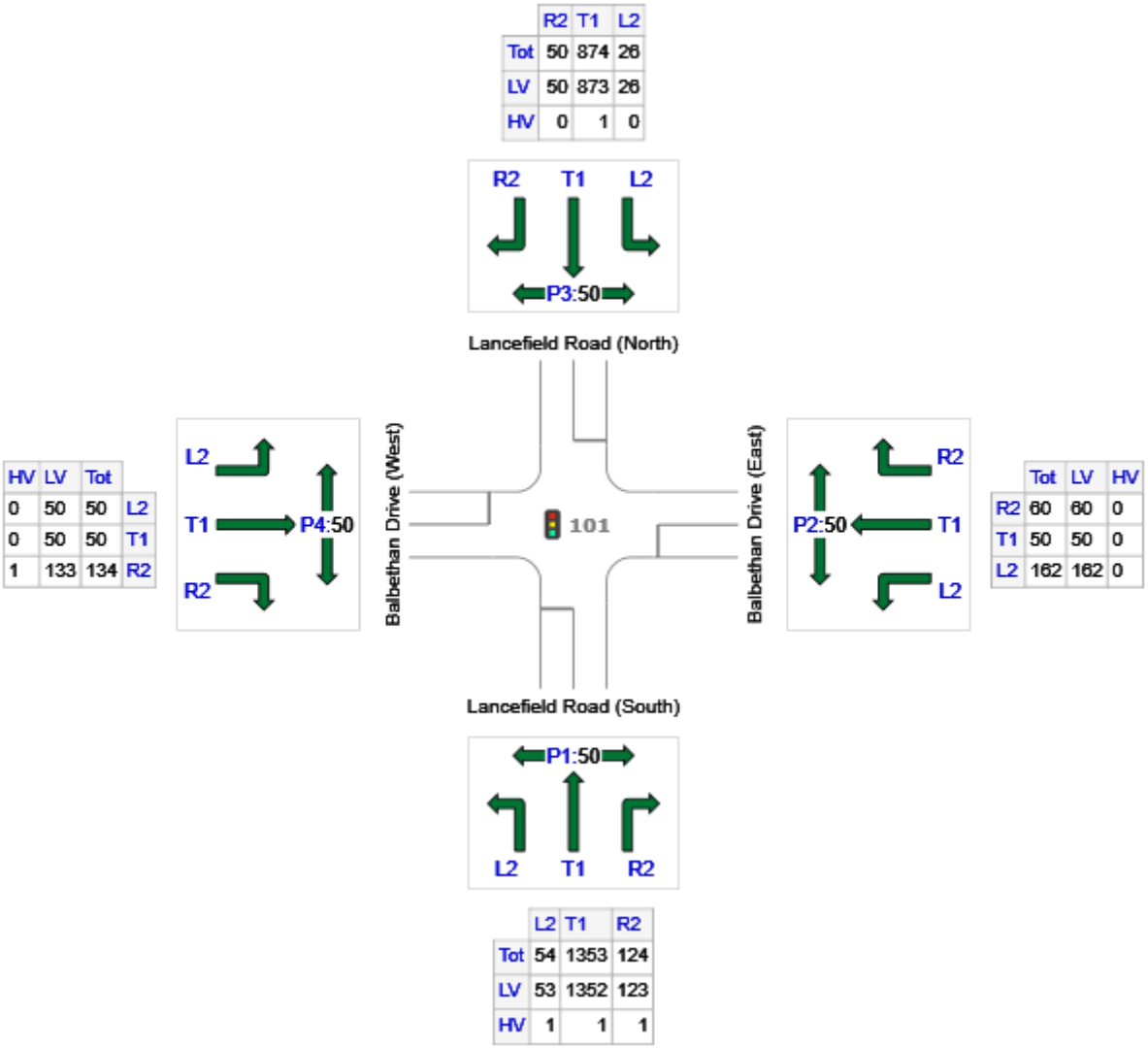
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1531	1528	3
E: Balbethan Drive (East)	272	272	0
N: Lancefield Road (North)	950	949	1
W: Balbethan Drive (West)	234	233	1
Total	2987	2982	5

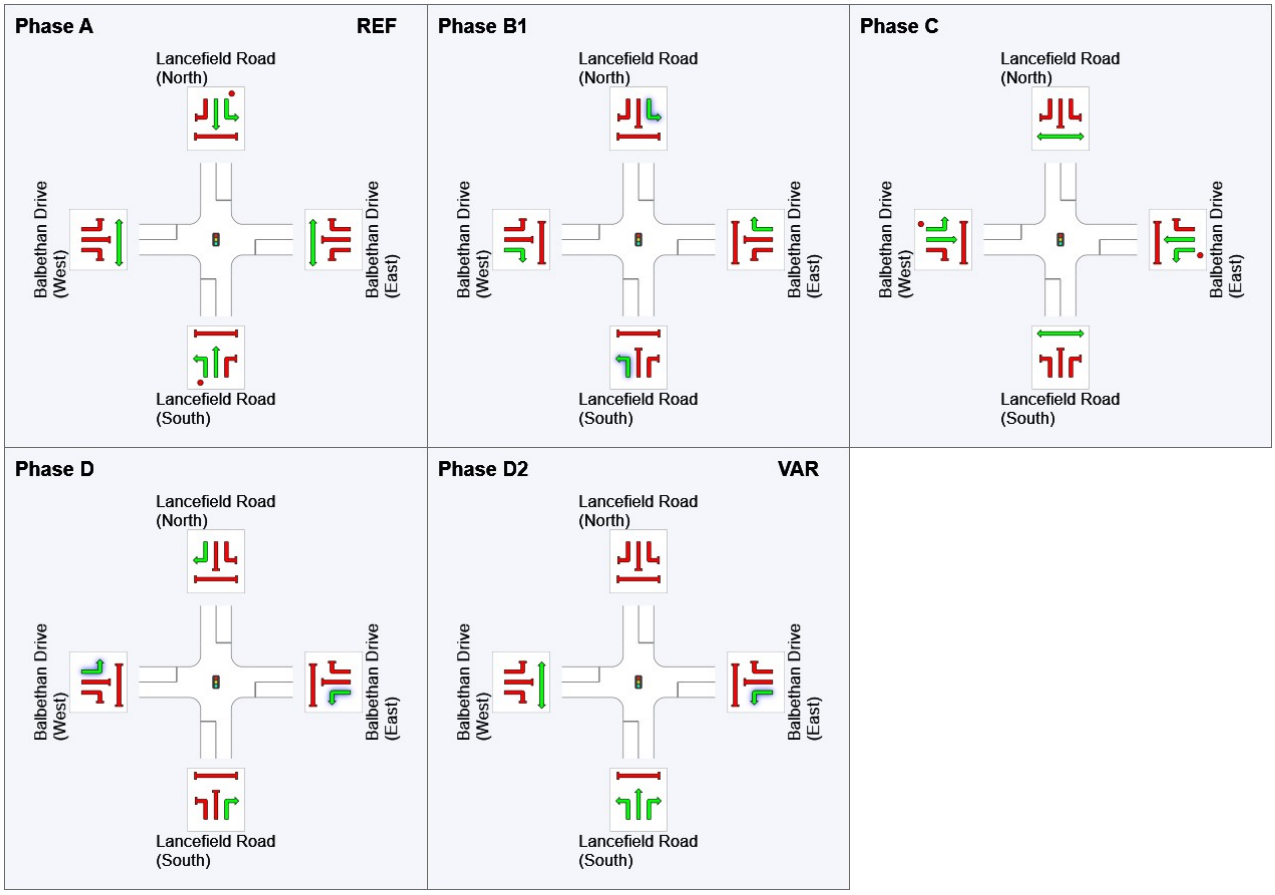
Phase Timing Summary

Phase	A	B1	C	D	D2
Phase Change Time (sec)	0	51	66	92	104
Green Time (sec)	45	9	20	6	***
Phase Time (sec)	51	15	26	12	6
Phase Split	46%	14%	24%	11%	5%

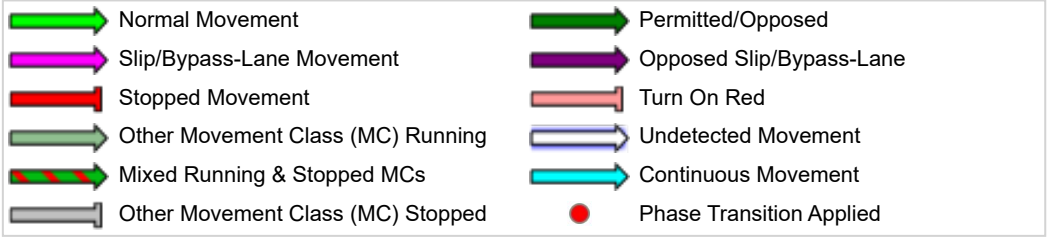
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	54	1.9	1000	0.054	100	15.3	LOS B	1.2	8.3	Short	100	0.0	NA
Lane 2	644	0.1	868[1]	0.742	85[6]	25.2	LOS C	27.5	192.3	Short	120	0.0	NA
Lane 3	709	0.1	814[1]	0.871	100	35.3	LOS D	36.9	258.5	Full	500	0.0	0.0
Lane 4	124	0.8	201	0.616	100	58.4	LOS E	6.7	47.0	Short	100	0.0	NA
Approach	1531	0.2		0.871		32.2	LOS C	36.9	258.5				
East: Balbethan Drive (East)													
Lane 1	212	0.0	430	0.493	100	38.7	LOS D	9.3	65.0	Full	500	0.0	0.0
Lane 2	60	0.0	152	0.395	100	59.8	LOS E	3.2	22.5	Short	90	0.0	NA
Approach	272	0.0		0.493		43.4	LOS D	9.3	65.0				
North: Lancefield Road (North)													
Lane 1	26	0.0	912	0.029	100	17.9	LOS B	0.6	4.4	Short	100	0.0	NA
Lane 2	388	0.1	797	0.486	80[6]	25.6	LOS C	15.2	106.8	Full	500	0.0	0.0
Lane 3	486	0.1	797	0.610	100	27.4	LOS C	20.4	143.3	Short	110	0.0	NA
Lane 4	50	0.0	101	0.494	100	64.1	LOS E	2.8	19.6	Short	100	0.0	NA
Approach	950	0.1		0.610		28.3	LOS C	20.4	143.3				
West: Balbethan Drive (West)													
Lane 1	100	0.0	376	0.266	100	38.2	LOS D	4.3	30.0	Full	500	0.0	0.0
Lane 2	134	0.7	151	0.887	100	71.1	LOS E	8.3	58.3	Short	90	0.0	NA
Approach	234	0.4		0.887		57.1	LOS E	8.3	58.3				
Intersection	2987	0.2		0.887		34.0	LOS C	36.9	258.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

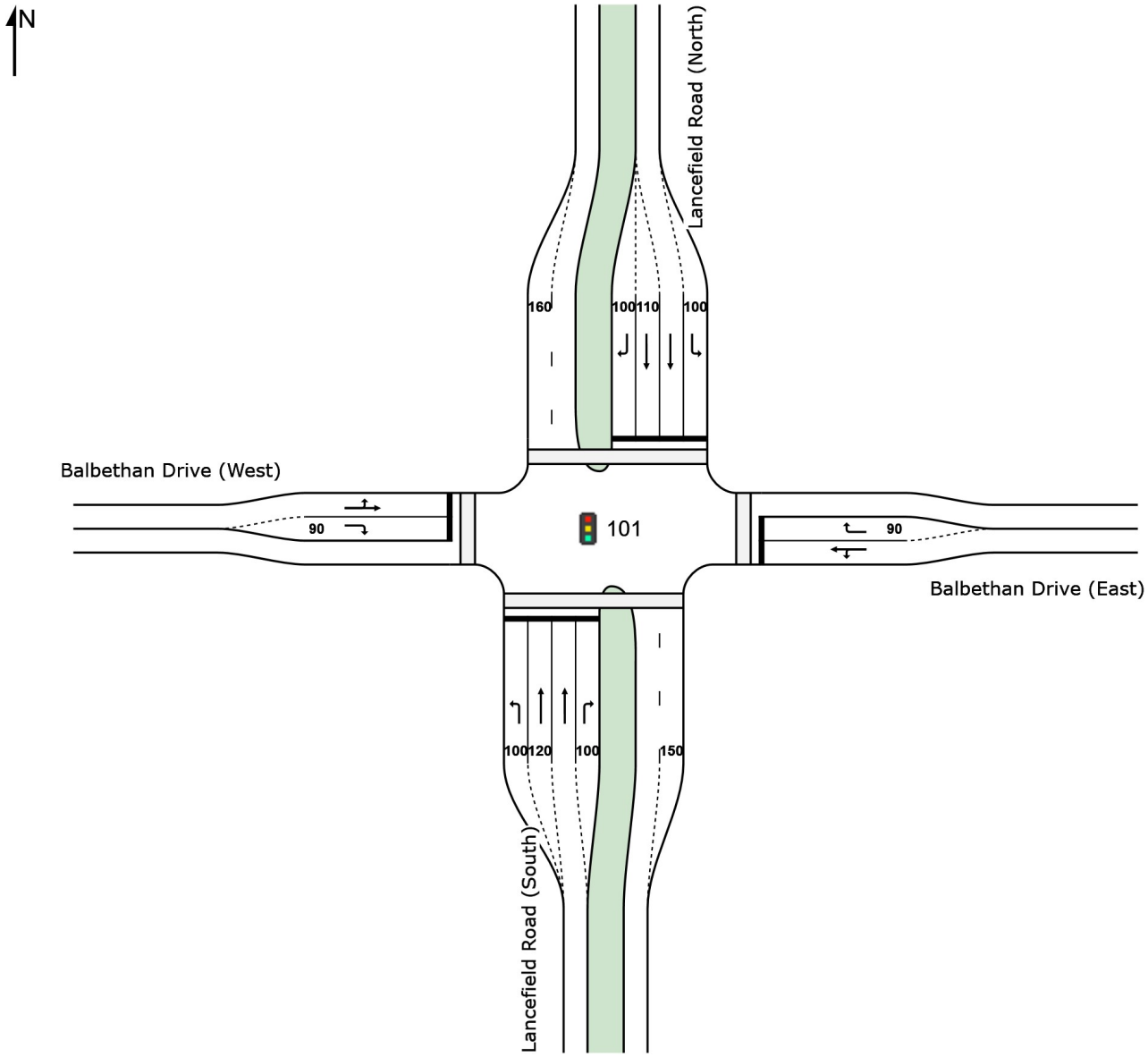
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-PM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

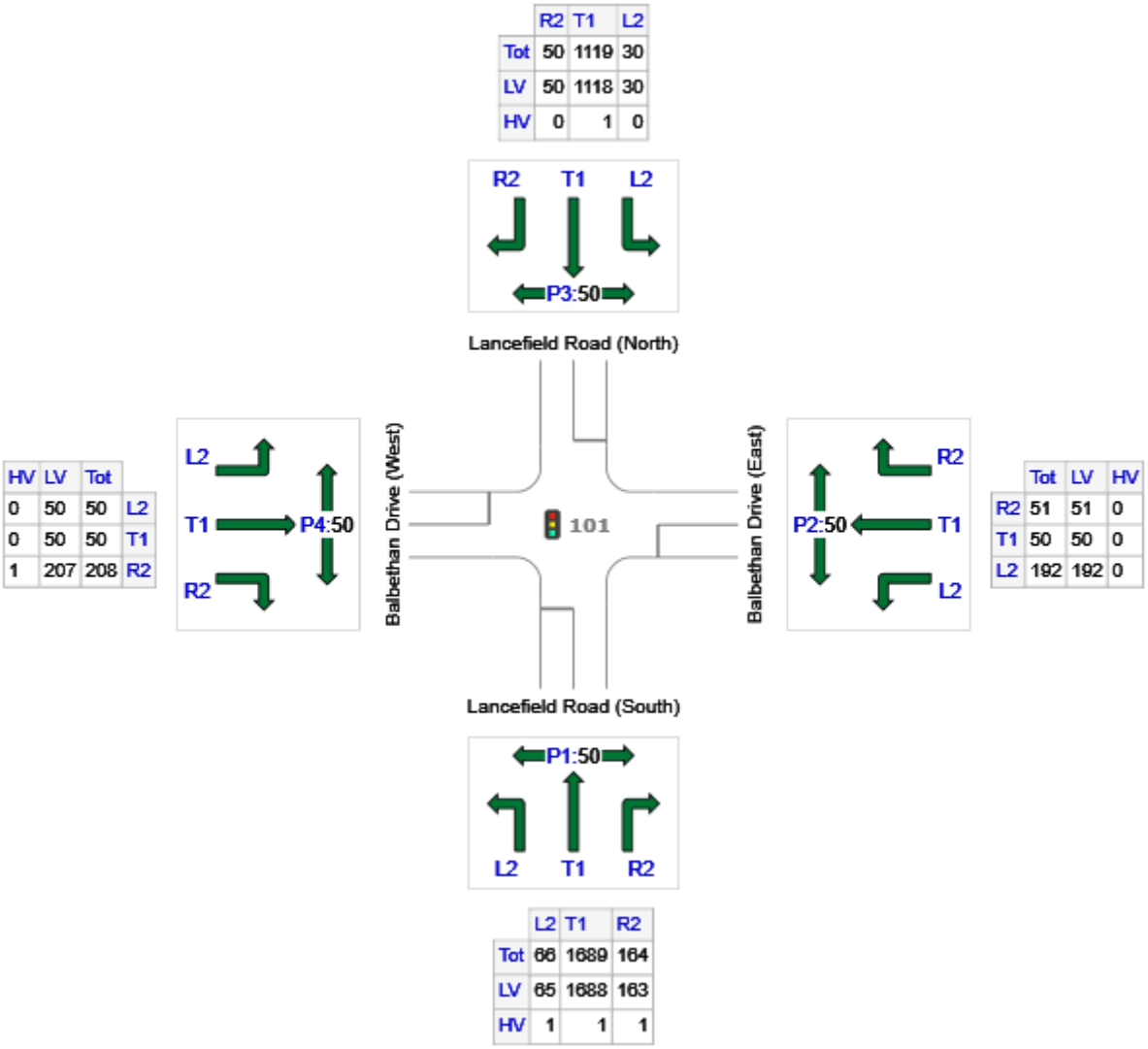
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, B3*, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1919	1916	3
E: Balbethan Drive (East)	293	293	0
N: Lancefield Road (North)	1199	1198	1
W: Balbethan Drive (West)	308	307	1
Total	3719	3714	5

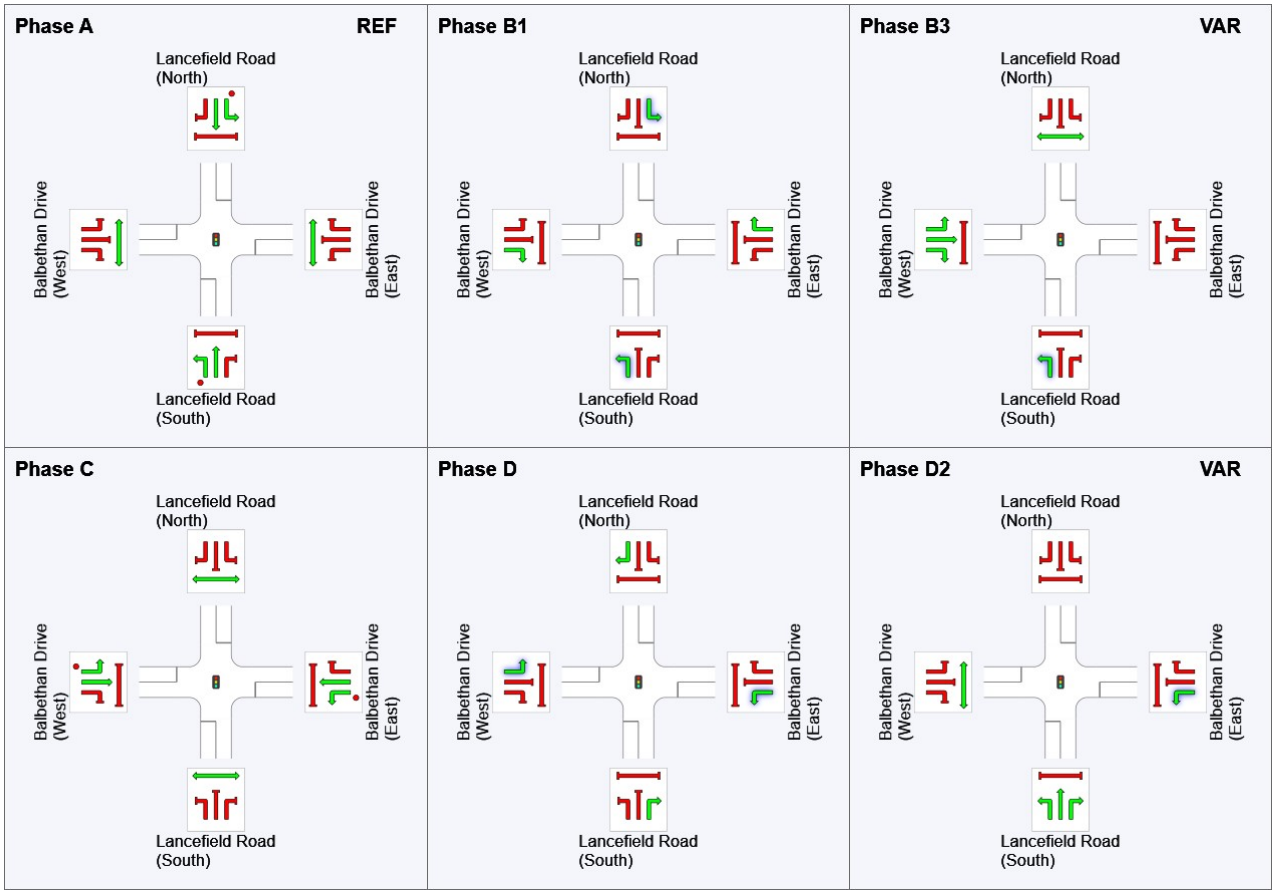
Phase Timing Summary

Phase	A	B1	B3	C	D	D2
Phase Change Time (sec)	0	70	88	89	117	129
Green Time (sec)	64	12	***	22	6	5
Phase Time (sec)	70	18	1	28	12	11
Phase Split	50%	13%	1%	20%	9%	8%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

Normal Movement	Permitted/Opposed
Slip/Bypass-Lane Movement	Opposed Slip/Bypass-Lane
Stopped Movement	Turn On Red
Other Movement Class (MC) Running	Undetected Movement
Mixed Running & Stopped MCs	Continuous Movement
Other Movement Class (MC) Stopped	Phase Transition Applied

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	66	1.5	1155	0.057	100	13.9	LOS B	1.5	10.6	Short	100	0.0	NA
Lane 2	731	0.1	702[1]	1.041	85[6]	121.3	LOS F	83.0	581.2	Short	120	0.0	NA
Lane 3	958	0.1	783[1]	1.224	100	264.6	LOS F	155.0	1085.7	Full	500	0.0	77.3
Lane 4	164	0.6	225	0.730	100	72.8	LOS E	11.3	79.8	Short	100	0.0	NA
Approach	1919	0.2		1.224		185.0	LOS F	155.0	1085.7				
East: Balbethan Drive (East)													
Lane 1	242	0.0	382	0.634	100	54.1	LOS D	14.5	101.5	Full	500	0.0	0.0
Lane 2	51	0.0	159	0.320	100	72.5	LOS E	3.4	23.7	Short	90	0.0	NA
Approach	293	0.0		0.634		57.3	LOS E	14.5	101.5				
North: Lancefield Road (North)													
Lane 1	30	0.0	1008	0.030	100	18.5	LOS B	0.8	5.9	Short	100	0.0	NA
Lane 2	535	0.1	887[1]	0.603	80[6]	30.1	LOS C	26.9	188.4	Full	500	0.0	0.0
Lane 3	584	0.1	772[1]	0.757	100	31.2	LOS C	30.5	213.6	Short	110	0.0	NA
Lane 4	50	0.0	80	0.628	100	82.4	LOS F	3.6	25.5	Short	100	0.0	NA
Approach	1199	0.1		0.757		32.6	LOS C	30.5	213.6				
West: Balbethan Drive (West)													
Lane 1	100	0.0	336	0.297	100	51.6	LOS D	5.7	39.6	Full	500	0.0	0.0
Lane 2	208	0.5	172	1.210	100	268.6	LOS F	31.1	218.3	Short	90	0.0	NA
Approach	308	0.3		1.210		198.1	LOS F	31.1	218.3				
Intersection	3719	0.1		1.224		126.9	LOS F	155.0	1085.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

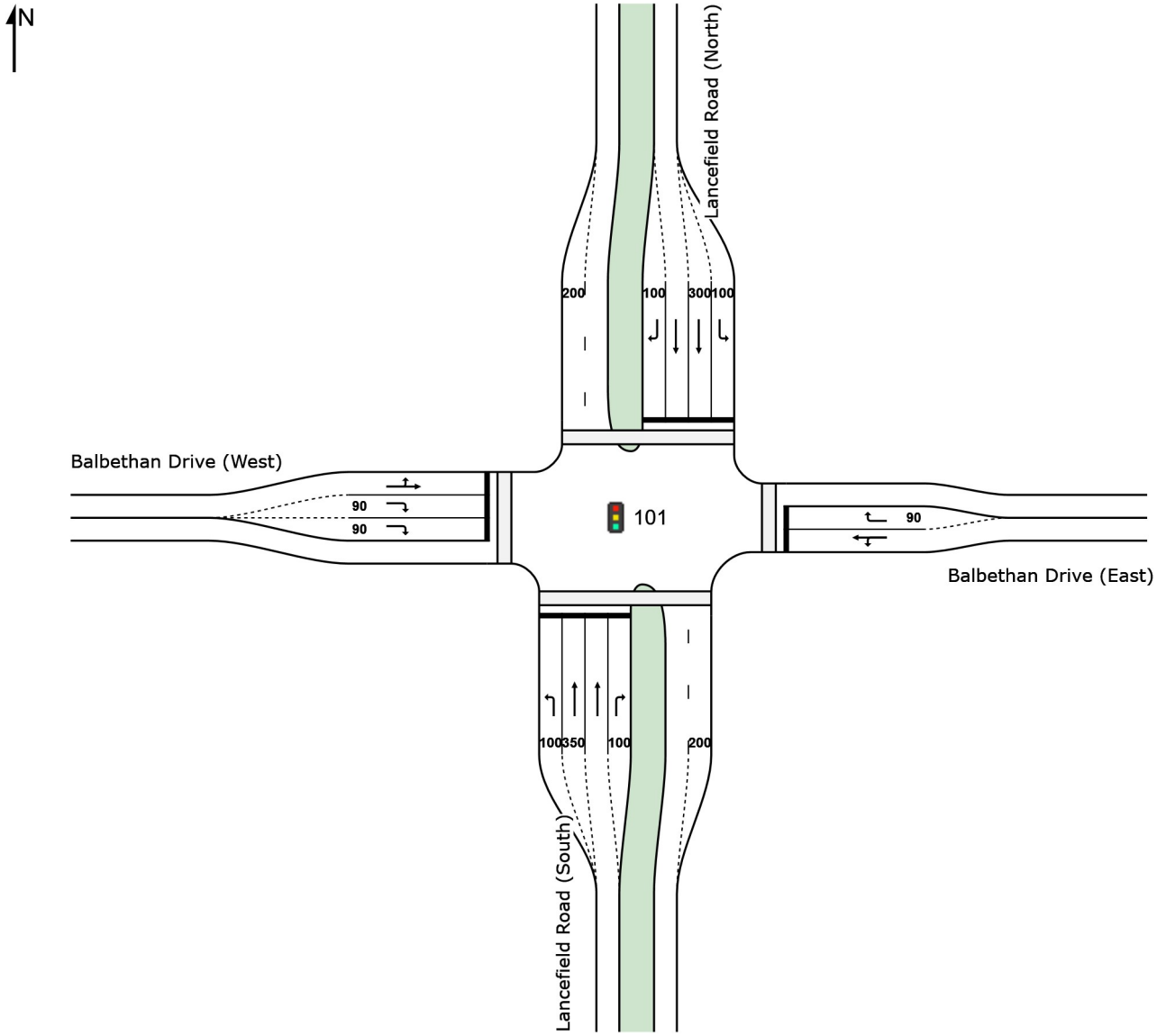
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-PM Peak - 75% (Option 2a)- GTA Design - DRT from West]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

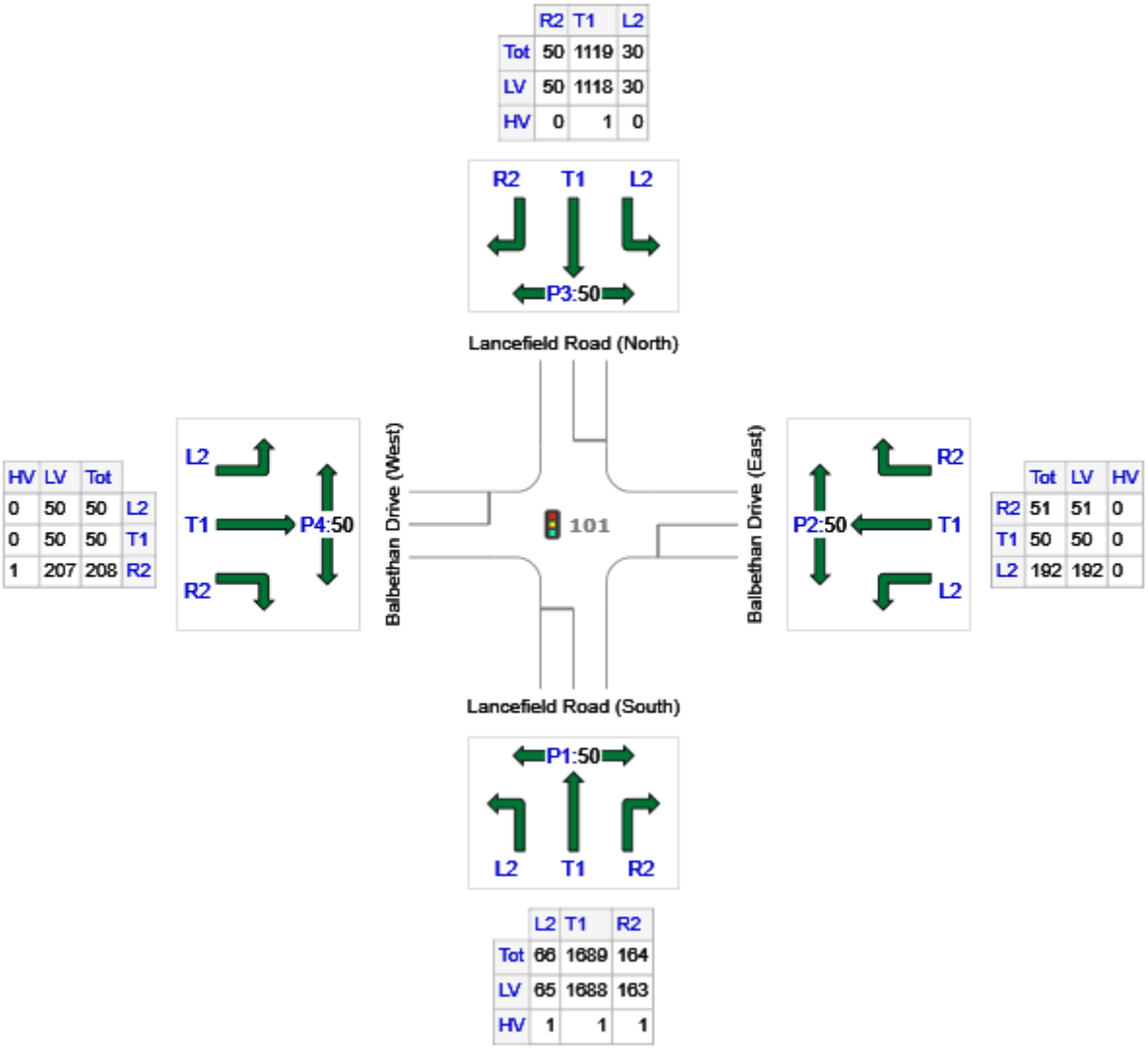
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



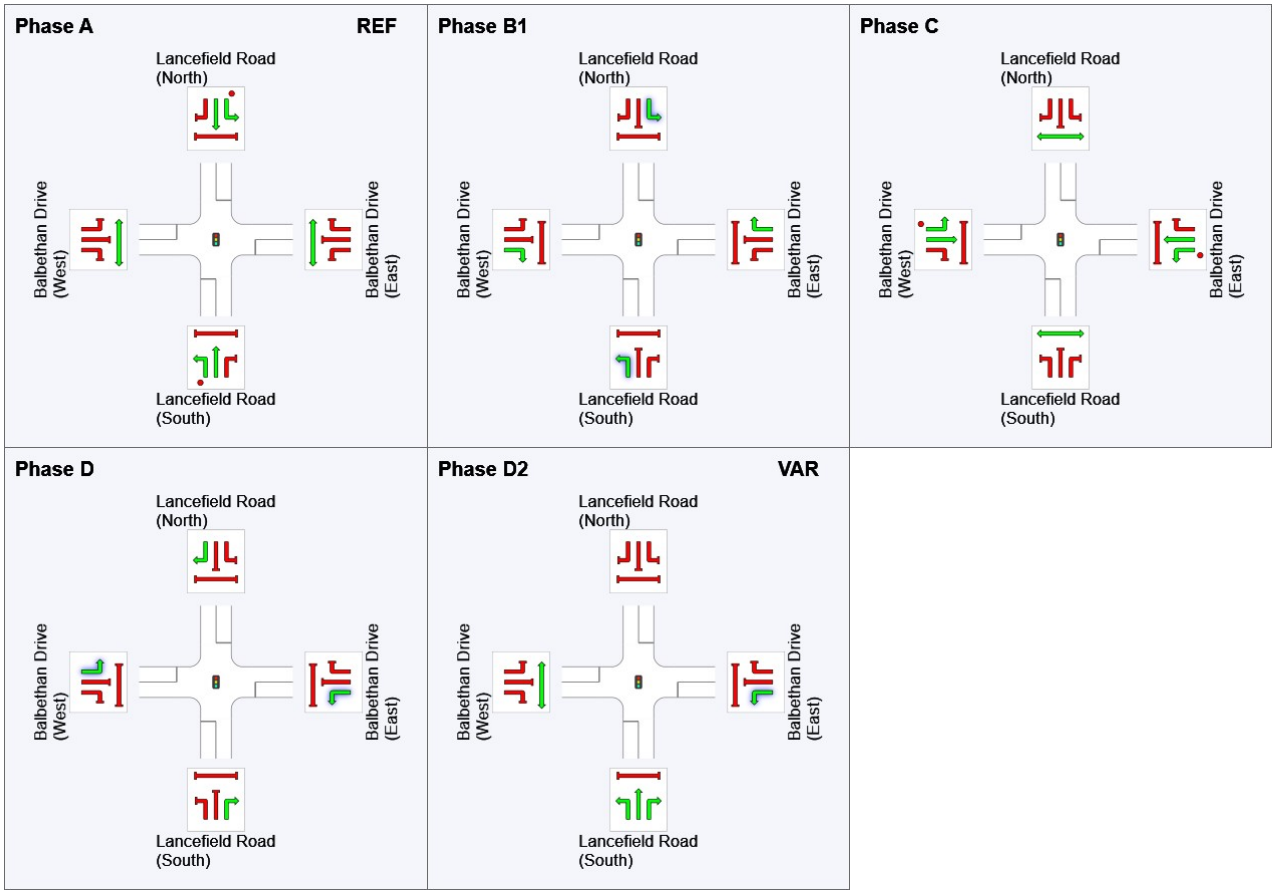
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1919	1916	3
E: Balbethan Drive (East)	293	293	0
N: Lancefield Road (North)	1199	1198	1
W: Balbethan Drive (West)	308	307	1
Total	3719	3714	5

Phase Timing Summary

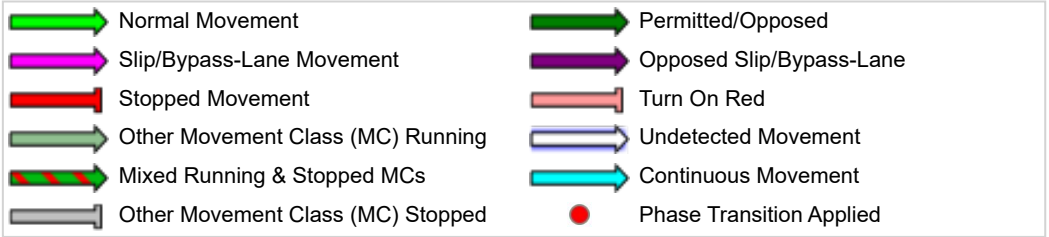
Phase	A	B1	C	D	D2
Phase Change Time (sec)	0	64	79	106	118
Green Time (sec)	58	9	21	6	6
Phase Time (sec)	64	15	27	12	12
Phase Split	49%	12%	21%	9%	9%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	66	1.5	1117	0.059	100	14.2	LOS B	1.5	10.4	Short	100	0.0	NA
Lane 2	873	0.1	1001[1]	0.872	100	32.0	LOS C	49.7	347.9	Short	350	0.0	NA
Lane 3	816	0.1	935[1]	0.872	100	31.8	LOS C	45.0	315.1	Full	500	0.0	0.0
Lane 4	164	0.6	256	0.641	100	64.1	LOS E	10.1	71.1	Short	100	0.0	NA
Approach	1919	0.2		0.872		34.0	LOS C	49.7	347.9				
East: Balbethan Drive (East)													
Lane 1	242	0.0	398	0.608	100	49.3	LOS D	13.3	93.0	Full	500	0.0	0.0
Lane 2	51	0.0	129	0.397	100	71.0	LOS E	3.2	22.7	Short	90	0.0	NA
Approach	293	0.0		0.608		53.1	LOS D	13.3	93.0				
North: Lancefield Road (North)													
Lane 1	30	0.0	957	0.031	100	19.0	LOS B	0.8	5.8	Short	100	0.0	NA
Lane 2	571	0.1	864[1]	0.661	100	30.0	LOS C	28.0	196.5	Short	300	0.0	NA
Lane 3	548	0.1	828[1]	0.661	100	29.5	LOS C	26.4	185.1	Full	500	0.0	0.0
Lane 4	50	0.0	86	0.583	100	76.3	LOS E	3.4	23.5	Short	100	0.0	NA
Approach	1199	0.1		0.661		31.4	LOS C	28.0	196.5				
West: Balbethan Drive (West)													
Lane 1	100	0.0	333	0.301	100	48.1	LOS D	5.3	36.9	Full	500	0.0	0.0
Lane 2	104	0.5	128	0.812	100	77.4	LOS E	7.2	50.4	Short	90	0.0	NA
Lane 3	104	0.5	128	0.812	100	77.4	LOS E	7.2	50.4	Short	90	0.0	NA
Approach	308	0.3		0.812		67.9	LOS E	7.2	50.4				
Intersection	3719	0.1		0.872		37.5	LOS D	49.7	347.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

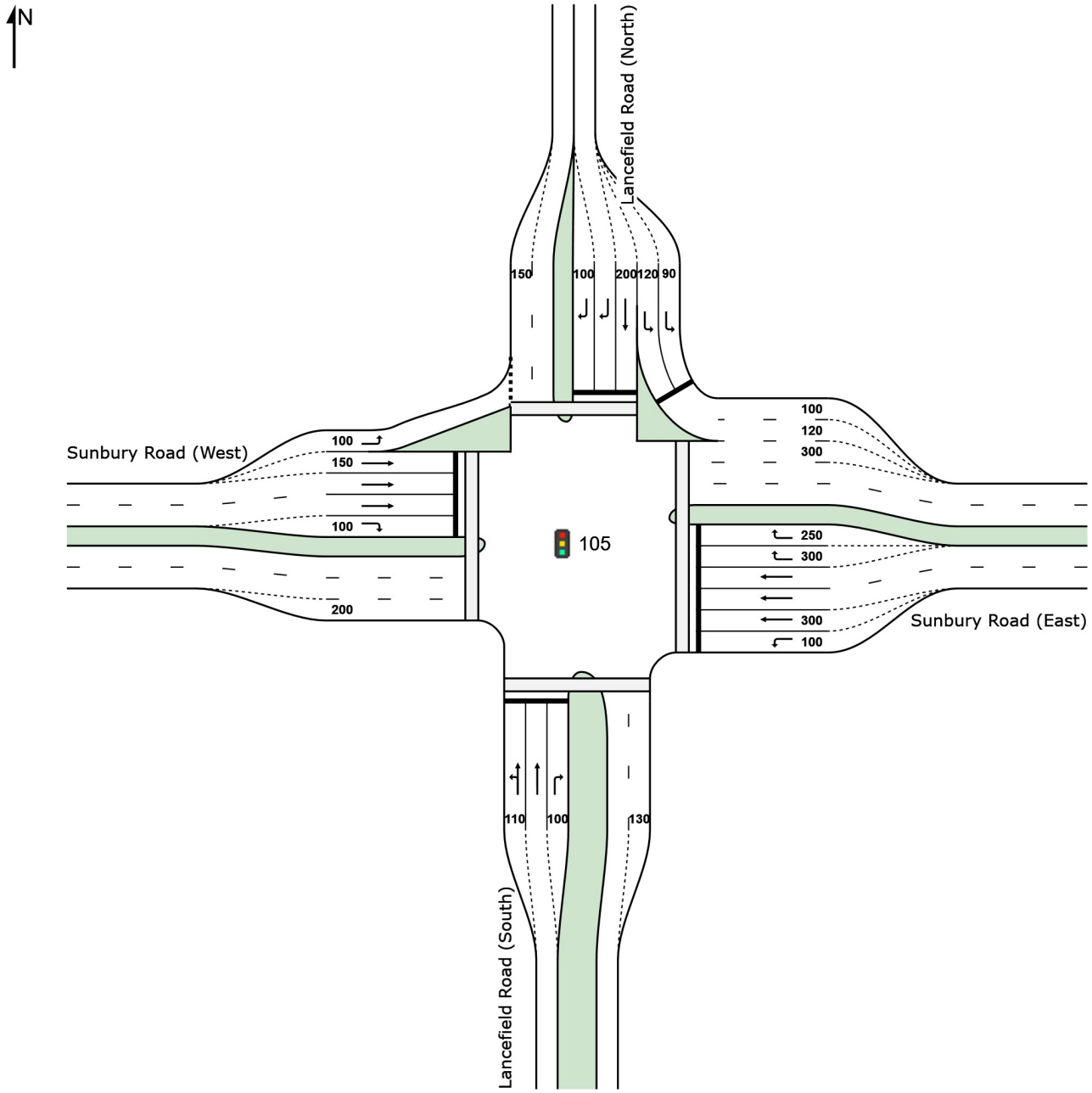
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

Site: 105 [SS-IN-03-AM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

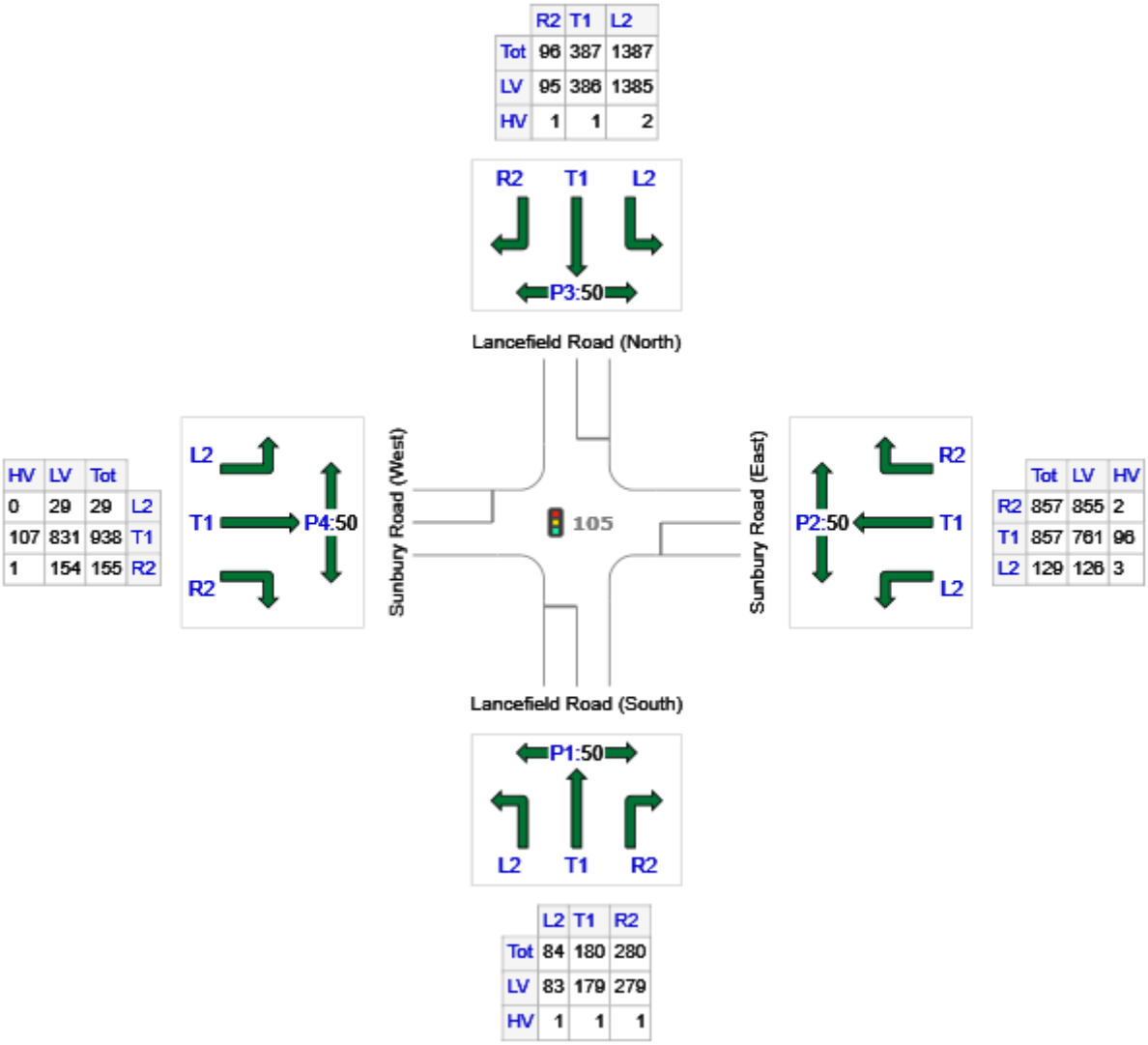
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
150
100
200
120
90
100
120
300
Sunbury Road (West)
100
150
100
105
250
300
300
100
200
Sunbury Road (East)
110
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



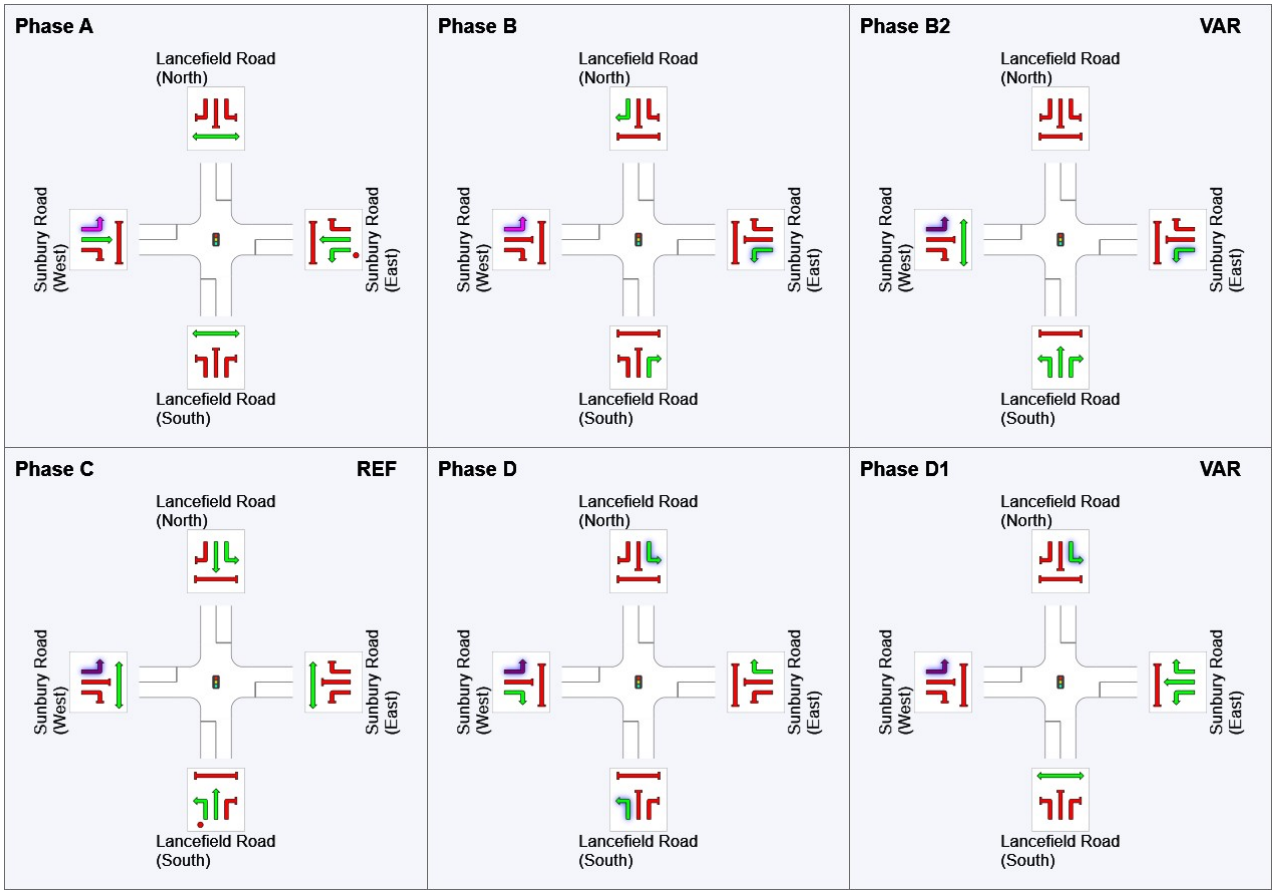
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	544	541	3
E: Sunbury Road (East)	1843	1742	101
N: Lancefield Road (North)	1870	1866	4
W: Sunbury Road (West)	1122	1014	108
Total	5379	5163	216

Phase Timing Summary

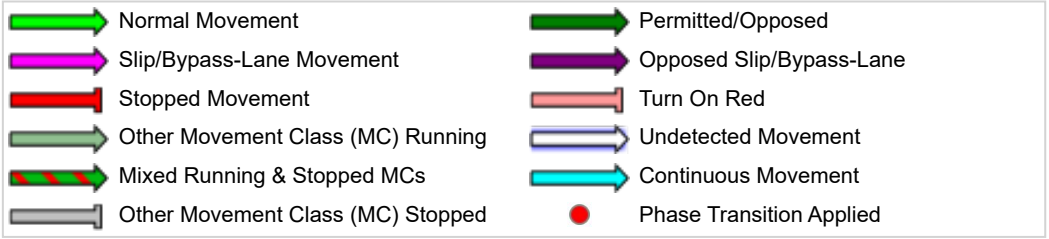
Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	85	114	126	0	39	63
Green Time (sec)	23	6	8	33	18	16
Phase Time (sec)	29	12	14	39	24	22
Phase Split	21%	9%	10%	28%	17%	16%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	130	1.0	676	0.193	94[6]	31.8	LOS C	5.6	39.5	Short	110	0.0	NA
Lane 2	134	0.6	652	0.205	100	35.2	LOS D	6.4	45.1	Full	500	0.0	0.0
Lane 3	280	0.4	265	1.058	100	150.3	LOS F	30.5	214.0	Short	100	0.0	NA
Approach	544	0.6		1.058		93.6	LOS F	30.5	214.0				
East: Sunbury Road (East)													
Lane 1	129	2.3	848	0.152	100	25.2	LOS C	4.6	33.0	Short	100	0.0	NA
Lane 2	286	11.2	584	0.489	100	40.9	LOS D	15.6	119.8	Short	300	0.0	NA
Lane 3	286	11.2	584	0.489	100	40.9	LOS D	15.6	119.8	Full	500	0.0	0.0
Lane 4	286	11.2	584	0.489	100	40.9	LOS D	15.6	119.8	Full	500	0.0	0.0
Lane 5	405	0.2	530	0.764	89[6]	55.8	LOS E	25.6	179.8	Short	300	0.0	NA
Lane 6	452	0.2	530	0.854	100	63.4	LOS E	31.8	222.8	Short	250	0.0	NA
Approach	1843	5.5		0.854		48.6	LOS D	31.8	222.8				
North: Lancefield Road (North)													
Lane 1	633	0.1	703[1]	0.899	86[6]	44.6	LOS D	36.6	256.2	Short	90	0.0	NA
Lane 2	754	0.1	720[1]	1.047	100	130.1	LOS F	87.4	612.6	Short	120	0.0	NA
Lane 3	387	0.3	459	0.843	100	61.1	LOS E	27.2	190.8	Short	200	0.0	NA
Lane 4	48	1.0	79	0.608	100	82.3	LOS F	3.5	24.6	Full	500	0.0	23.4[8]
Lane 5	48	1.0	79	0.608	100	82.3	LOS F	3.5	24.6	Short	100	0.0	NA
Approach	1870	0.2		1.047		84.4	LOS F	87.4	612.6				
West: Sunbury Road (West)													
Lane 1	29	0.0	1062	0.027	100	12.2	LOS B	0.6	4.1	Short	100	0.0	NA
Lane 2	313	11.4	298	1.048	100	138.1	LOS F	33.5	257.1	Short	150	0.0	NA
Lane 3	313	11.4	298	1.048	100	138.1	LOS F	33.5	257.1	Full	500	0.0	0.0
Lane 4	313	11.4	298	1.048	100	138.1	LOS F	33.5	257.1	Full	500	0.0	0.0
Lane 5	155	0.6	238	0.652	100	69.9	LOS E	10.4	72.9	Short	100	0.0	NA
Approach	1122	9.6		1.048		125.4	LOS F	33.5	257.1				
Intersection	5379	4.0		1.058		81.6	LOS F	87.4	612.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

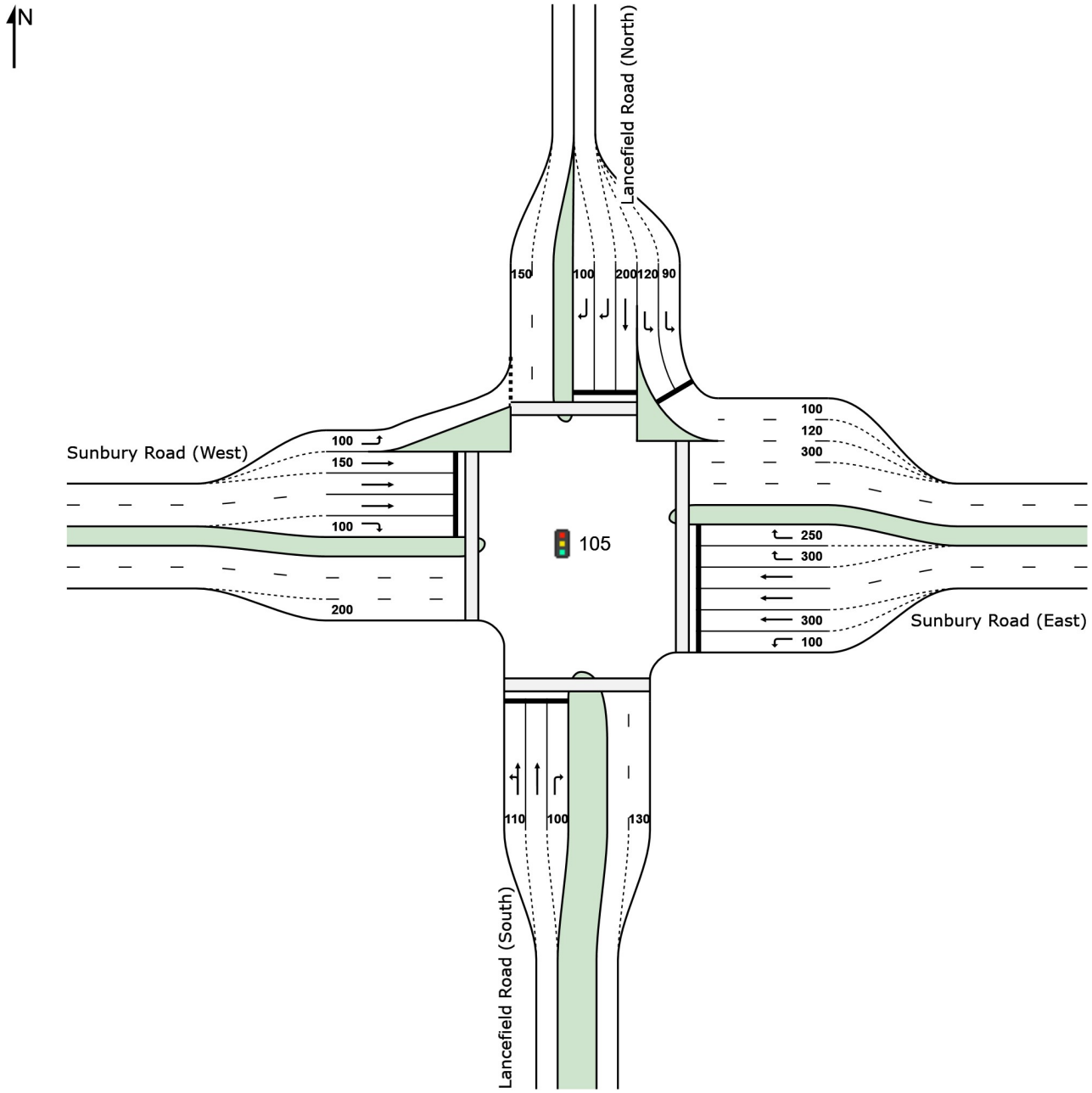
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Site: 105 [SS-IN-03-AM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

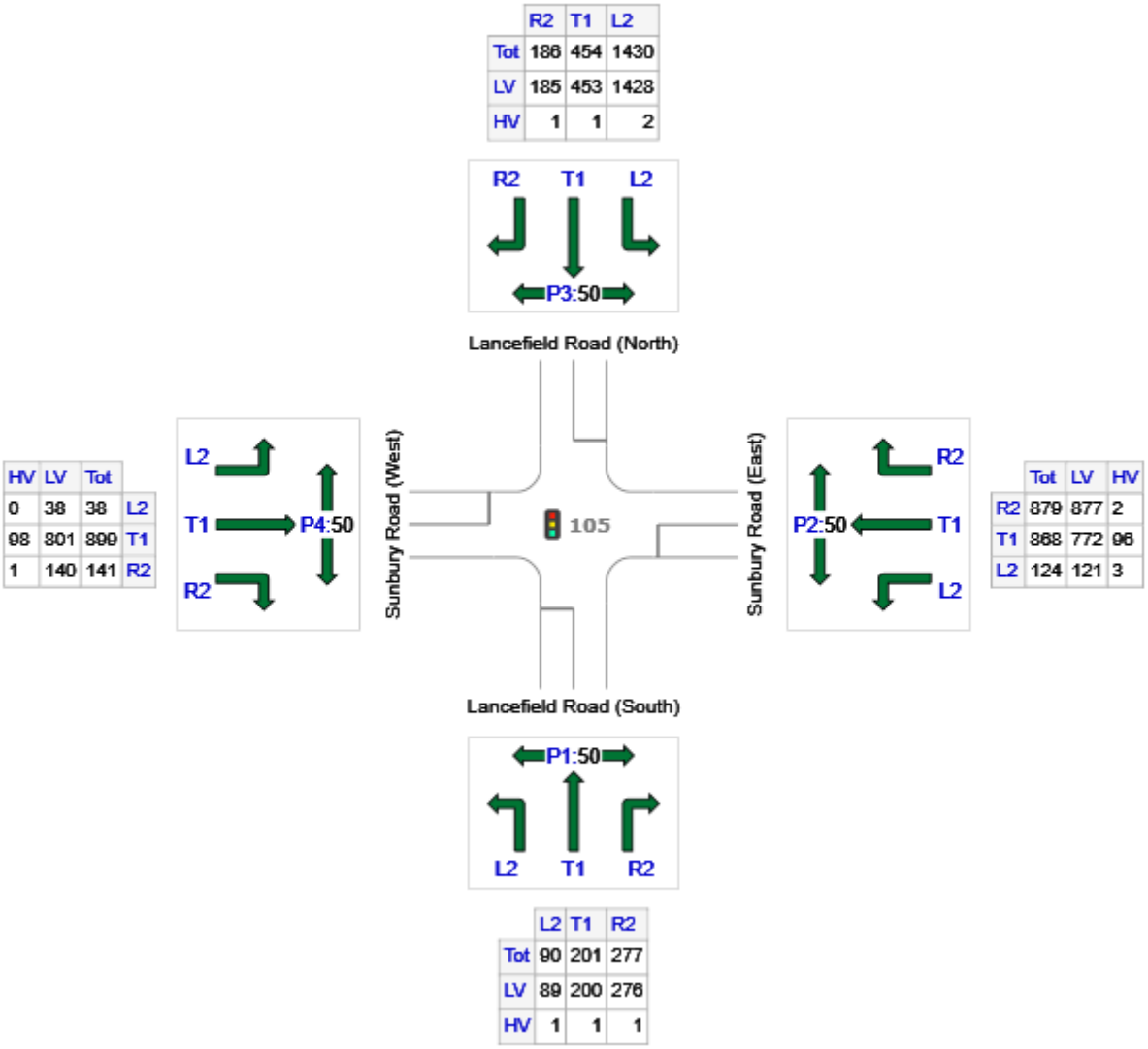
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
150
100
200
120
90
100
120
300
Sunbury Road (West)
100
150
100
105
250
300
300
100
200
Sunbury Road (East)
110
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



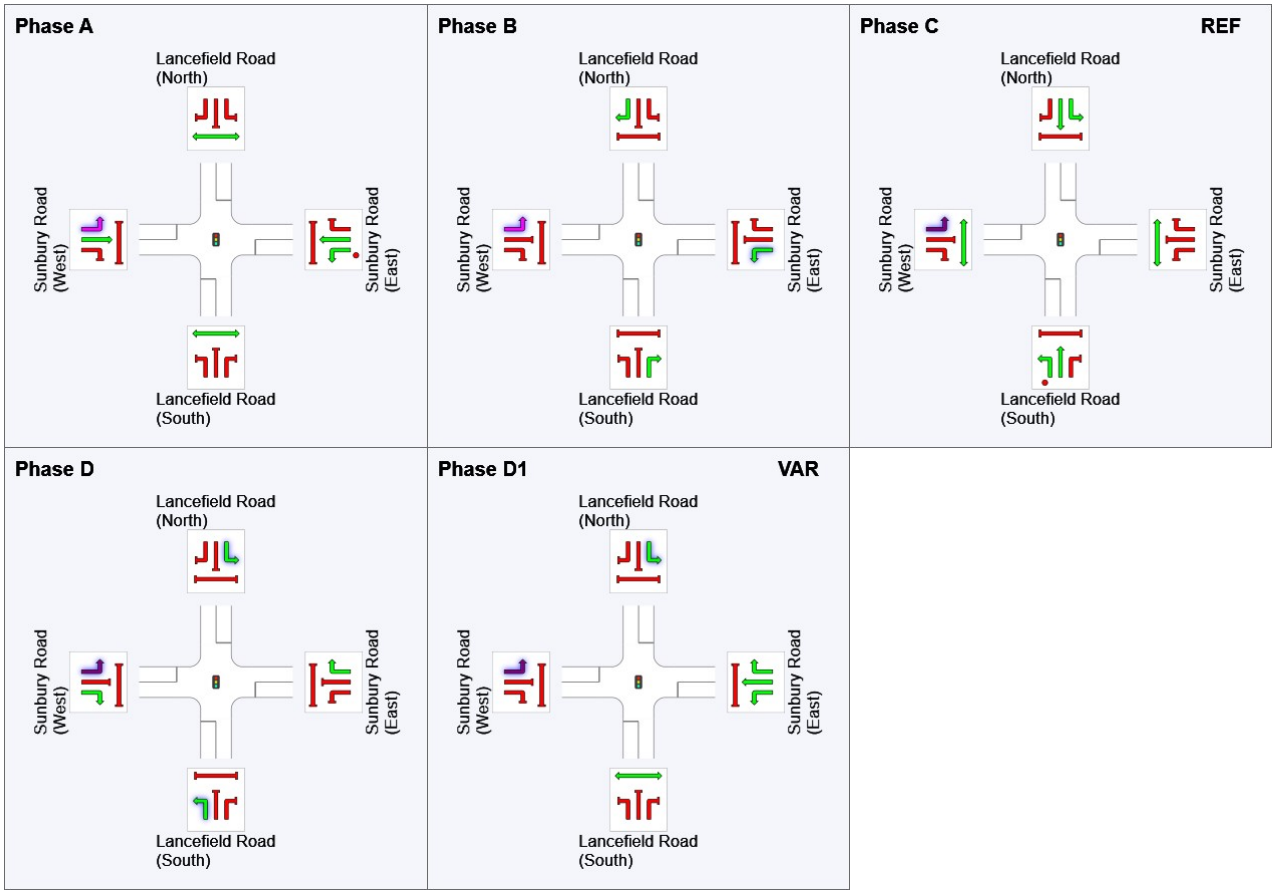
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	568	565	3
E: Sunbury Road (East)	1871	1770	101
N: Lancefield Road (North)	2070	2066	4
W: Sunbury Road (West)	1078	979	99
Total	5587	5380	207

Phase Timing Summary

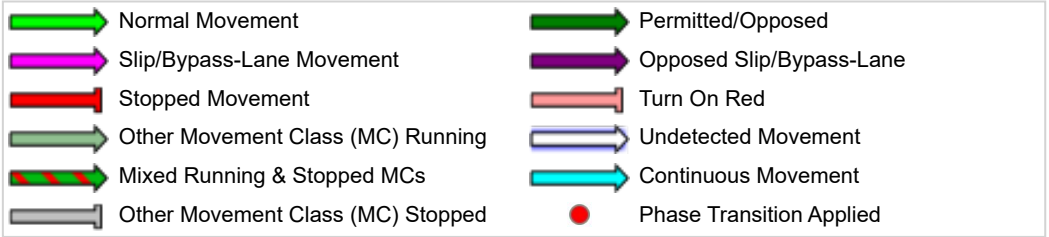
Phase	A	B	C	D	D1
Phase Change Time (sec)	86	114	0	42	64
Green Time (sec)	22	20	36	16	16
Phase Time (sec)	28	26	42	22	22
Phase Split	20%	19%	30%	16%	16%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	145	0.9	525	0.276	94[6]	40.3	LOS D	7.2	50.5	Short	110	0.0	NA
Lane 2	146	0.5	500	0.293	100	44.7	LOS D	8.0	56.1	Full	500	0.0	0.0
Lane 3	277	0.4	265	1.047	100	142.9	LOS F	29.3	205.8	Short	100	0.0	NA
Approach	568	0.5		1.047		91.4	LOS F	29.3	205.8				
East: Sunbury Road (East)													
Lane 1	124	2.4	835	0.149	100	25.7	LOS C	4.5	32.1	Short	100	0.0	NA
Lane 2	289	11.1	572	0.506	100	41.9	LOS D	16.0	122.8	Short	300	0.0	NA
Lane 3	289	11.1	572	0.506	100	41.9	LOS D	16.0	122.8	Full	500	0.0	0.0
Lane 4	289	11.1	572	0.506	100	41.9	LOS D	16.0	122.8	Full	500	0.0	0.0
Lane 5	415	0.2	503	0.825	89[6]	61.7	LOS E	28.2	198.1	Short	300	0.0	NA
Lane 6	464	0.2	503	0.922	100	77.4	LOS E	36.9	258.5	Short	250	0.0	NA
Approach	1871	5.4		0.922		54.0	LOS D	36.9	258.5				
North: Lancefield Road (North)													
Lane 1	639	0.1	691[1]	0.925	86[6]	52.6	LOS D	40.0	280.1	Short	90	0.0	NA
Lane 2	791	0.1	734[1]	1.078	100	151.6	LOS F	98.3	688.9	Short	120	0.0	NA
Lane 3	454	0.2	501	0.907	100	68.6	LOS E	34.8	244.3	Short	200	0.0	NA
Lane 4	93	0.5	264	0.352	100	64.8	LOS E	5.8	40.9	Full	500	0.0	34.2[8]
Lane 5	93	0.5	264	0.352	100	64.8	LOS E	5.8	40.9	Short	100	0.0	NA
Approach	2070	0.2		1.078		95.0	LOS F	98.3	688.9				
West: Sunbury Road (West)													
Lane 1	38	0.0	1081	0.035	100	13.3	LOS B	0.8	5.8	Short	100	0.0	NA
Lane 2	300	10.9	286	1.047	100	137.5	LOS F	31.9	244.2	Short	150	0.0	NA
Lane 3	300	10.9	286	1.047	100	137.5	LOS F	31.9	244.2	Full	500	0.0	0.0
Lane 4	300	10.9	286	1.047	100	137.5	LOS F	31.9	244.2	Full	500	0.0	0.0
Lane 5	141	0.7	211	0.668	100	72.1	LOS E	9.6	67.5	Short	100	0.0	NA
Approach	1078	9.2		1.047		124.6	LOS F	31.9	244.2				
Intersection	5587	3.7		1.078		86.6	LOS F	98.3	688.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

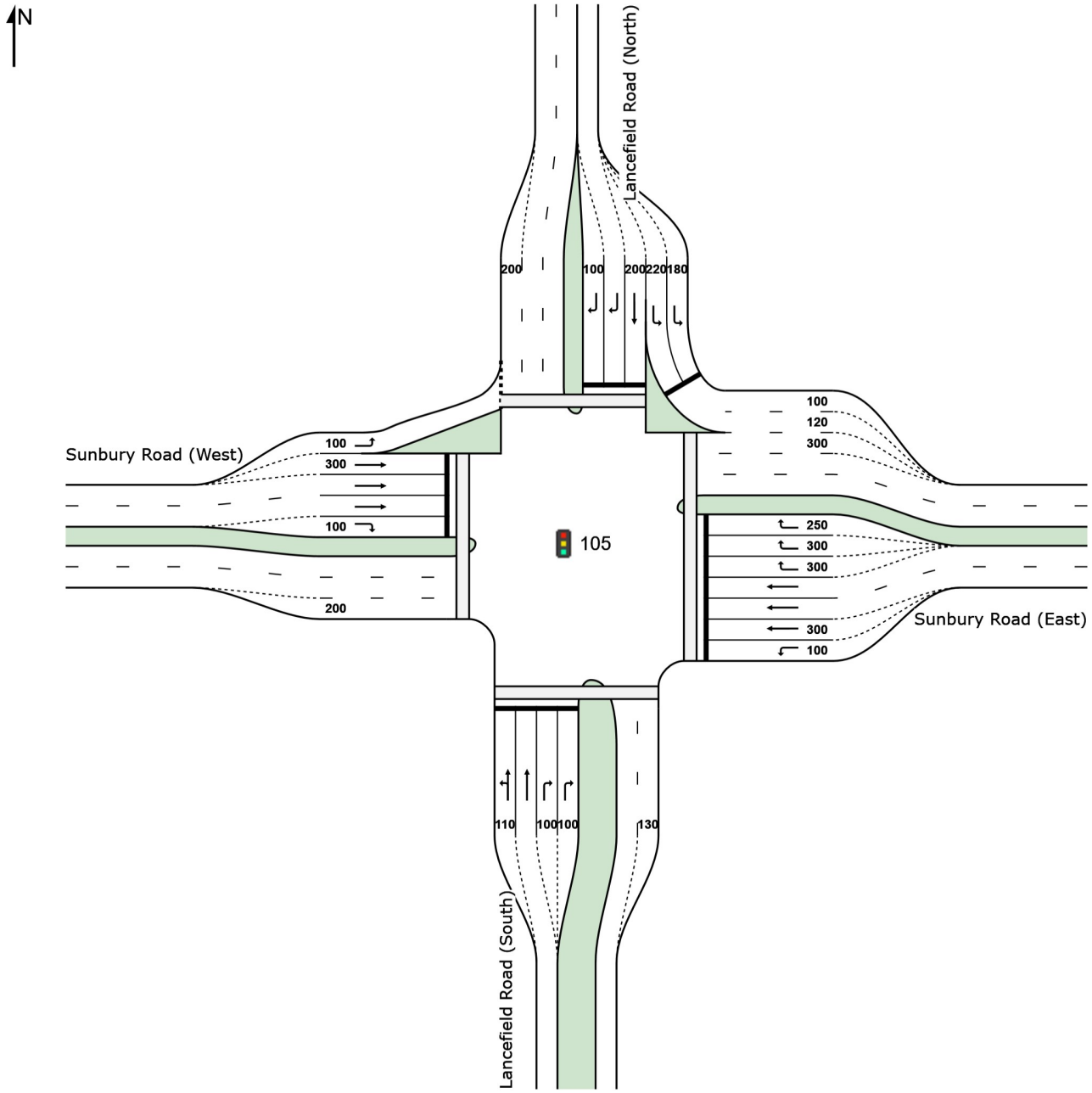
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Site: 105 [SS-IN-03-AM Peak - 75% (Option 2a) - GTA Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

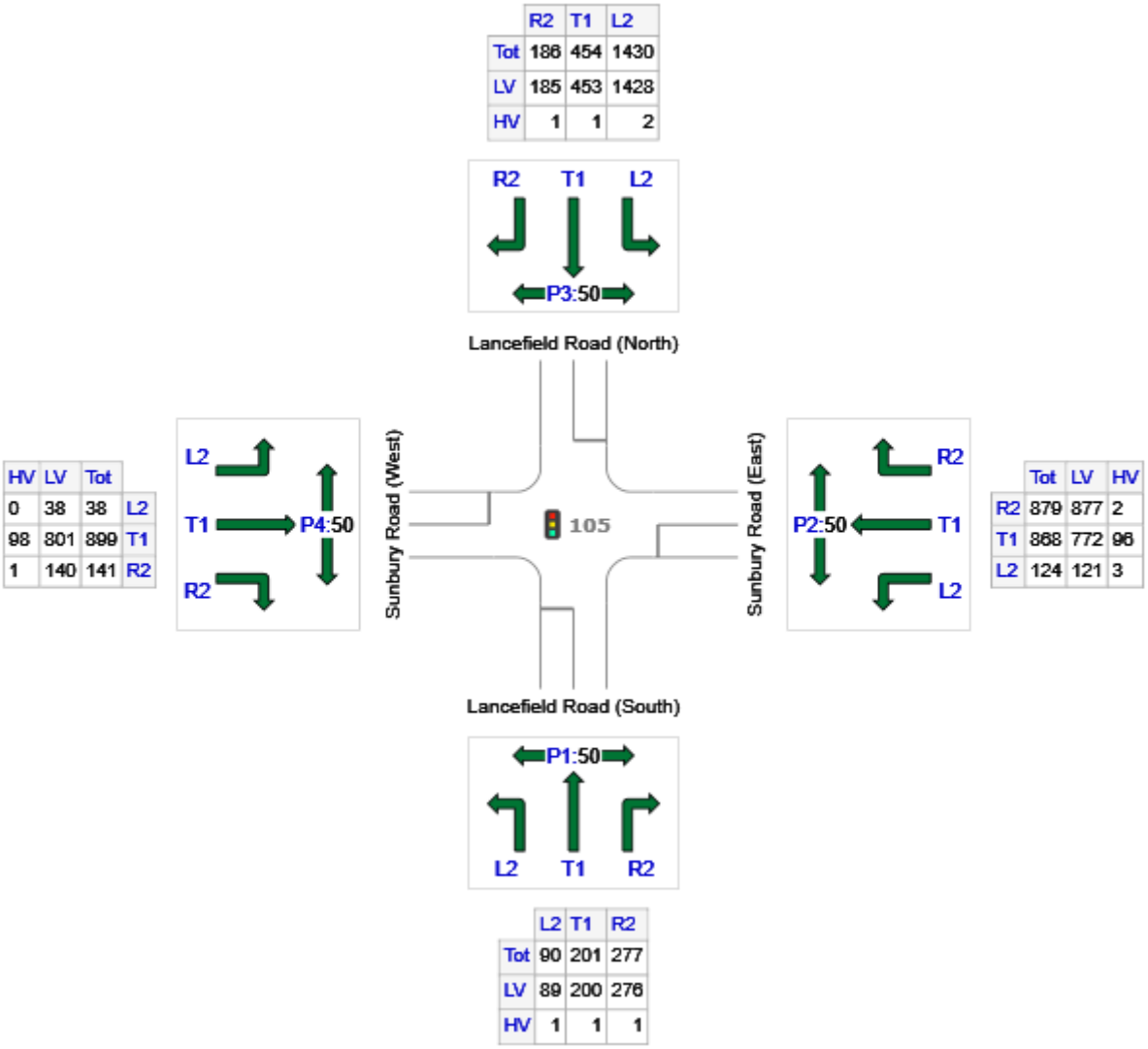
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
200
100
200
220
180
100
120
300
Sunbury Road (West)
100
300
100
105
250
300
300
300
100
200
Sunbury Road (East)
110
100
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	568	565	3
E: Sunbury Road (East)	1871	1770	101
N: Lancefield Road (North)	2070	2066	4
W: Sunbury Road (West)	1078	979	99
Total	5587	5380	207

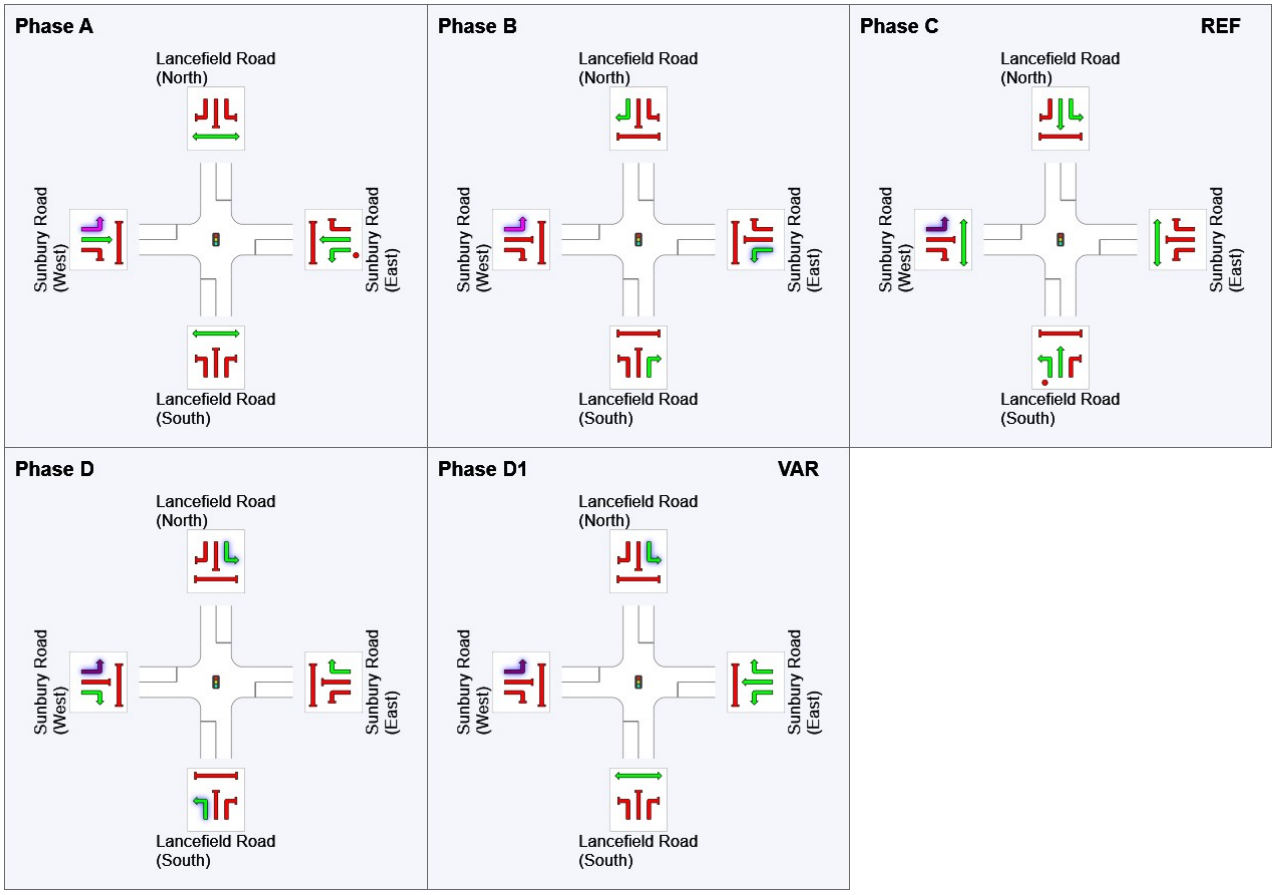
Phase Timing Summary

Phase	A	B	C	D	D1
Phase Change Time (sec)	60	85	0	36	54
Green Time (sec)	19	9	30	12	***
Phase Time (sec)	25	15	36	18	6
Phase Split	25%	15%	36%	18%	6%

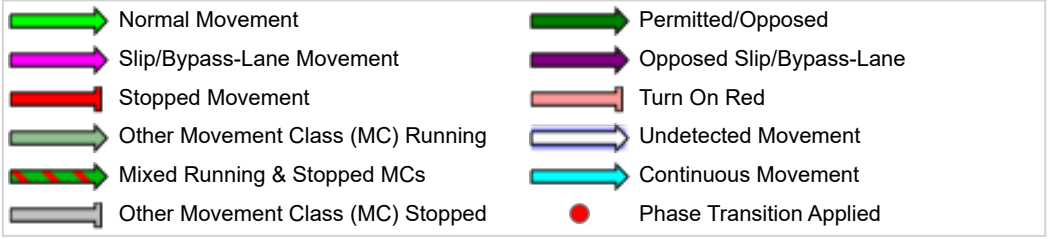
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	150	0.9	617	0.242	100	25.4	LOS C	4.8	34.2	Short	110	0.0	NA
Lane 2	141	0.5	583	0.242	100	28.4	LOS C	5.2	36.6	Full	500	0.0	0.0
Lane 3	139	0.4	167	0.831	100	61.4	LOS E	7.5	52.6	Short	100	0.0	NA
Lane 4	139	0.4	167	0.831	100	61.4	LOS E	7.5	52.6	Short	100	0.0	NA
Approach	568	0.5		0.831		43.7	LOS D	7.5	52.6				
East: Sunbury Road (East)													
Lane 1	124	2.4	621	0.200	100	26.8	LOS C	3.9	28.1	Short	100	0.0	NA
Lane 2	289	11.1	455	0.636	100	36.6	LOS D	12.8	98.0	Short	300	0.0	NA
Lane 3	289	11.1	455	0.636	100	36.6	LOS D	12.8	98.0	Full	500	0.0	0.0
Lane 4	289	11.1	455	0.636	100	36.6	LOS D	12.8	98.0	Full	500	0.0	0.0
Lane 5	293	0.2	334	0.878	100	59.4	LOS E	16.3	114.4	Short	300	0.0	NA
Lane 6	293	0.2	334	0.878	100	59.4	LOS E	16.3	114.4	Short	300	0.0	NA
Lane 7	293	0.2	334	0.878	100	59.4	LOS E	16.3	114.4	Short	250	0.0	NA
Approach	1871	5.4		0.878		46.7	LOS D	16.3	114.4				
North: Lancefield Road (North)													
Lane 1	661	0.1	1002	0.659	86[6]	23.2	LOS C	22.9	160.2	Short	180	0.0	NA
Lane 2	769	0.1	1002	0.768	100	24.9	LOS C	29.3	205.4	Short	220	0.0	NA
Lane 3	454	0.2	584	0.777	100	36.9	LOS D	21.3	149.3	Short	200	0.0	NA
Lane 4	93	0.5	167	0.559	100	55.3	LOS E	4.6	32.4	Full	500	0.0	0.0
Lane 5	93	0.5	167	0.559	100	55.3	LOS E	4.6	32.4	Short	100	0.0	NA
Approach	2070	0.2		0.777		29.7	LOS C	29.3	205.4				
West: Sunbury Road (West)													
Lane 1	38	0.0	1194	0.032	100	8.7	LOS A	0.4	3.0	Short	100	0.0	NA
Lane 2	300	10.9	346	0.866	100	52.0	LOS D	16.4	125.7	Short	300	0.0	NA
Lane 3	300	10.9	346	0.866	100	52.0	LOS D	16.4	125.7	Full	500	0.0	0.0
Lane 4	300	10.9	346	0.866	100	52.0	LOS D	16.4	125.7	Full	500	0.0	0.0
Lane 5	141	0.7	222	0.636	100	53.2	LOS D	6.9	48.6	Short	100	0.0	NA
Approach	1078	9.2		0.866		50.6	LOS D	16.4	125.7				
Intersection	5587	3.7		0.878		40.9	LOS D	29.3	205.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

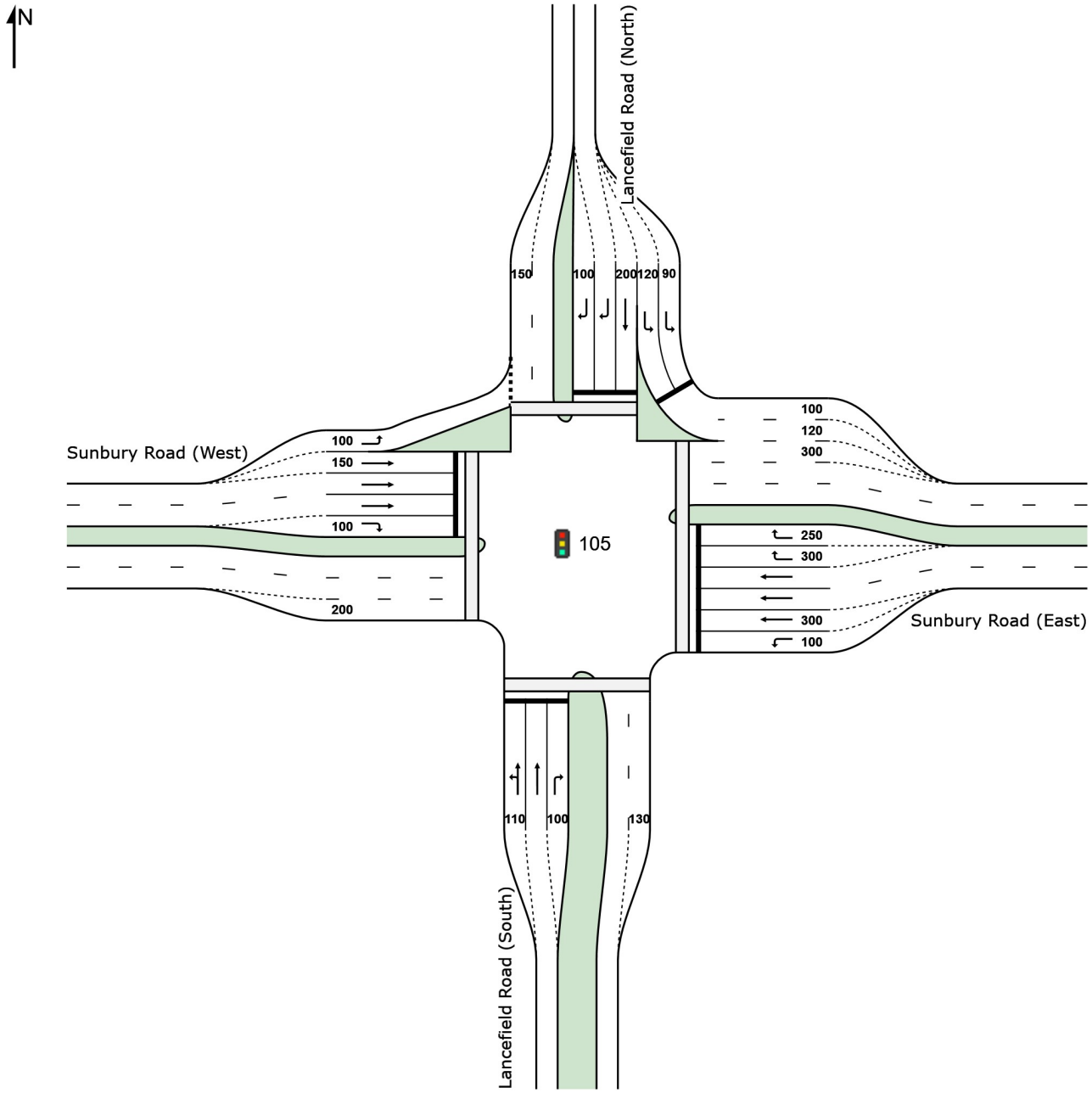
6 Lane under-utilisation due to downstream effects

Site: 105 [SS-IN-03-PM Peak - 75% (Option 5) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

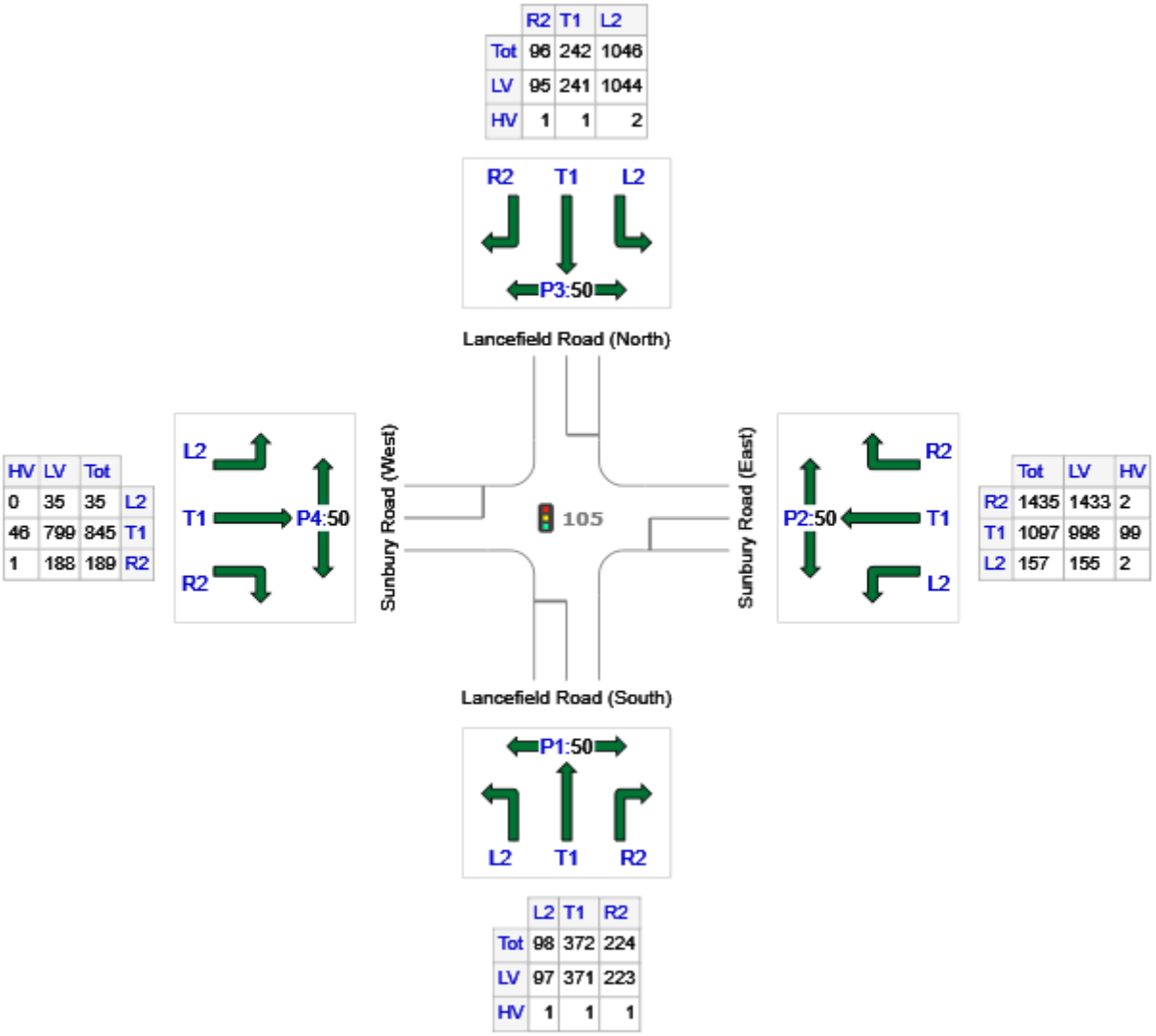
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
150
100
200
120
90
100
120
300
Sunbury Road (West)
100
150
100
105
250
300
300
100
200
Sunbury Road (East)
110
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



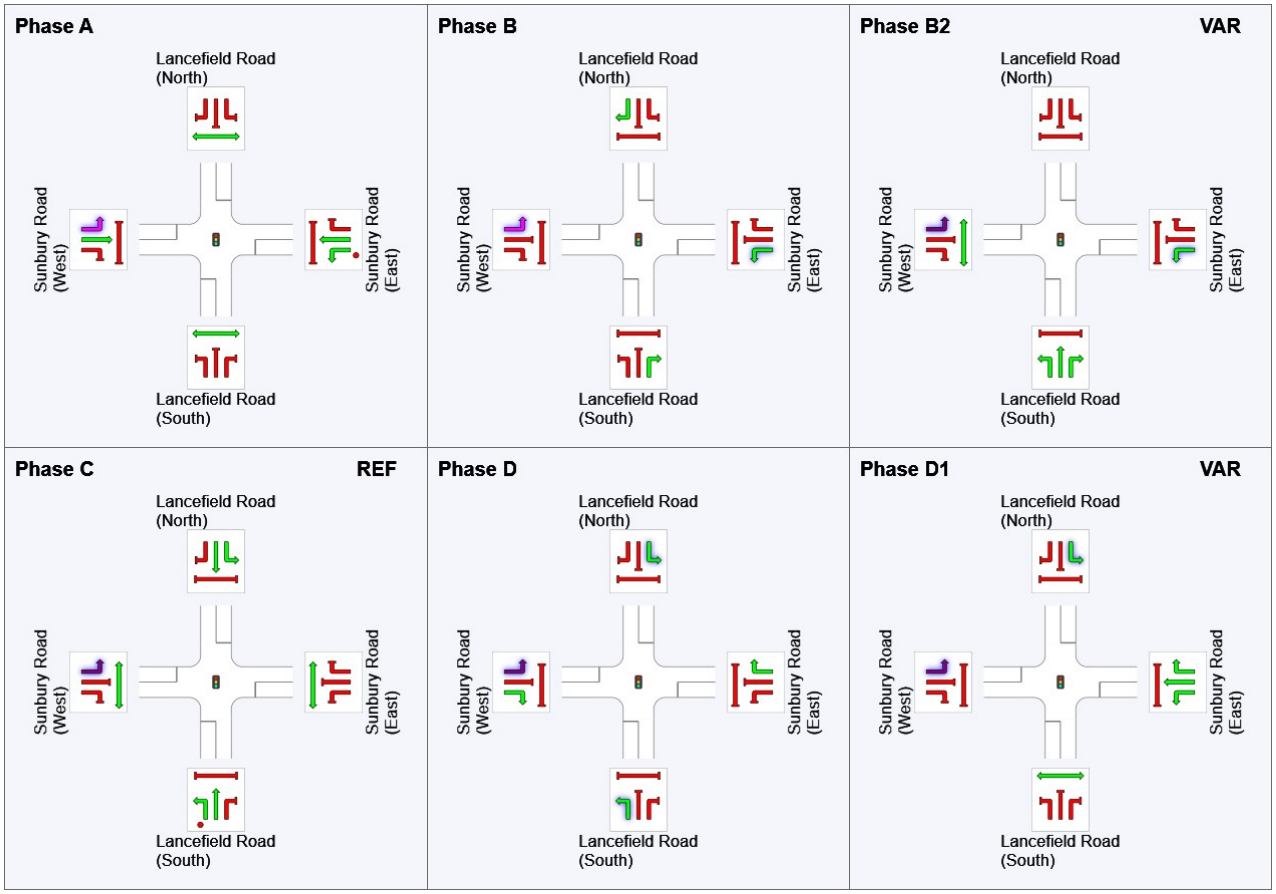
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	694	691	3
E: Sunbury Road (East)	2689	2586	103
N: Lancefield Road (North)	1384	1380	4
W: Sunbury Road (West)	1069	1022	47
Total	5836	5679	157

Phase Timing Summary

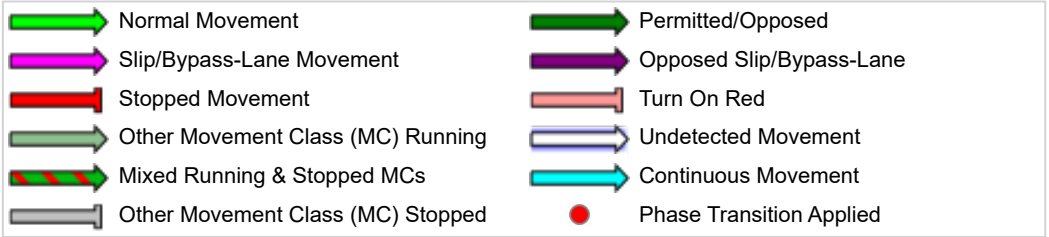
Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	94	119	133	0	38	67
Green Time (sec)	19	8	1	32	23	21
Phase Time (sec)	25	14	7	38	29	27
Phase Split	18%	10%	5%	27%	21%	19%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	229	0.6	549	0.418	94[6]	40.2	LOS D	11.8	82.9	Short	110	0.0	NA
Lane 2	241	0.3	542	0.444	100	44.5	LOS D	13.5	94.4	Full	500	0.0	0.0
Lane 3	224	0.4	198	1.129	100	203.3	LOS F	28.6	201.0	Short	100	0.0	NA
Approach	694	0.4		1.129		94.3	LOS F	28.6	201.0				
East: Sunbury Road (East)													
Lane 1	157	1.3	802	0.196	100	27.9	LOS C	6.0	42.8	Short	100	0.0	NA
Lane 2	366	9.0	605	0.604	100	42.1	LOS D	20.8	156.9	Short	300	0.0	NA
Lane 3	366	9.0	605	0.604	100	42.1	LOS D	20.8	156.9	Full	500	0.0	0.0
Lane 4	366	9.0	605	0.604	100	42.1	LOS D	20.8	156.9	Full	500	0.0	39.0[8]
Lane 5	678	0.1	663	1.023	89[6]	117.5	LOS F	69.9	489.9	Short	300	0.0	NA
Lane 6	757	0.1	663	1.143	100	206.4	LOS F	103.5	725.7	Short	250	0.0	NA
Approach	2689	3.8		1.143		106.6	LOS F	103.5	725.7				
North: Lancefield Road (North)													
Lane 1	483	0.2	1166	0.415	86[6]	19.4	LOS B	16.2	113.6	Short	90	0.0	NA
Lane 2	563	0.2	1166	0.483	100	20.2	LOS C	20.0	140.6	Short	120	0.0	NA
Lane 3	242	0.4	445	0.544	100	51.3	LOS D	14.6	102.5	Short	200	0.0	NA
Lane 4	48	1.0	105	0.456	100	78.3	LOS E	3.4	23.7	Full	500	0.0	0.0
Lane 5	48	1.0	105	0.456	100	78.3	LOS E	3.4	23.7	Short	100	0.0	NA
Approach	1384	0.3		0.544		29.4	LOS C	20.0	140.6				
West: Sunbury Road (West)													
Lane 1	35	0.0	818	0.043	100	23.8	LOS C	1.2	8.3	Short	100	0.0	NA
Lane 2	282	5.4	256	1.102	100	176.1	LOS F	34.0	249.1	Short	150	0.0	NA
Lane 3	282	5.4	256	1.102	100	176.1	LOS F	34.0	249.1	Full	500	0.0	0.0
Lane 4	282	5.4	256	1.102	100	176.1	LOS F	34.0	249.1	Full	500	0.0	0.0
Lane 5	189	0.5	304	0.622	100	65.1	LOS E	12.2	85.8	Short	100	0.0	NA
Approach	1069	4.4		1.102		151.5	LOS F	34.0	249.1				
Intersection	5836	2.7		1.143		95.0	LOS F	103.5	725.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

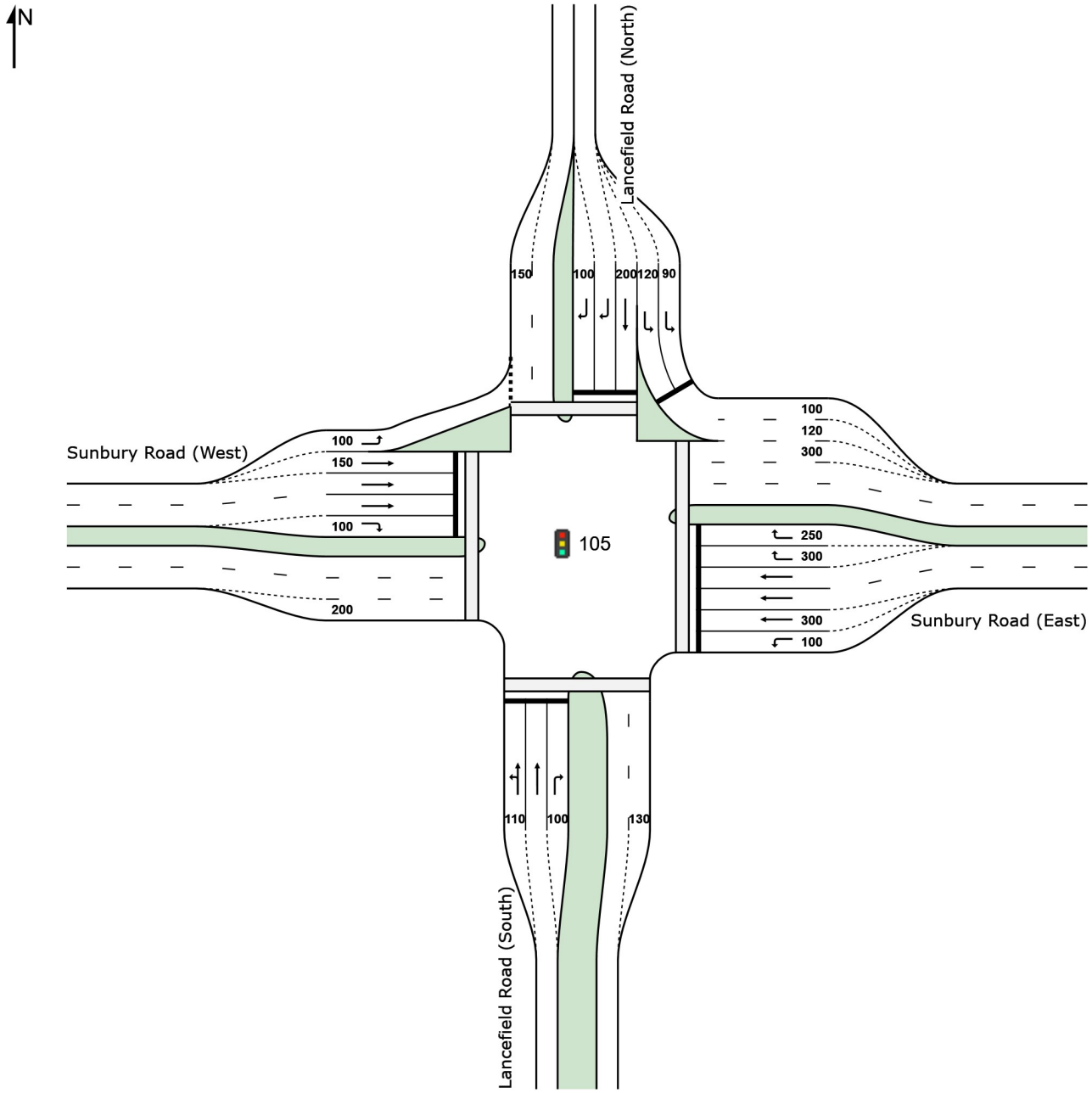
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Site: 105 [SS-IN-03-PM Peak - 75% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

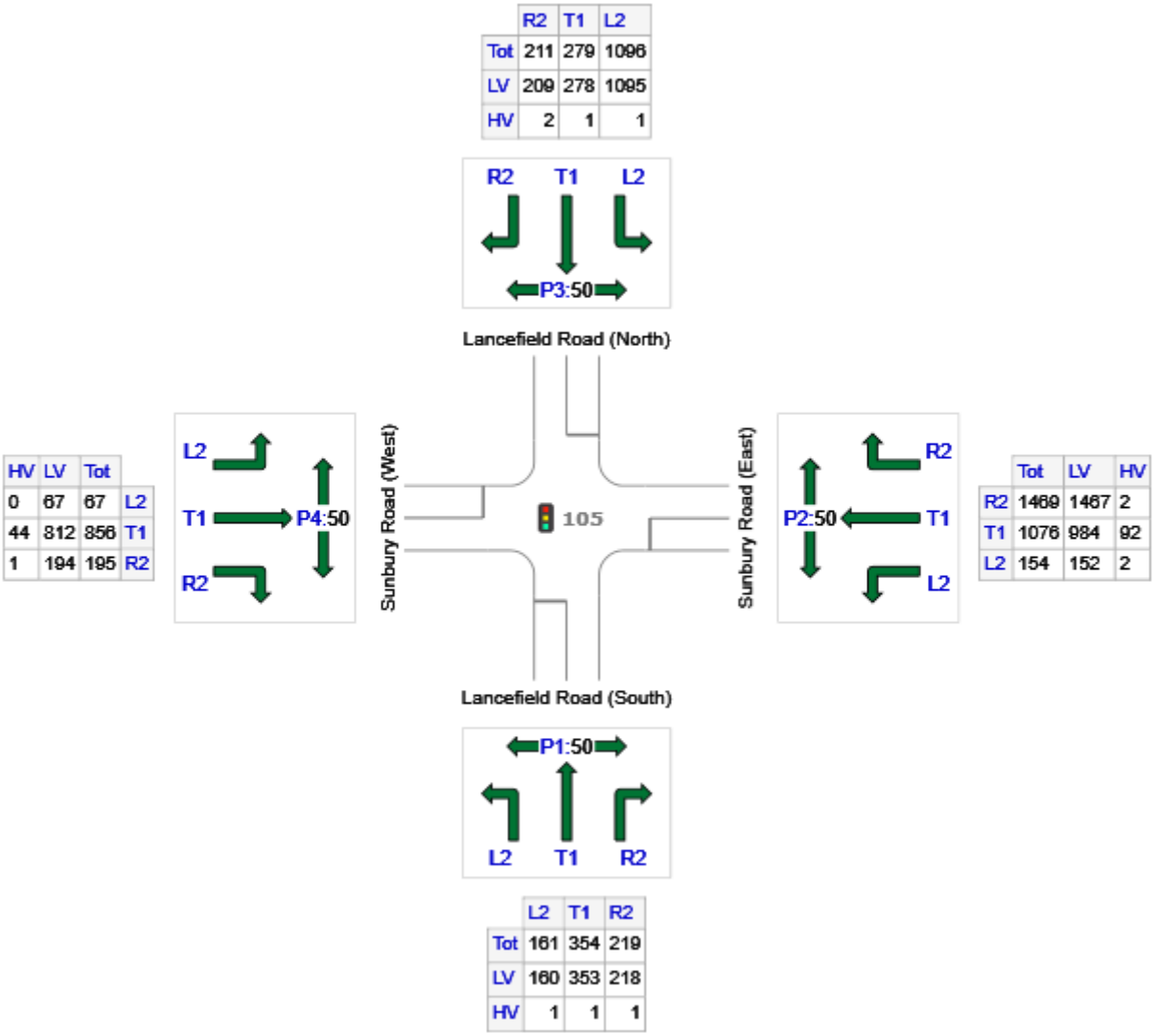
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
150
100
200
120
90
100
120
300
Sunbury Road (West)
100
150
100
105
250
300
300
100
200
Sunbury Road (East)
110
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



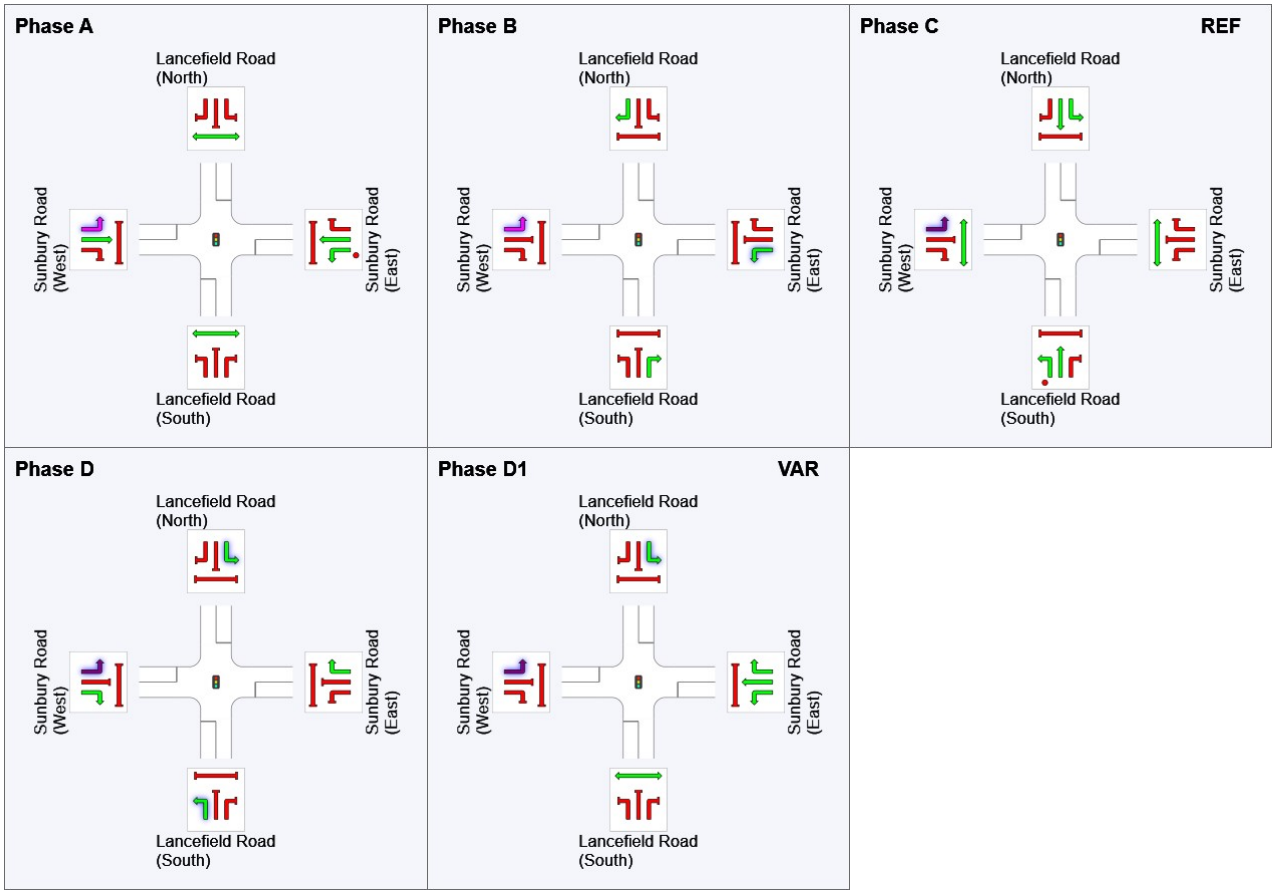
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	734	731	3
E: Sunbury Road (East)	2699	2603	96
N: Lancefield Road (North)	1586	1582	4
W: Sunbury Road (West)	1118	1073	45
Total	6137	5989	148

Phase Timing Summary

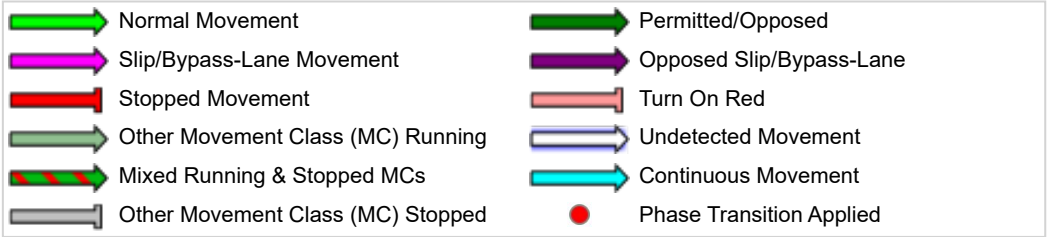
Phase	A	B	C	D	D1
Phase Change Time (sec)	96	120	0	38	69
Green Time (sec)	18	14	32	25	21
Phase Time (sec)	24	20	38	31	27
Phase Split	17%	14%	27%	22%	19%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	258	0.5	473	0.544	94[6]	46.6	LOS D	14.3	100.7	Short	110	0.0	NA
Lane 2	257	0.3	445	0.578	100	51.8	LOS D	15.7	109.8	Full	500	0.0	0.0
Lane 3	219	0.5	185	1.183	100	246.2	LOS F	31.2	219.0	Short	100	0.0	NA
Approach	734	0.4		1.183		108.0	LOS F	31.2	219.0				
East: Sunbury Road (East)													
Lane 1	154	1.3	775	0.199	100	29.1	LOS C	6.1	43.1	Short	100	0.0	NA
Lane 2	359	8.6	594	0.604	100	42.8	LOS D	20.5	154.2	Short	300	0.0	NA
Lane 3	359	8.6	594	0.604	100	42.8	LOS D	20.5	154.2	Full	500	0.0	0.0
Lane 4	359	8.6	594	0.604	100	42.8	LOS D	20.5	154.2	Full	500	0.0	37.9[8]
Lane 5	694	0.1	689	1.006	89[6]	107.1	LOS F	68.7	481.4	Short	300	0.0	NA
Lane 6	775	0.1	689	1.125	100	191.4	LOS F	102.3	717.1	Short	250	0.0	NA
Approach	2699	3.6		1.125		101.2	LOS F	102.3	717.1				
North: Lancefield Road (North)													
Lane 1	506	0.1	1193	0.424	86[6]	18.5	LOS B	16.6	116.3	Short	90	0.0	NA
Lane 2	590	0.1	1193	0.494	100	19.4	LOS B	20.6	144.4	Short	120	0.0	NA
Lane 3	279	0.4	445	0.627	100	52.5	LOS D	17.2	120.8	Short	200	0.0	NA
Lane 4	106	0.9	184	0.572	100	72.5	LOS E	7.1	50.2	Full	500	0.0	0.0
Lane 5	106	0.9	184	0.572	100	72.5	LOS E	7.1	50.2	Short	100	0.0	NA
Approach	1586	0.3		0.627		32.0	LOS C	20.6	144.4				
West: Sunbury Road (West)													
Lane 1	67	0.0	791	0.085	100	25.6	LOS C	2.4	16.9	Short	100	0.0	NA
Lane 2	285	5.1	243	1.176	100	234.4	LOS F	40.2	293.9	Short	150	0.0	NA
Lane 3	285	5.1	243	1.176	100	234.4	LOS F	40.2	293.9	Full	500	0.0	0.0
Lane 4	285	5.1	243	1.176	100	234.4	LOS F	40.2	293.9	Full	500	0.0	0.0
Lane 5	195	0.5	330	0.590	100	63.1	LOS E	12.4	87.0	Short	100	0.0	NA
Approach	1118	4.0		1.176		192.0	LOS F	40.2	293.9				
Intersection	6137	2.4		1.183		100.7	LOS F	102.3	717.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

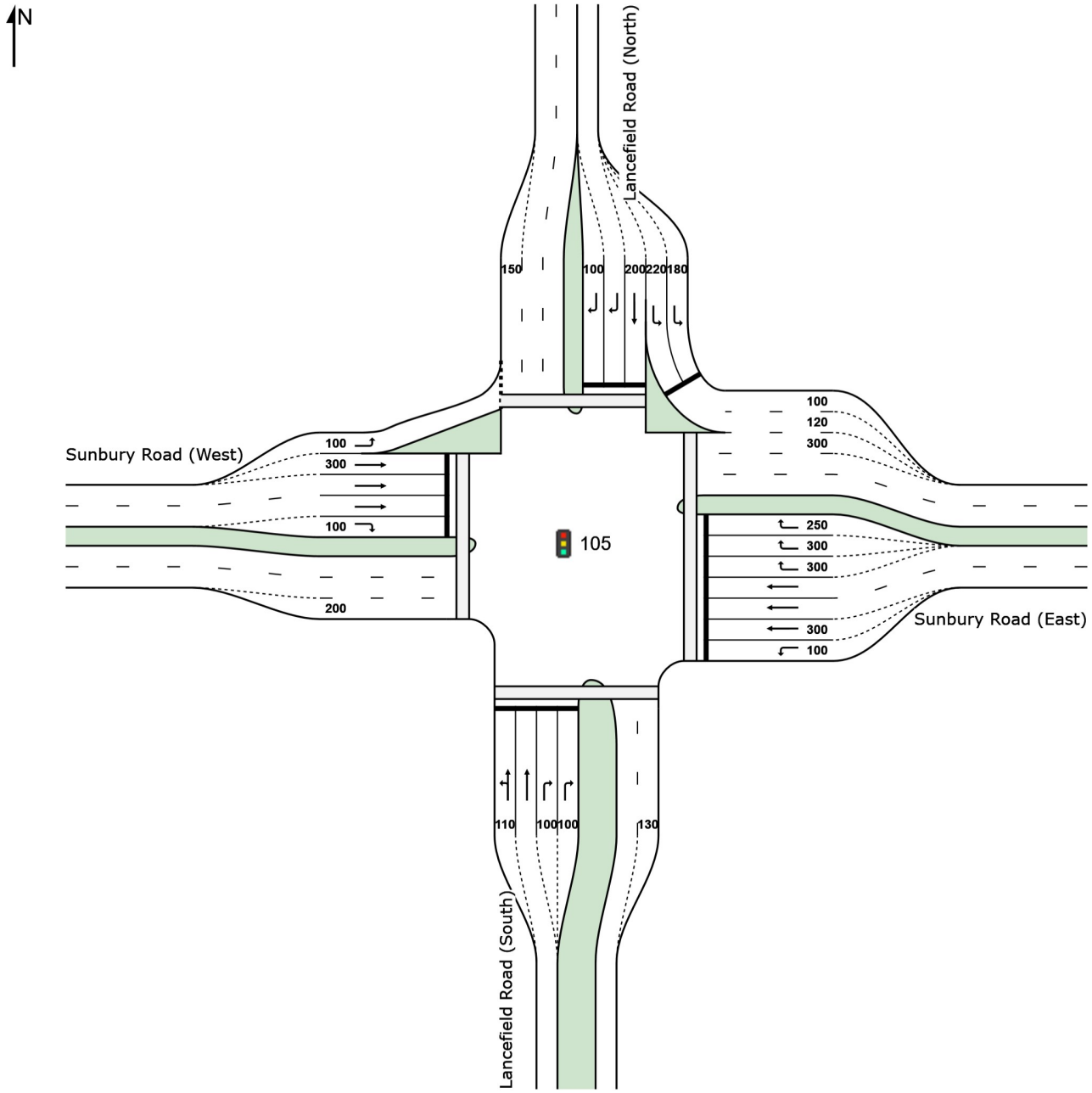
6 Lane under-utilisation due to downstream effects
8 Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

Site: 105 [SS-IN-03-PM Peak - 75% (Option 2a) - GTA Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 130 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

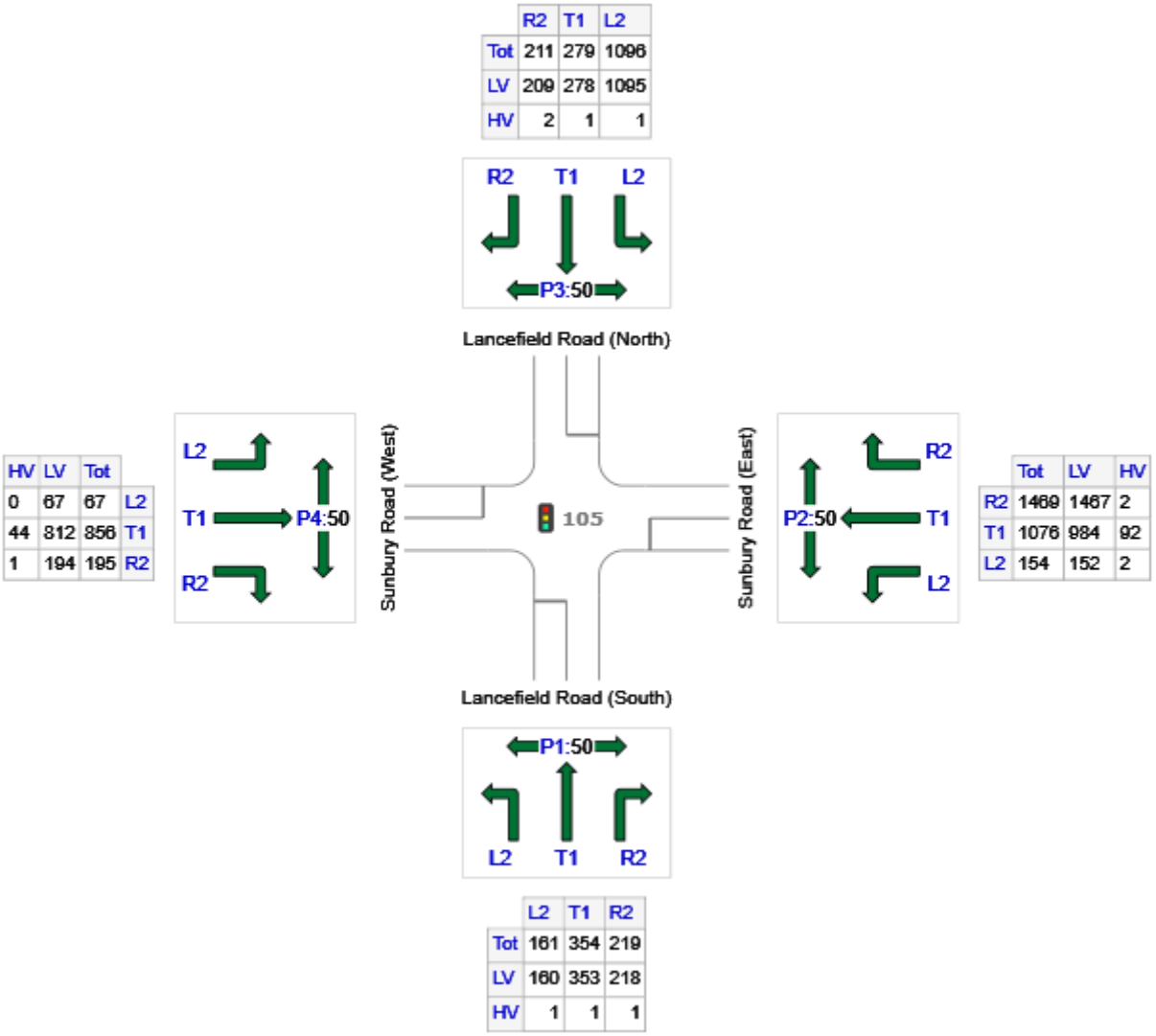
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B1*, C, D, D1*
(* Variable Phase)

Site Layout


N
Lancefield Road (North)
150
100
200
220
180
100
120
300
Sunbury Road (West)
100
300
100
105
250
300
300
300
100
200
Sunbury Road (East)
110
100
100
130
Lancefield Road (South)

Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	734	731	3
E: Sunbury Road (East)	2699	2603	96
N: Lancefield Road (North)	1586	1582	4
W: Sunbury Road (West)	1118	1073	45
Total	6137	5989	148

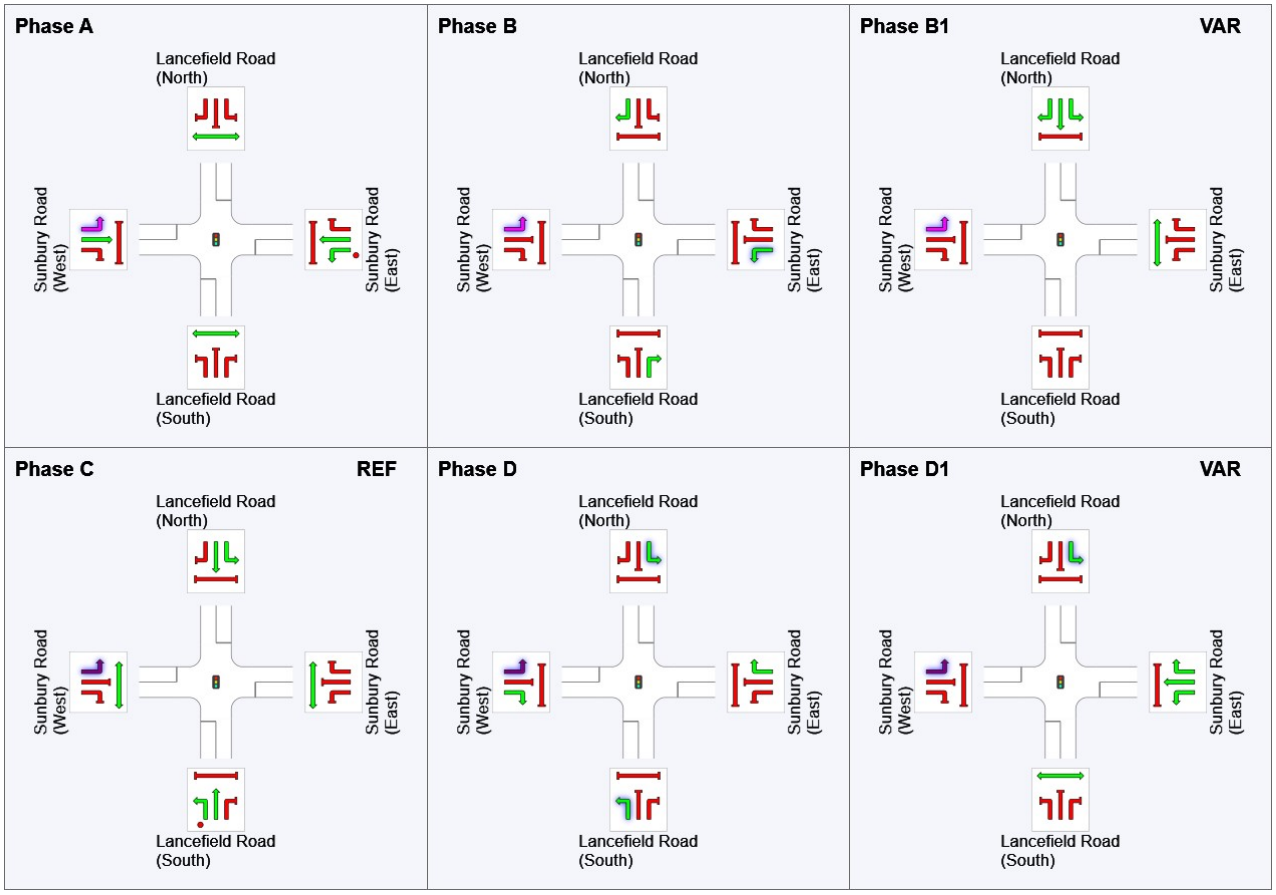
Phase Timing Summary

Phase	A	B	B1	C	D	D1
Phase Change Time (sec)	82	111	126	0	36	64
Green Time (sec)	23	9	***	30	22	12
Phase Time (sec)	29	15	4	36	28	18
Phase Split	22%	12%	3%	28%	22%	14%

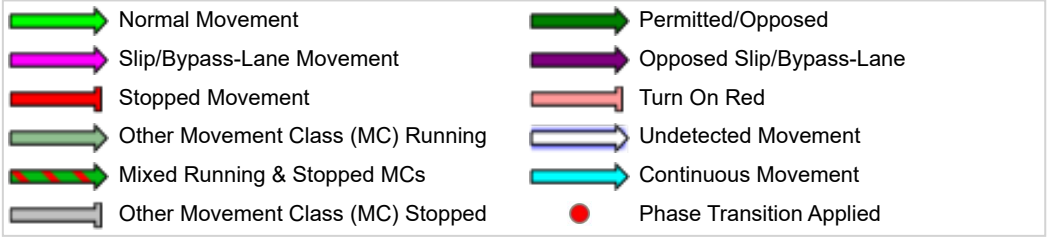
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	261	0.5	480	0.544	96[6]	42.8	LOS D	13.4	93.9	Short	110	0.0	NA
Lane 2	254	0.3	449	0.566	100	47.8	LOS D	14.3	100.6	Full	500	0.0	0.0
Lane 3	110	0.5	128	0.854	100	79.8	LOS E	7.7	54.1	Short	100	0.0	NA
Lane 4	110	0.5	128	0.854	100	79.8	LOS E	7.7	54.1	Short	100	0.0	NA
Approach	734	0.4		0.854		55.6	LOS E	14.3	100.6				
East: Sunbury Road (East)													
Lane 1	154	1.3	708	0.218	100	30.3	LOS C	6.0	42.6	Short	100	0.0	NA
Lane 2	359	8.6	583	0.616	100	40.6	LOS D	19.3	144.9	Short	300	0.0	NA
Lane 3	359	8.6	583	0.616	100	40.6	LOS D	19.3	144.9	Full	500	0.0	0.0
Lane 4	359	8.6	583	0.616	100	40.6	LOS D	19.3	144.9	Full	500	0.0	0.0
Lane 5	454	0.1	571	0.795	89[6]	52.5	LOS D	27.4	192.0	Short	300	0.0	NA
Lane 6	508	0.1	571	0.889	100	63.4	LOS E	35.2	246.7	Short	300	0.0	NA
Lane 7	508	0.1	571	0.889	100	63.4	LOS E	35.2	246.7	Short	250	0.0	NA
Approach	2699	3.6		0.889		50.6	LOS D	35.2	246.7				
North: Lancefield Road (North)													
Lane 1	506	0.1	1142	0.443	86[6]	19.6	LOS B	16.6	116.6	Short	180	0.0	NA
Lane 2	590	0.1	1142	0.516	100	20.5	LOS C	20.7	144.9	Short	220	0.0	NA
Lane 3	279	0.4	509	0.548	100	44.6	LOS D	15.3	107.2	Short	200	0.0	NA
Lane 4	106	0.9	184	0.572	100	68.0	LOS E	6.6	46.8	Full	500	0.0	0.0
Lane 5	106	0.9	184	0.572	100	68.0	LOS E	6.6	46.8	Short	100	0.0	NA
Approach	1586	0.3		0.572		30.7	LOS C	20.7	144.9				
West: Sunbury Road (West)													
Lane 1	67	0.0	925	0.072	100	16.8	LOS B	1.7	12.2	Short	100	0.0	NA
Lane 2	285	5.1	334	0.855	100	64.3	LOS E	19.5	142.2	Short	300	0.0	NA
Lane 3	285	5.1	334	0.855	100	64.3	LOS E	19.5	142.2	Full	500	0.0	0.0
Lane 4	285	5.1	334	0.855	100	64.3	LOS E	19.5	142.2	Full	500	0.0	0.0
Lane 5	195	0.5	313	0.623	100	60.5	LOS E	11.7	82.2	Short	100	0.0	NA
Approach	1118	4.0		0.855		60.8	LOS E	19.5	142.2				
Intersection	6137	2.4		0.889		47.9	LOS D	35.2	246.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

6 Lane under-utilisation due to downstream effects

USER REPORT FOR SITE

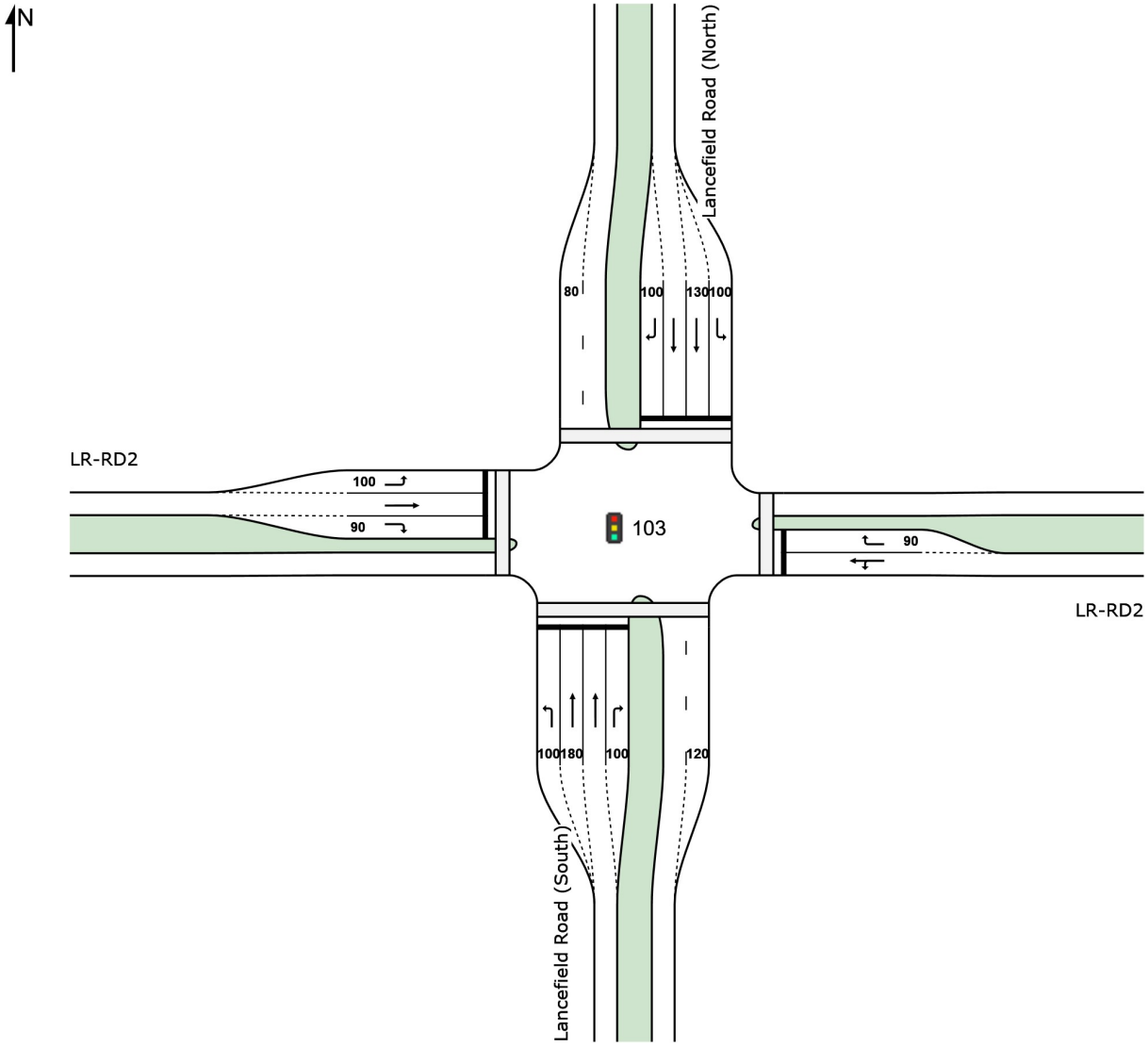
Project: 201208-V198070-Sunbury Growth ICP Modelling **Template: GTA Appendix**

Site: 103 [LR-IN-04-AM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

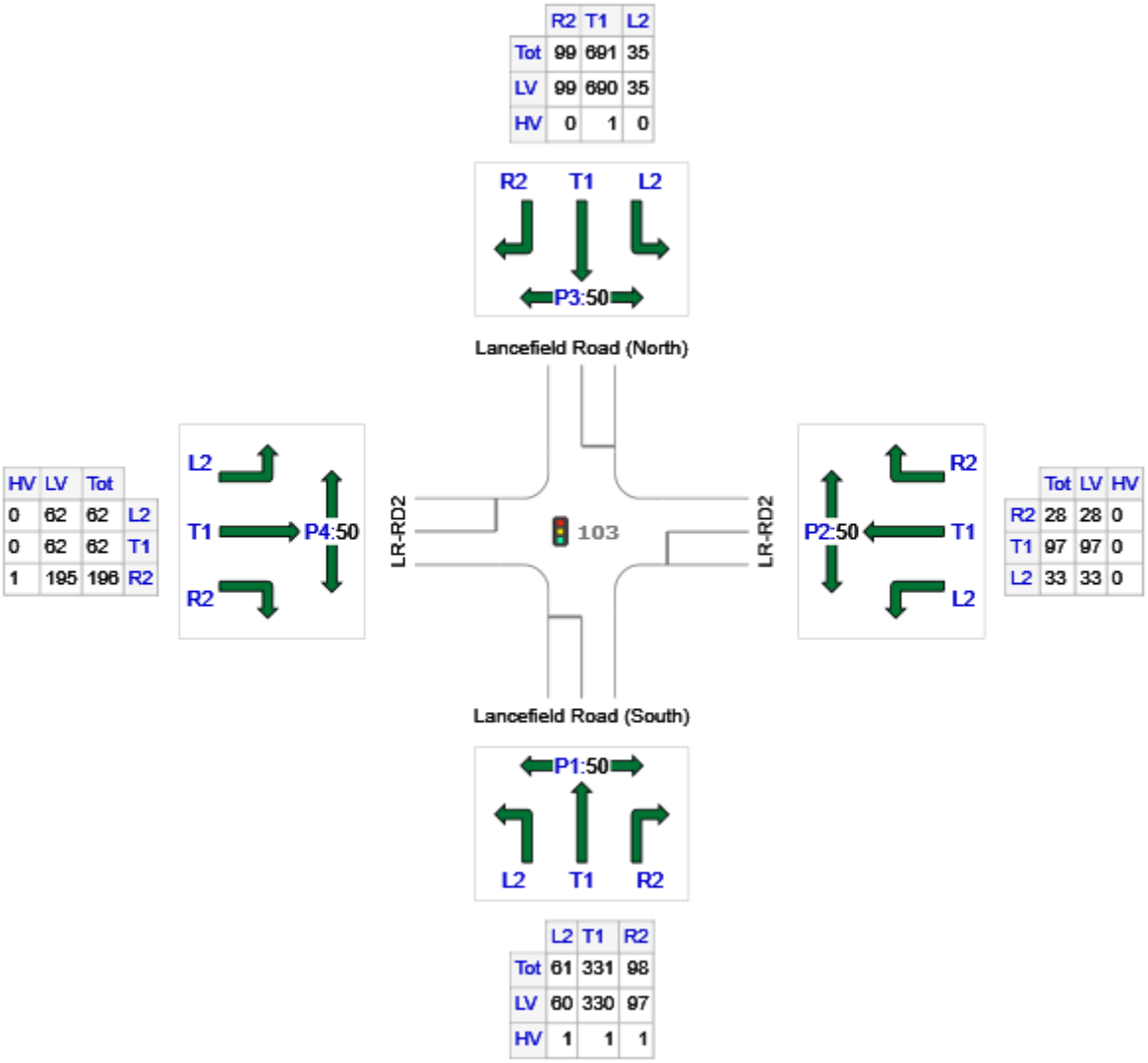
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	490	487	3
E: LR-RD2	158	158	0
N: Lancefield Road (North)	825	824	1
W: LR-RD2	320	319	1
Total	1793	1788	5

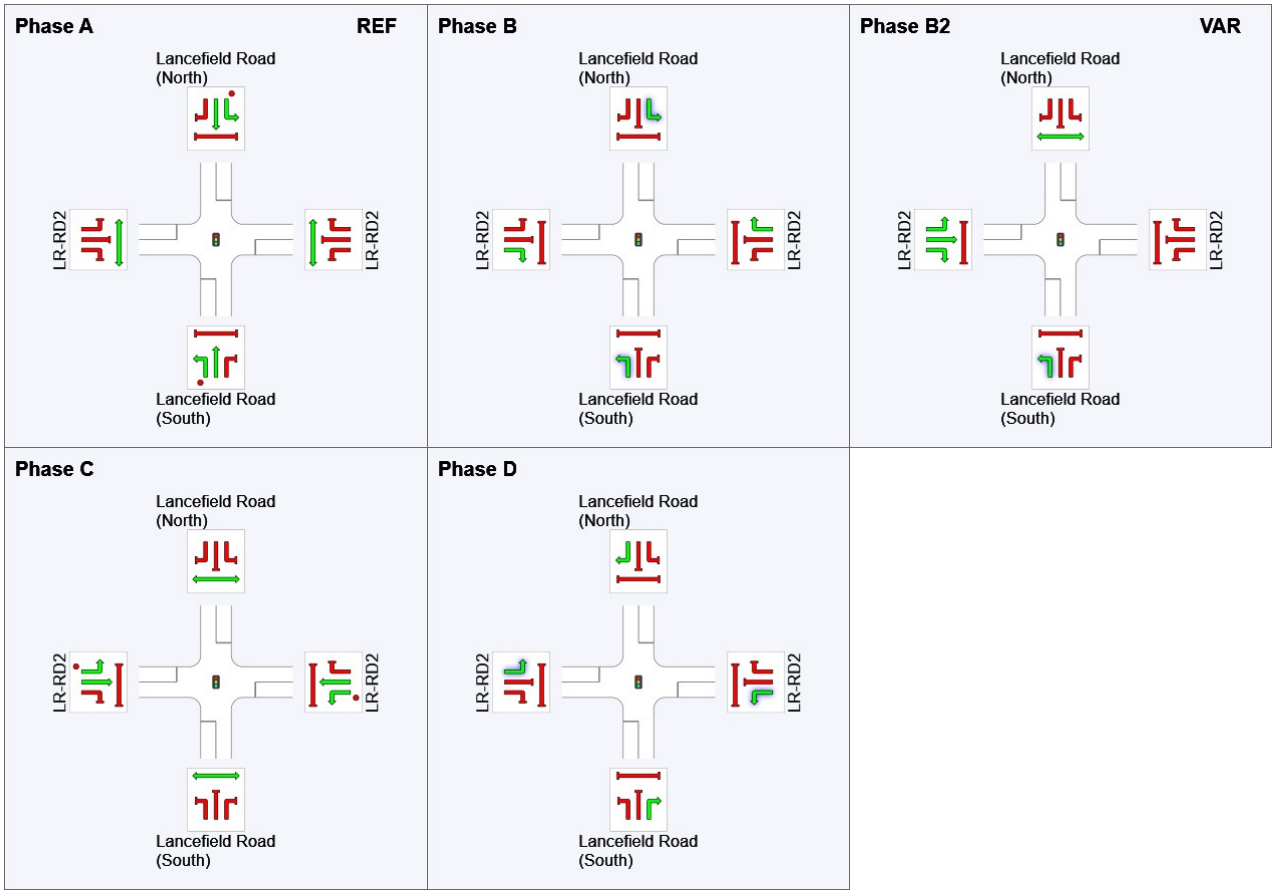
Phase Timing Summary

Phase	A	B	B2	C	D
Phase Change Time (sec)	0	23	36	38	58
Green Time (sec)	17	7	***	14	6
Phase Time (sec)	23	13	2	20	12
Phase Split	33%	19%	3%	29%	17%

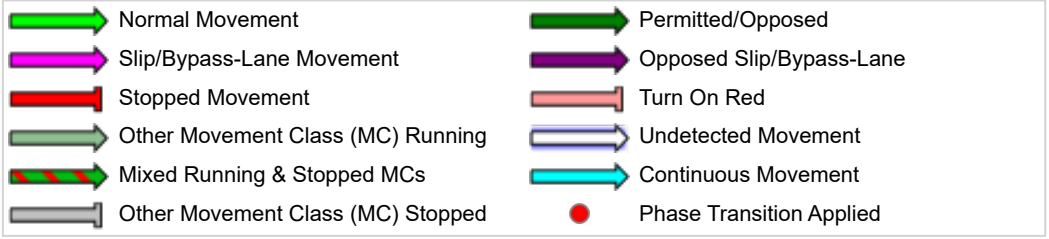
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance													
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Lancefield Road (South)													
Lane 1	61	1.6	682	0.089	100	17.6	LOS B	1.2	8.5	Short	100	0.0	NA
Lane 2	104	0.3	473	0.220	46[6]	23.3	LOS C	2.9	20.4	Short	180	0.0	NA
Lane 3	227	0.3	473	0.480	100	25.1	LOS C	6.8	47.9	Full	500	0.0	0.0
Lane 4	98	1.0	158	0.620	100	42.2	LOS D	3.6	25.1	Short	100	0.0	NA
Approach	490	0.6		0.620		27.2	LOS C	6.8	47.9				
East: LR-RD2													
Lane 1	130	0.0	402	0.323	100	22.3	LOS C	3.4	24.1	Full	500	0.0	0.0
Lane 2	28	0.0	186	0.151	100	38.4	LOS D	0.9	6.5	Short	90	0.0	NA
Approach	158	0.0		0.323		25.1	LOS C	3.4	24.1				
North: Lancefield Road (North)													
Lane 1	35	0.0	637	0.055	100	18.5	LOS B	0.7	4.9	Short	100	0.0	NA
Lane 2	274	0.1	473	0.579	66[6]	25.9	LOS C	8.5	59.5	Short	130	0.0	NA
Lane 3	417	0.1	473	0.882	100	37.9	LOS D	17.0	118.8	Full	500	0.0	0.0
Lane 4	99	0.0	159	0.622	100	42.2	LOS D	3.6	25.1	Short	100	0.0	NA
Approach	825	0.1		0.882		33.6	LOS C	17.0	118.8				
West: LR-RD2													
Lane 1	62	0.0	584	0.106	100	20.2	LOS C	1.3	9.4	Short	100	0.0	NA
Lane 2	62	0.0	446	0.139	100	23.6	LOS C	1.7	12.0	Full	500	0.0	0.0
Lane 3	196	0.5	238	0.824	100	44.0	LOS D	7.5	53.0	Short	90	0.0	NA
Approach	320	0.3		0.824		35.5	LOS D	7.5	53.0				
Intersection	1793	0.3		0.882		31.4	LOS C	17.0	118.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

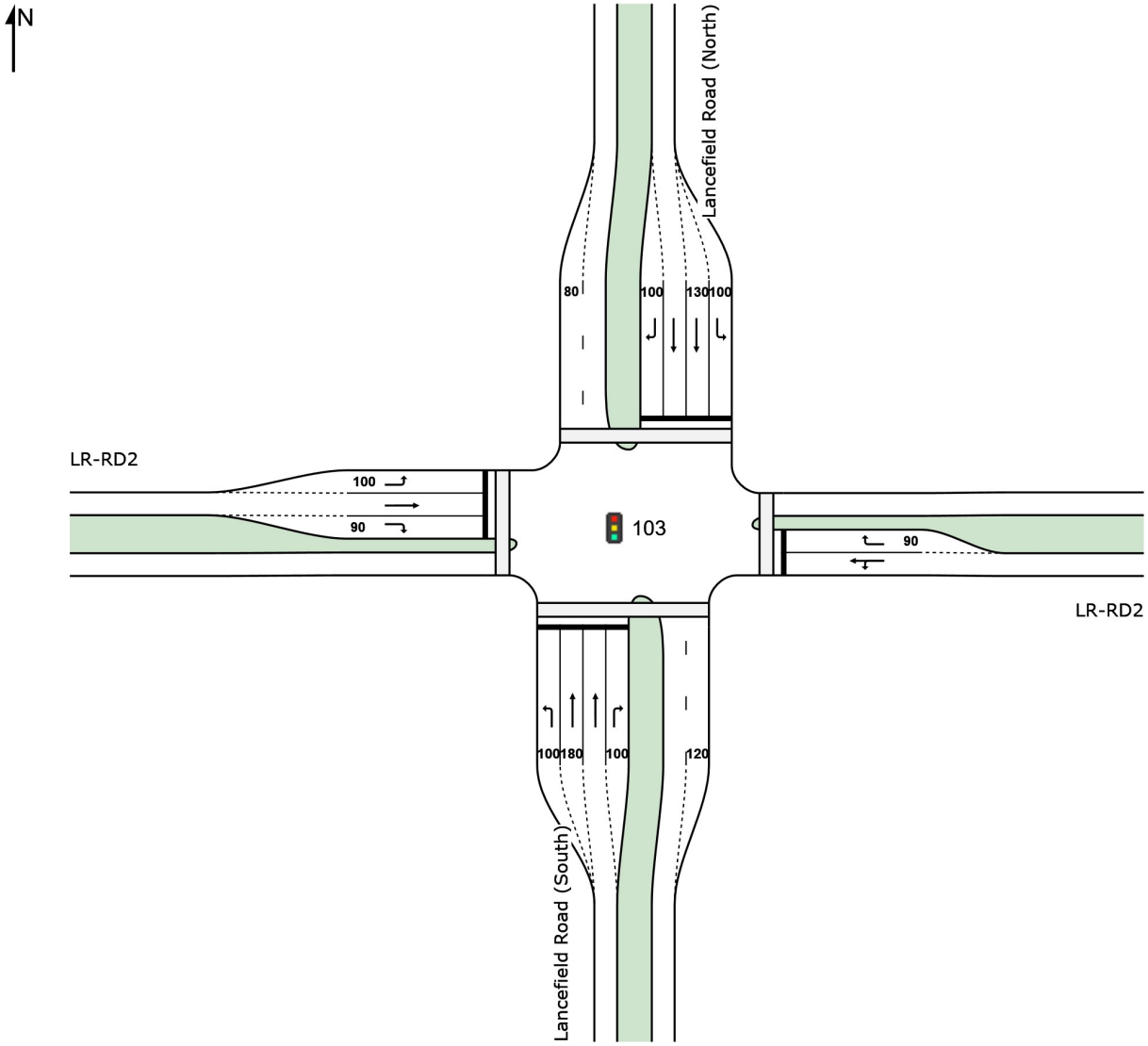
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-PM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

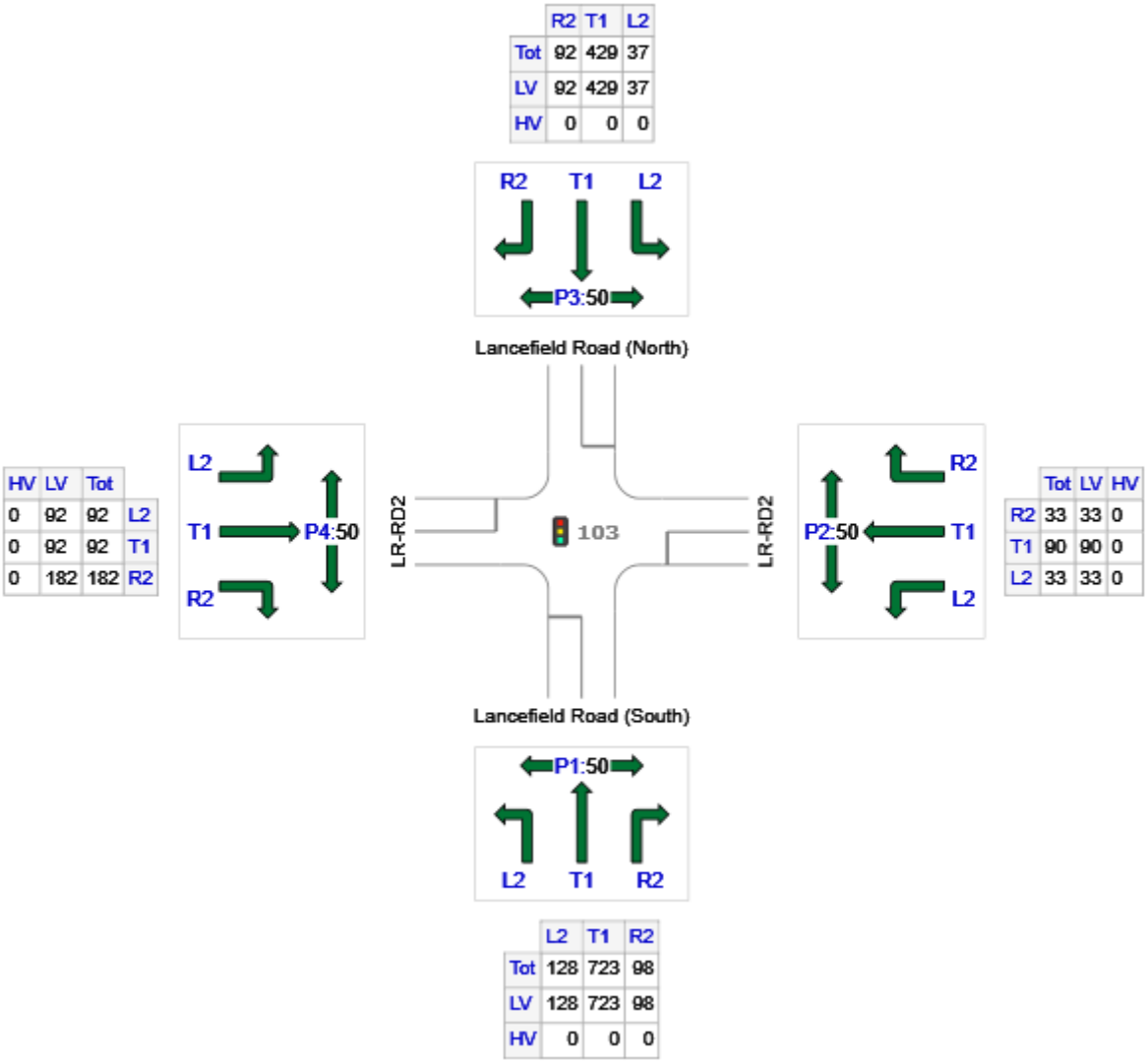
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	949	949	0
E: LR-RD2	156	156	0
N: Lancefield Road (North)	558	558	0
W: LR-RD2	366	366	0
Total	2029	2029	0

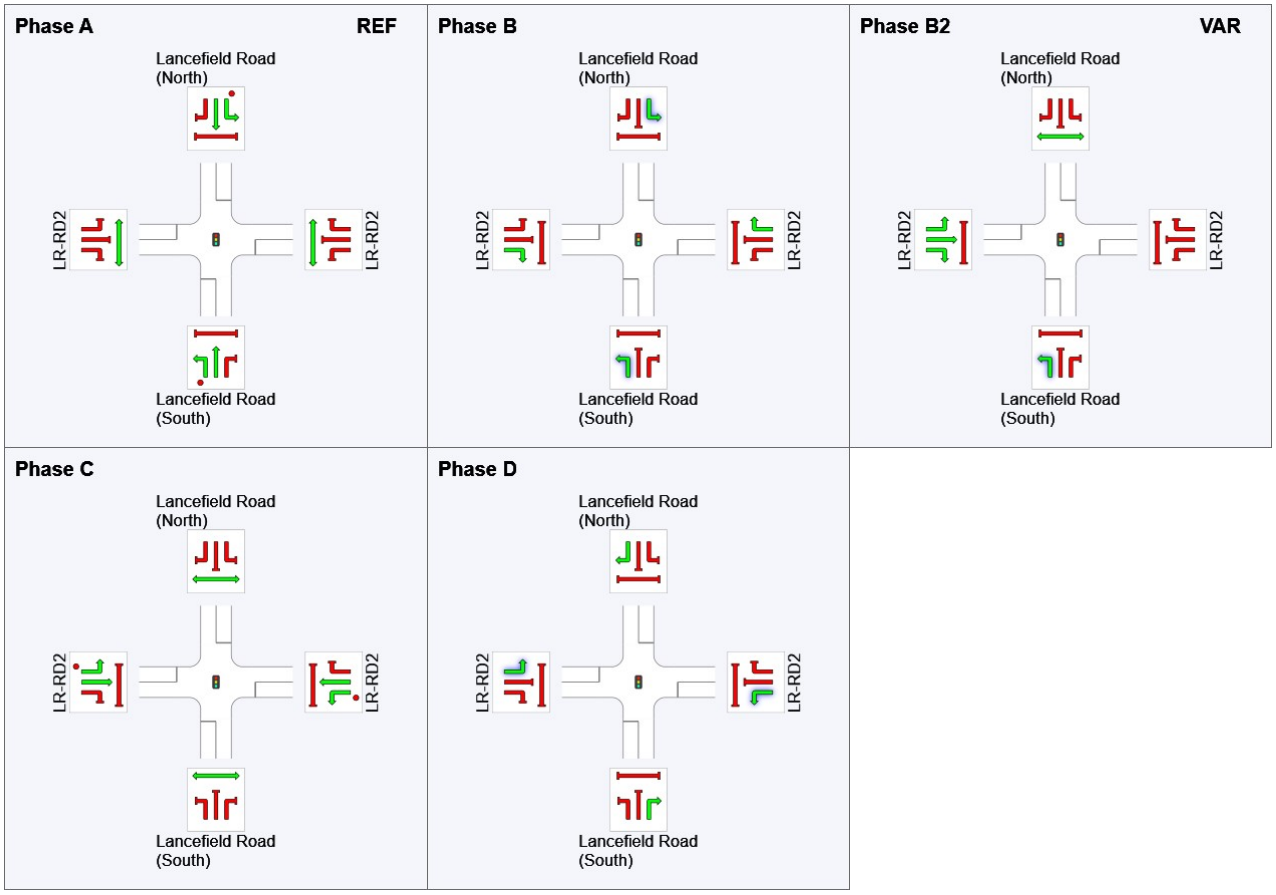
Phase Timing Summary

Phase	A	B	B2	C	D
Phase Change Time (sec)	0	30	44	46	68
Green Time (sec)	24	8	***	16	6
Phase Time (sec)	30	14	2	22	12
Phase Split	38%	18%	3%	28%	15%

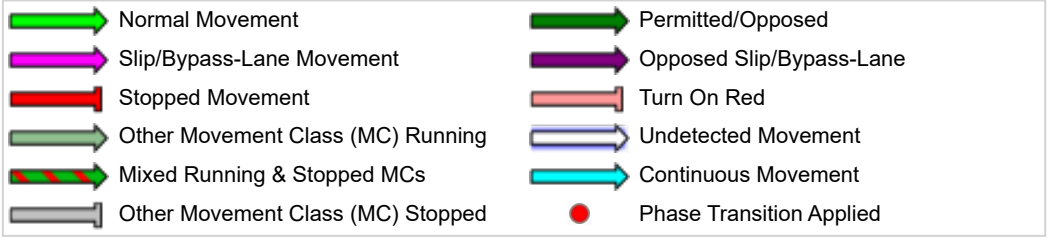
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	128	0.0	789	0.162	100	17.5	LOS B	2.7	19.0	Short	100	0.0	NA
Lane 2	228	0.0	585	0.389	46[6]	24.2	LOS C	7.1	49.9	Short	180	0.0	NA
Lane 3	495	0.0	585	0.847	100	35.4	LOS D	21.0	147.0	Full	500	0.0	0.0
Lane 4	98	0.0	139	0.704	100	49.0	LOS D	4.1	29.0	Short	100	0.0	NA
Approach	949	0.0		0.847		31.7	LOS C	21.0	147.0				
East: LR-RD2													
Lane 1	123	0.0	401	0.307	100	25.8	LOS C	3.7	26.2	Full	500	0.0	0.0
Lane 2	33	0.0	186	0.178	100	42.9	LOS D	1.2	8.7	Short	90	0.0	NA
Approach	156	0.0		0.307		29.4	LOS C	3.7	26.2				
North: Lancefield Road (North)													
Lane 1	37	0.0	743	0.050	100	17.9	LOS B	0.8	5.4	Short	100	0.0	NA
Lane 2	170	0.0	585	0.291	66[6]	23.3	LOS C	5.1	36.0	Short	130	0.0	NA
Lane 3	259	0.0	585	0.443	100	24.7	LOS C	8.3	57.9	Full	500	0.0	0.0
Lane 4	92	0.0	139	0.661	100	48.4	LOS D	3.9	27.0	Short	100	0.0	NA
Approach	558	0.0		0.661		27.7	LOS C	8.3	57.9				
West: LR-RD2													
Lane 1	92	0.0	557	0.165	100	23.9	LOS C	2.4	16.9	Short	100	0.0	NA
Lane 2	92	0.0	439	0.210	100	27.6	LOS C	3.0	20.8	Full	500	0.0	0.0
Lane 3	182	0.0	232	0.784	100	47.3	LOS D	7.7	53.9	Short	90	0.0	NA
Approach	366	0.0		0.784		36.4	LOS D	7.7	53.9				
Intersection	2029	0.0		0.847		31.3	LOS C	21.0	147.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

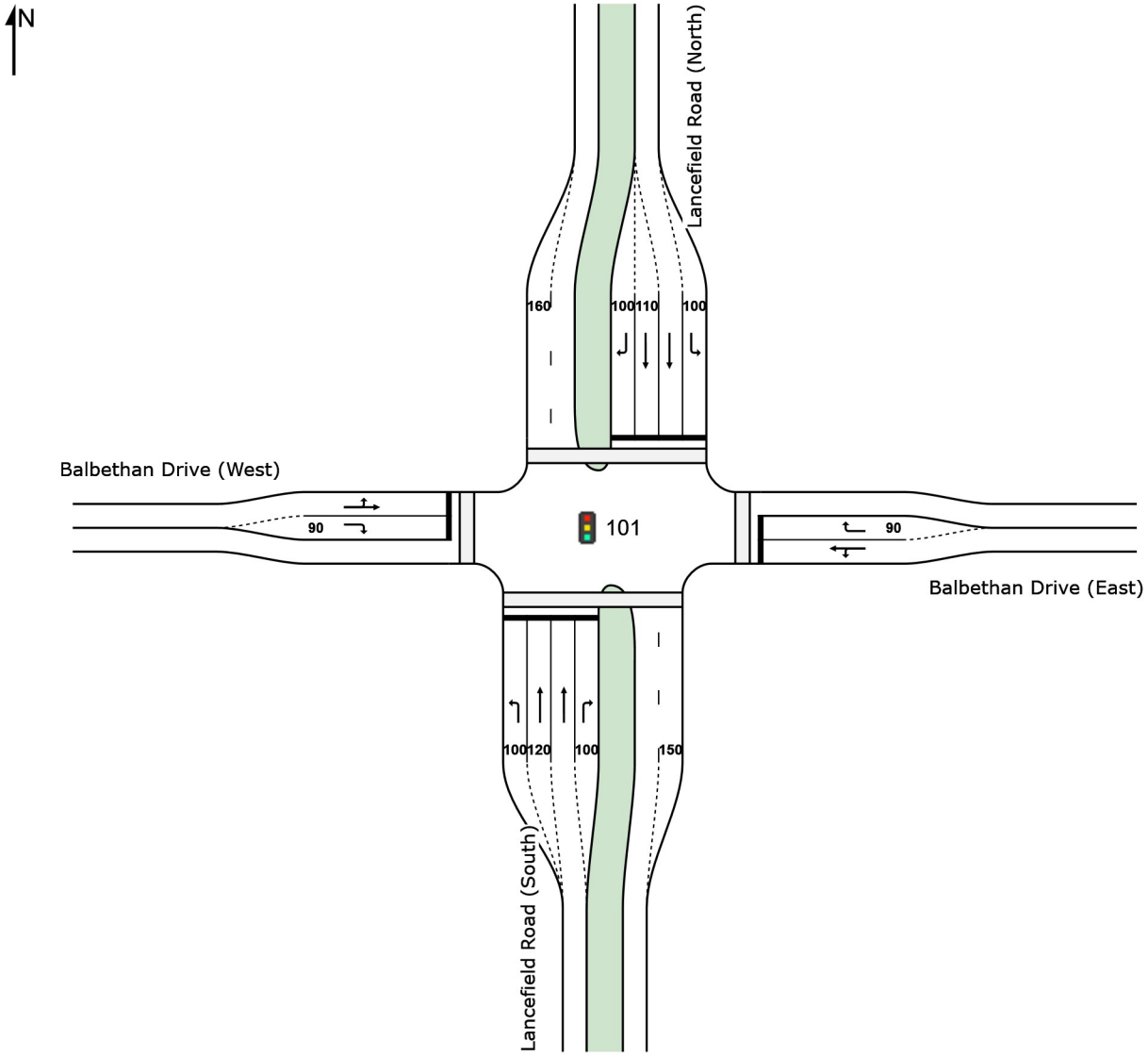
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-AM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

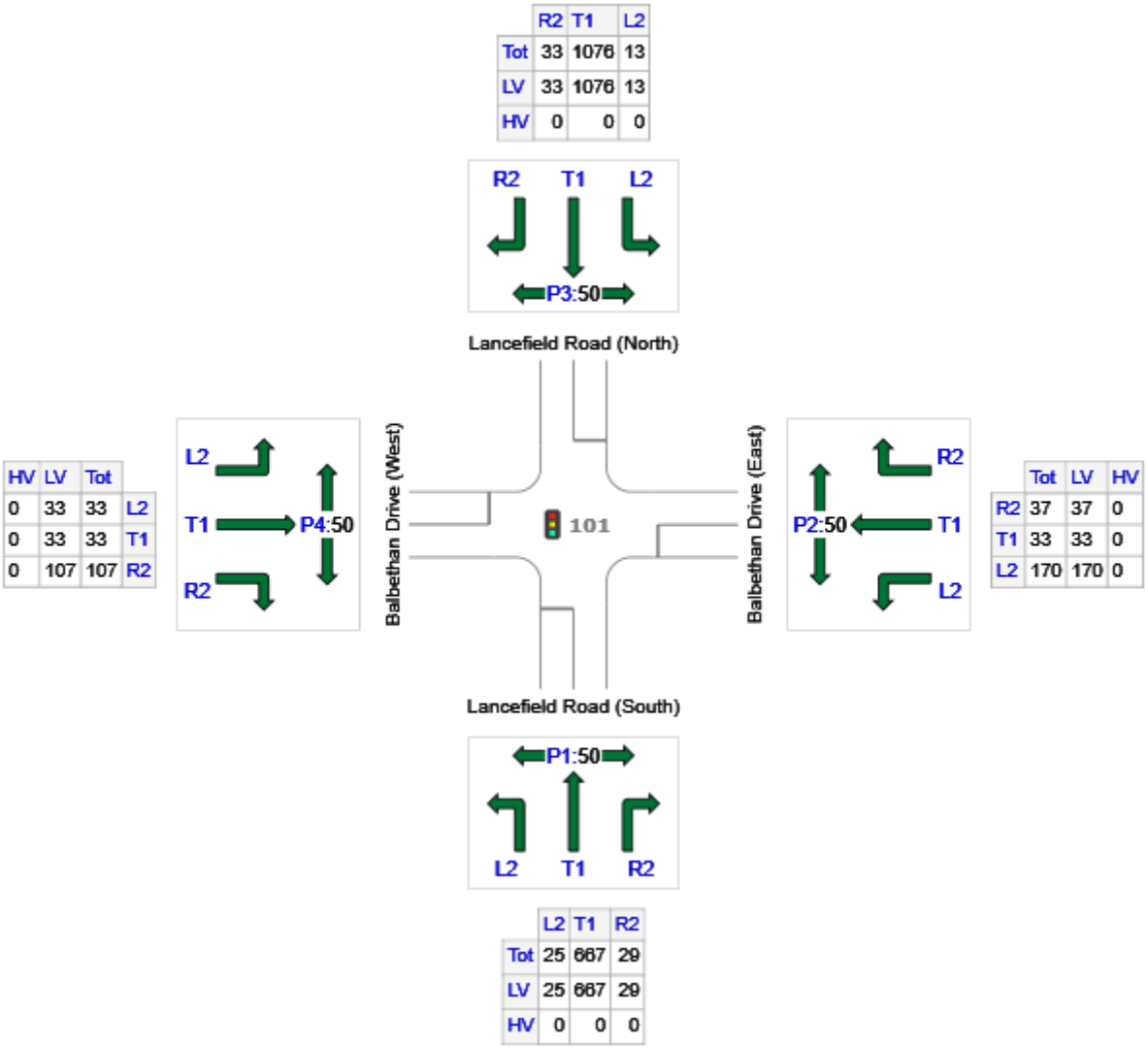
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



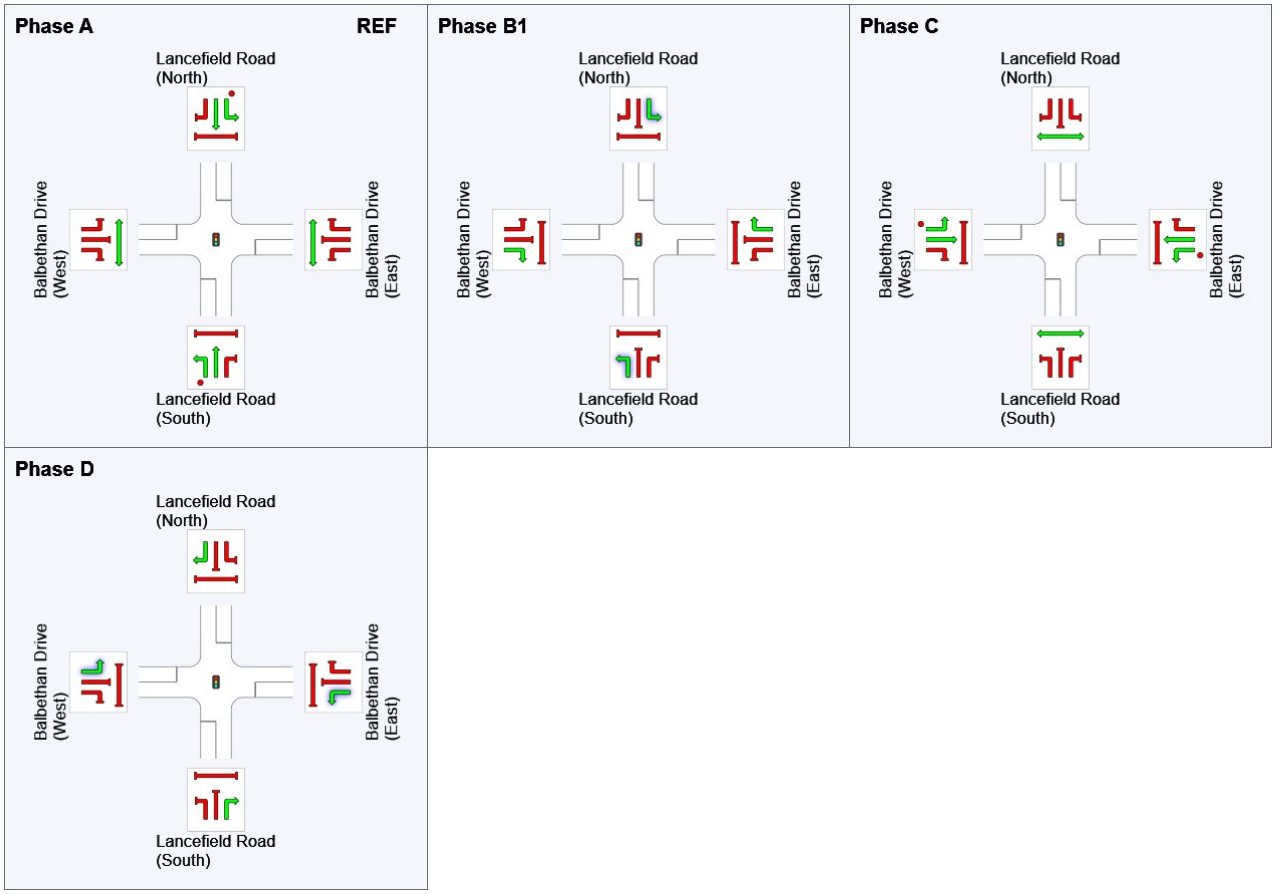
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	721	721	0
E: Balbethan Drive (East)	240	240	0
N: Lancefield Road (North)	1122	1122	0
W: Balbethan Drive (West)	173	173	0
Total	2256	2256	0

Phase Timing Summary

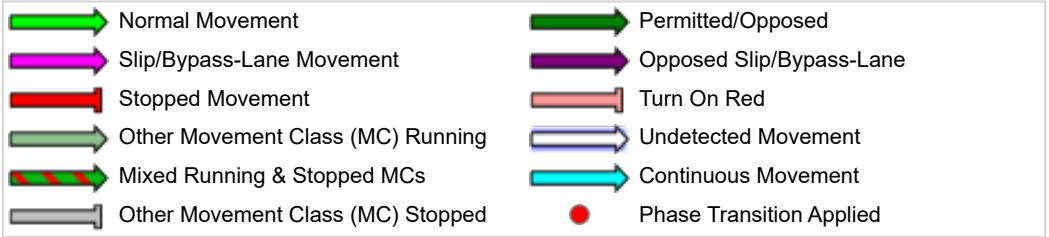
Phase	A	B1	C	D
Phase Change Time (sec)	0	34	46	68
Green Time (sec)	28	6	16	6
Phase Time (sec)	34	12	22	12
Phase Split	43%	15%	28%	15%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	25	0.0	789	0.032	100	16.6	LOS B	0.5	3.4	Short	100	0.0	NA
Lane 2	307	0.0	682	0.449	85[6]	21.8	LOS C	9.3	65.2	Short	120	0.0	NA
Lane 3	360	0.0	683	0.528	100	22.5	LOS C	11.3	79.3	Full	500	0.0	0.0
Lane 4	29	0.0	139	0.208	100	45.5	LOS D	1.1	8.0	Short	100	0.0	NA
Approach	721	0.0		0.528		22.9	LOS C	11.3	79.3				
East: Balbethan Drive (East)													
Lane 1	203	0.0	484	0.419	100	26.8	LOS C	6.1	42.5	Full	500	0.0	0.0
Lane 2	37	0.0	139	0.266	100	45.9	LOS D	1.5	10.2	Short	90	0.0	NA
Approach	240	0.0		0.419		29.8	LOS C	6.1	42.5				
North: Lancefield Road (North)													
Lane 1	13	0.0	789	0.016	100	16.5	LOS B	0.3	1.8	Short	100	0.0	NA
Lane 2	477	0.0	683	0.699	80[6]	24.6	LOS C	16.3	114.2	Full	500	0.0	0.0
Lane 3	599	0.0	683	0.877	100	36.3	LOS D	26.6	186.0	Short	110	0.0	NA
Lane 4	33	0.0	139	0.237	100	45.7	LOS D	1.3	9.1	Short	100	0.0	NA
Approach	1122	0.0		0.877		31.3	LOS C	26.6	186.0				
West: Balbethan Drive (West)													
Lane 1	66	0.0	422	0.156	100	25.4	LOS C	1.9	13.3	Full	500	0.0	0.0
Lane 2	107	0.0	139	0.768	100	50.3	LOS D	4.6	32.4	Short	90	0.0	NA
Approach	173	0.0		0.768		40.8	LOS D	4.6	32.4				
Intersection	2256	0.0		0.877		29.2	LOS C	26.6	186.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

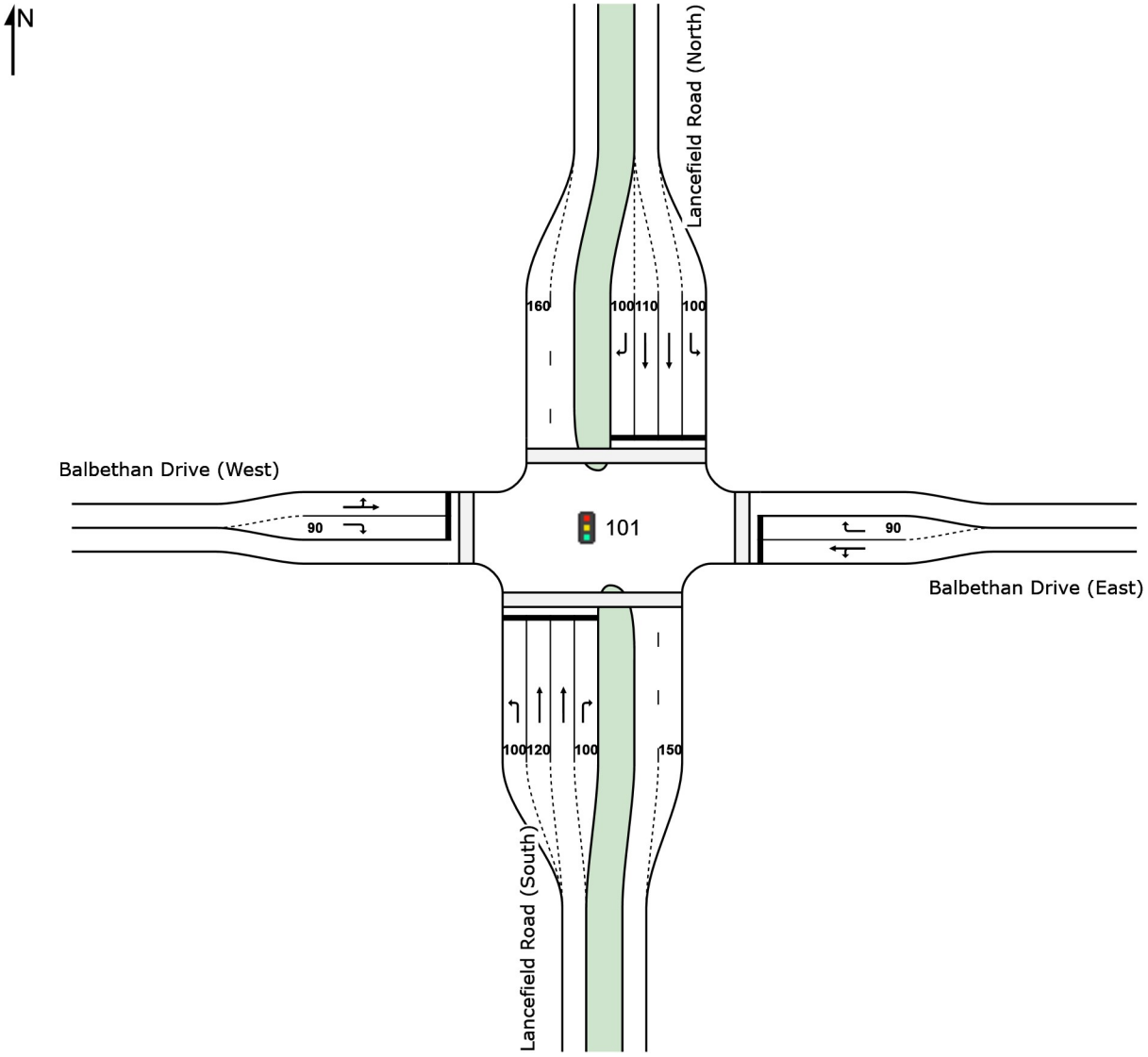
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-PM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

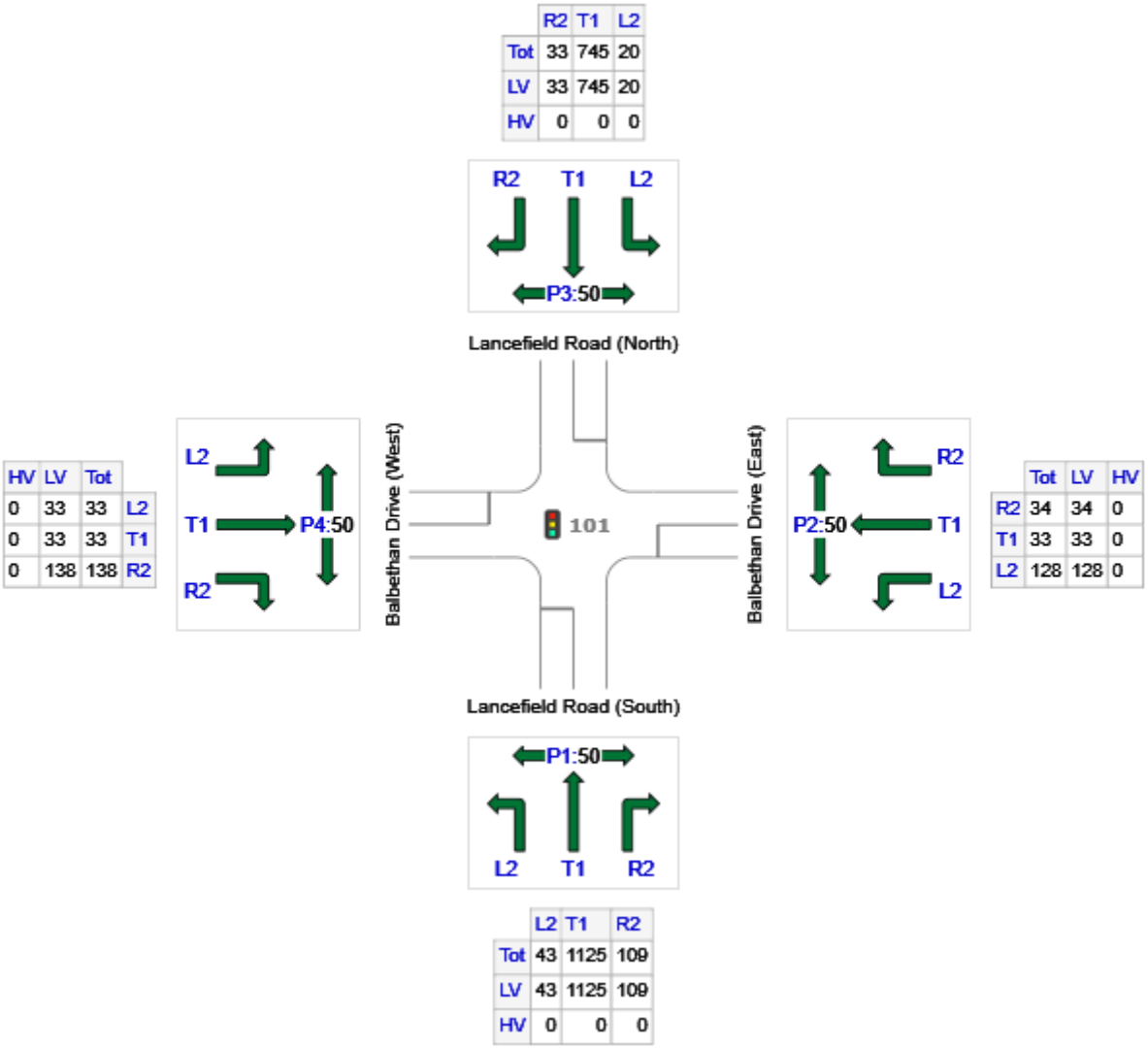
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



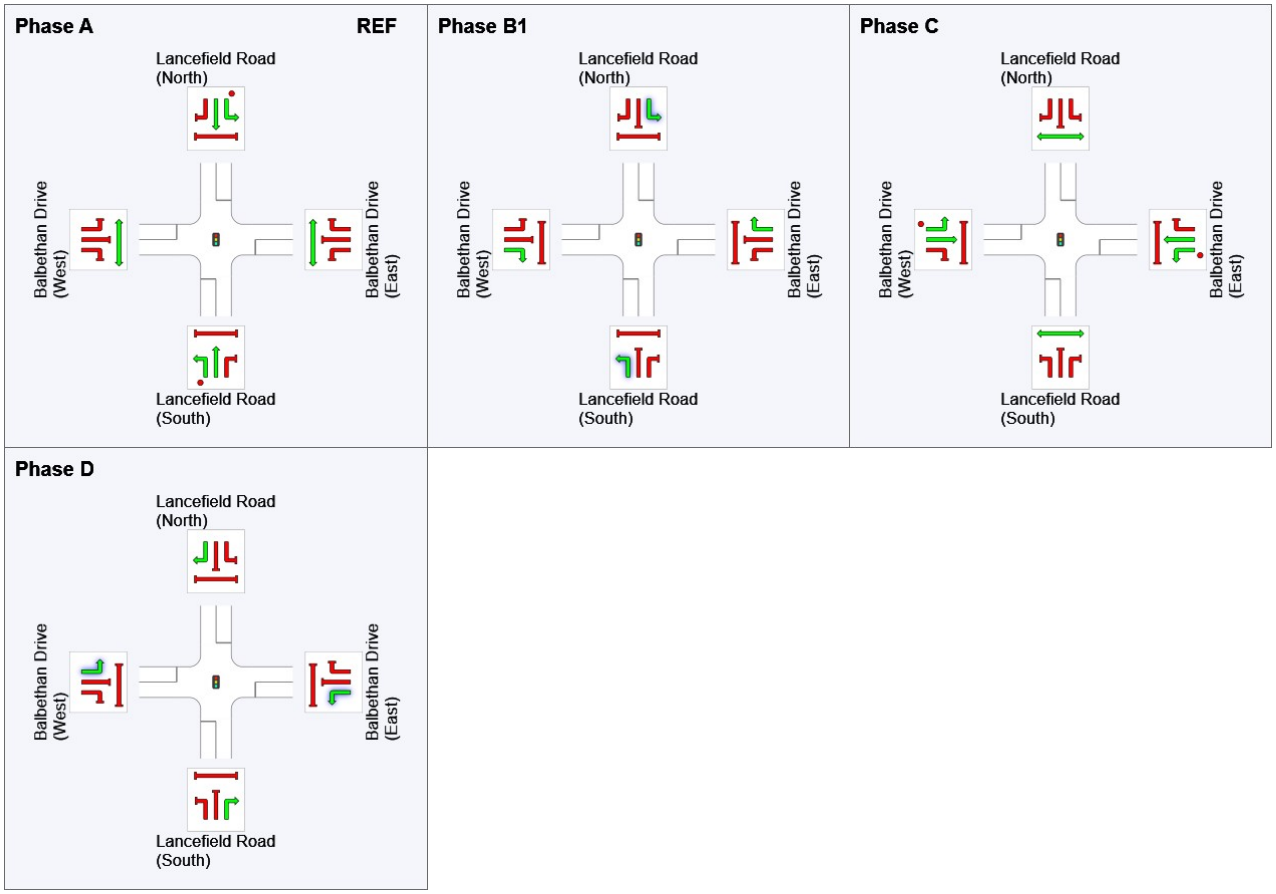
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1277	1277	0
E: Balbethan Drive (East)	195	195	0
N: Lancefield Road (North)	798	798	0
W: Balbethan Drive (West)	204	204	0
Total	2474	2474	0

Phase Timing Summary

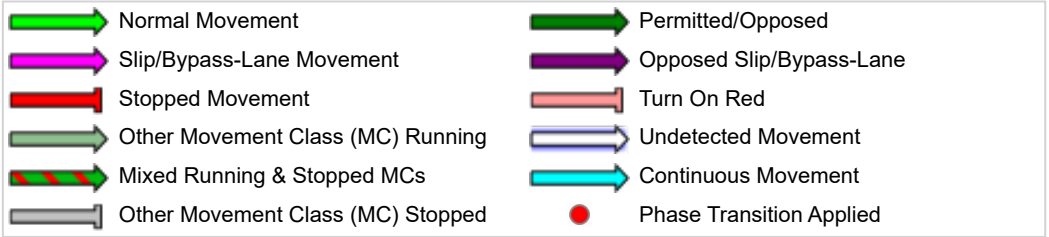
Phase	A	B1	C	D
Phase Change Time (sec)	0	40	54	77
Green Time (sec)	34	8	17	7
Phase Time (sec)	40	14	23	13
Phase Split	44%	16%	26%	14%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	43	0.0	867	0.050	100	16.5	LOS B	0.9	6.3	Short	100	0.0	NA
Lane 2	517	0.0	737	0.702	85[6]	25.6	LOS C	19.3	135.3	Short	120	0.0	NA
Lane 3	608	0.0	737	0.825	100	31.9	LOS C	26.6	185.9	Full	500	0.0	0.0
Lane 4	109	0.0	144	0.755	100	54.7	LOS D	5.2	36.5	Short	100	0.0	NA
Approach	1277	0.0		0.825		30.8	LOS C	26.6	185.9				
East: Balbethan Drive (East)													
Lane 1	161	0.0	449	0.358	100	30.5	LOS C	5.5	38.3	Full	500	0.0	0.0
Lane 2	34	0.0	165	0.206	100	48.7	LOS D	1.5	10.2	Short	90	0.0	NA
Approach	195	0.0		0.358		33.7	LOS C	5.5	38.3				
North: Lancefield Road (North)													
Lane 1	20	0.0	867	0.023	100	16.3	LOS B	0.4	2.9	Short	100	0.0	NA
Lane 2	330	0.0	737	0.449	80[6]	22.6	LOS C	10.9	76.2	Full	500	0.0	0.0
Lane 3	415	0.0	737	0.563	100	23.9	LOS C	14.4	101.0	Short	110	0.0	NA
Lane 4	33	0.0	144	0.228	100	50.0	LOS D	1.4	10.1	Short	100	0.0	NA
Approach	798	0.0		0.563		24.3	LOS C	14.4	101.0				
West: Balbethan Drive (West)													
Lane 1	66	0.0	397	0.166	100	29.7	LOS C	2.2	15.4	Full	500	0.0	0.0
Lane 2	138	0.0	165	0.836	100	56.7	LOS E	6.8	47.7	Short	90	0.0	NA
Approach	204	0.0		0.836		48.0	LOS D	6.8	47.7				
Intersection	2474	0.0		0.836		30.3	LOS C	26.6	185.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

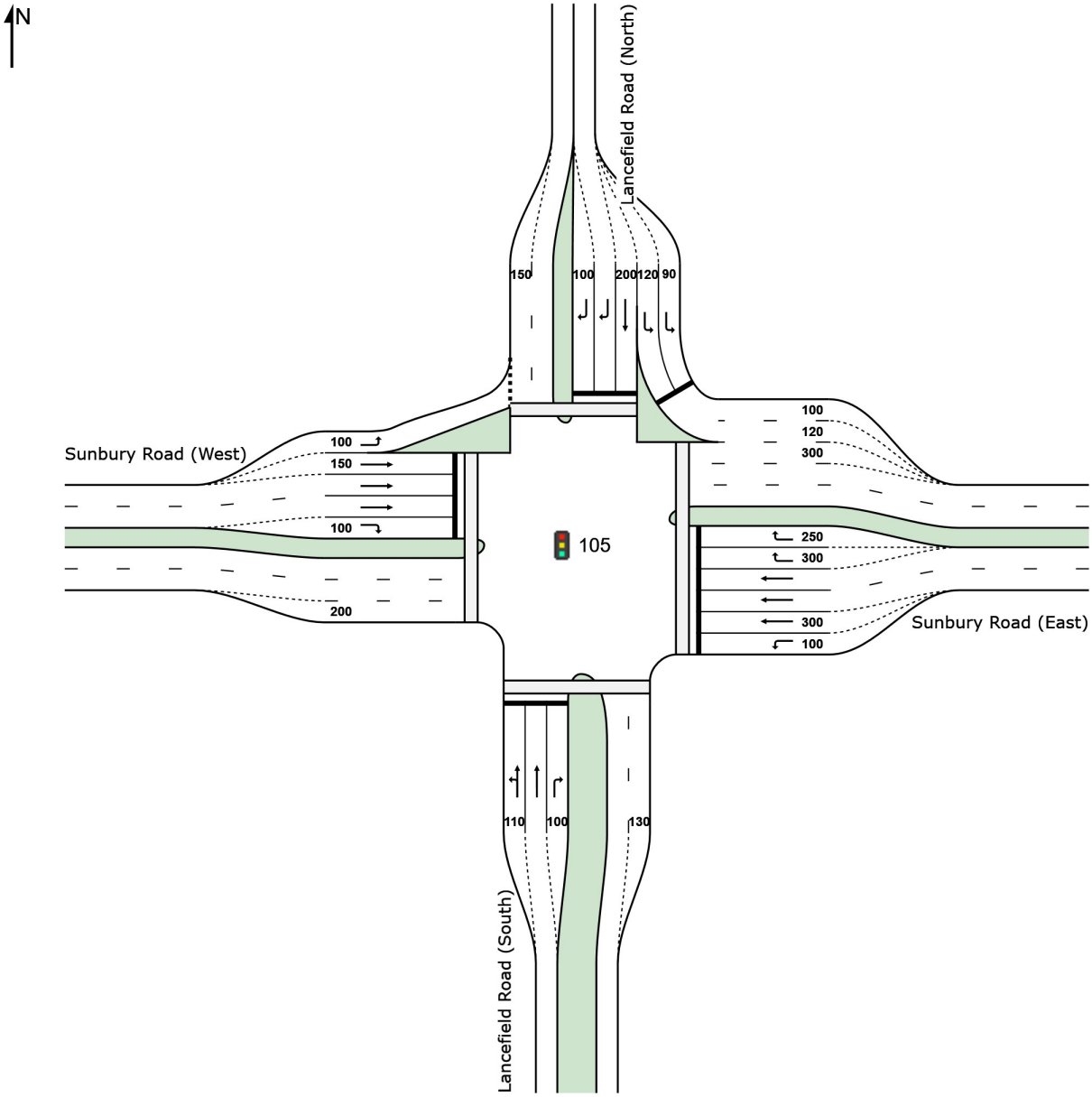
6 Lane under-utilisation due to downstream effects

Site: 105 [SS-IN-03-AM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

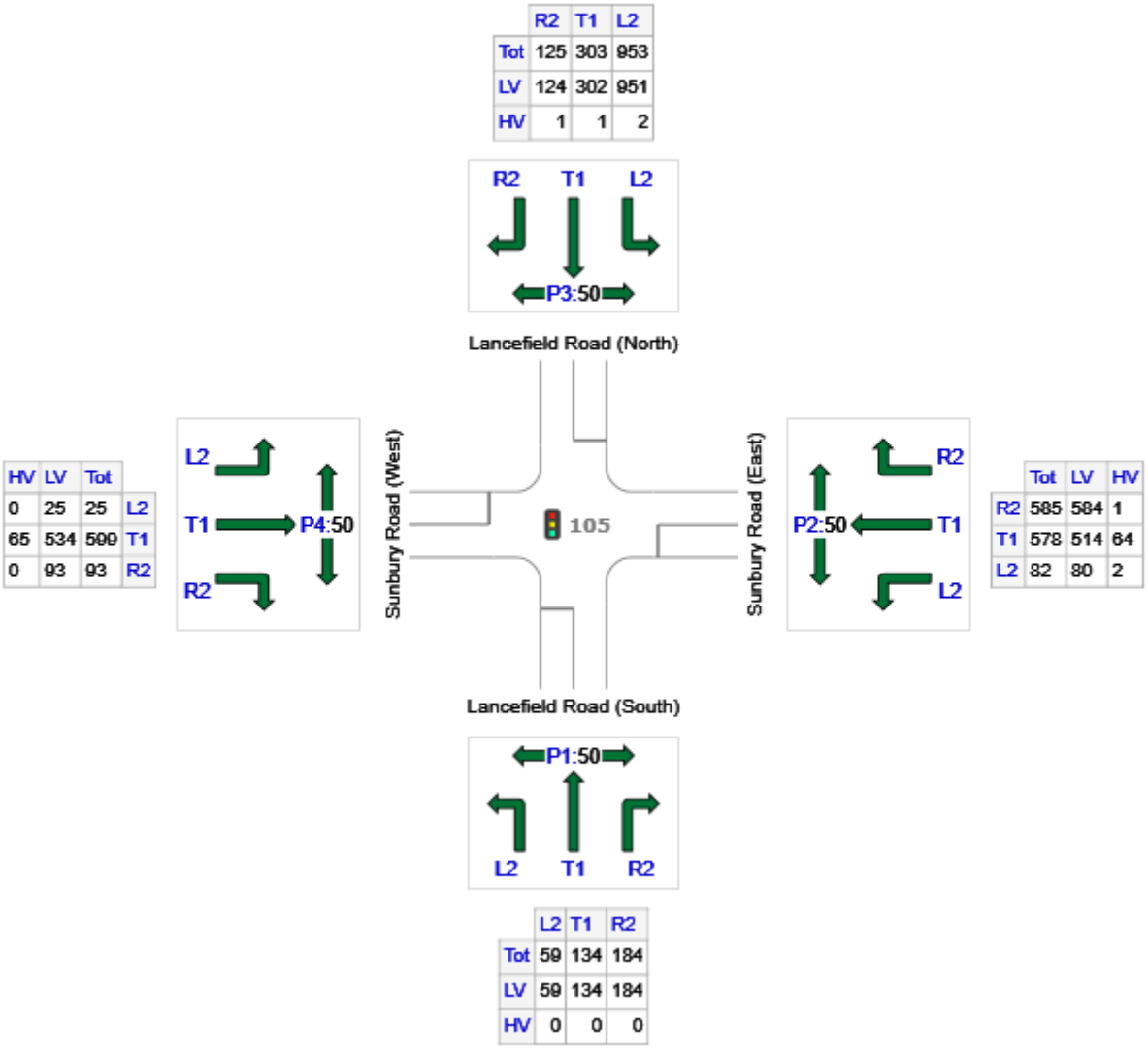
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



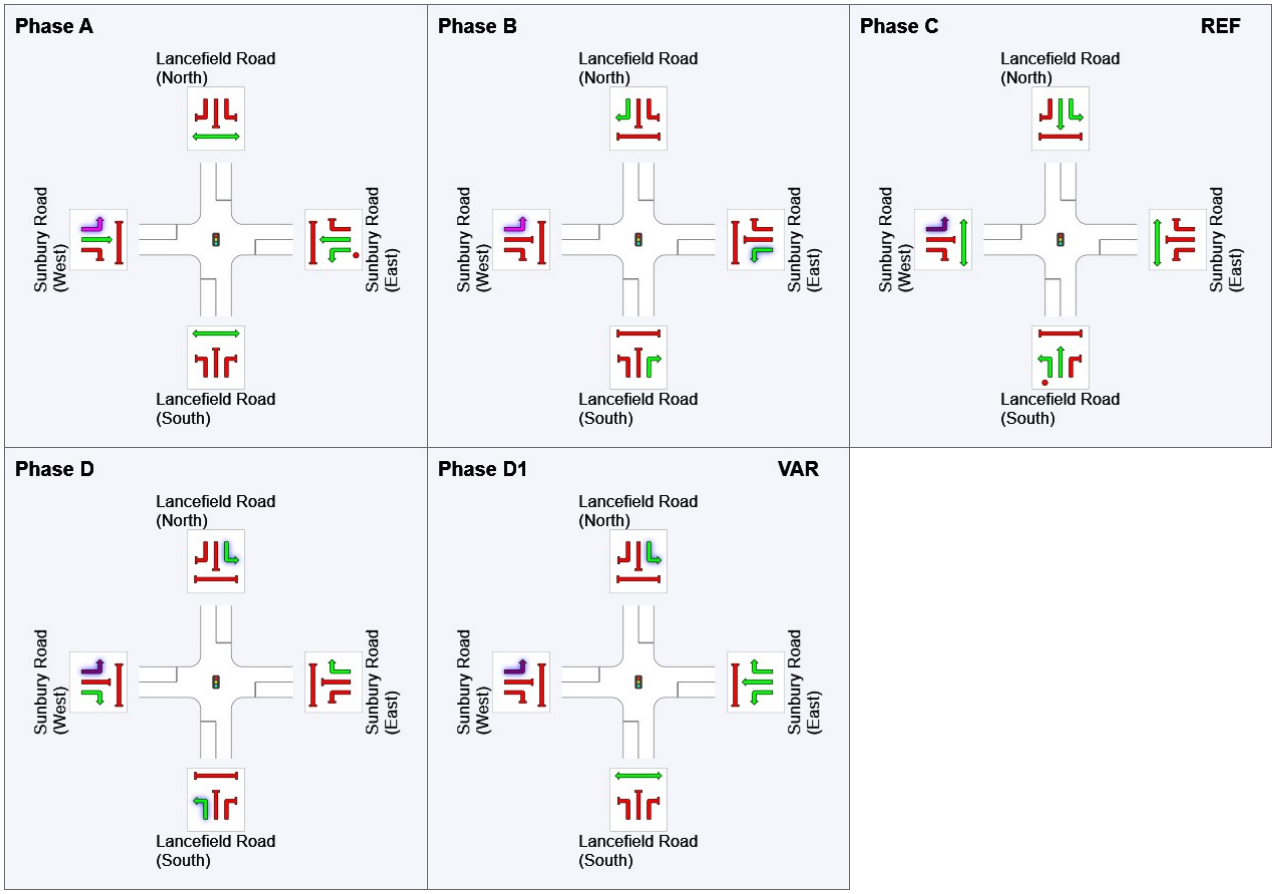
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	377	377	0
E: Sunbury Road (East)	1245	1178	67
N: Lancefield Road (North)	1381	1377	4
W: Sunbury Road (West)	717	652	65
Total	3720	3584	136

Phase Timing Summary

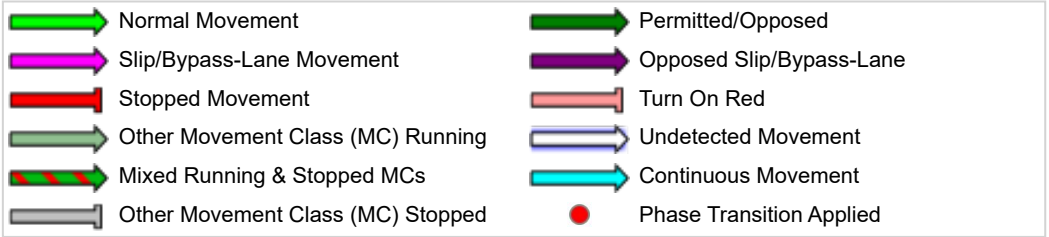
Phase	A	B	C	D	D1
Phase Change Time (sec)	61	82	0	34	52
Green Time (sec)	15	12	28	12	3
Phase Time (sec)	21	18	34	18	9
Phase Split	21%	18%	34%	18%	9%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	97	0.0	584	0.166	94[6]	26.1	LOS C	3.1	22.0	Short	110	0.0	NA
Lane 2	96	0.0	546	0.176	100	29.3	LOS C	3.6	24.9	Full	500	0.0	0.0
Lane 3	184	0.0	223	0.826	100	58.9	LOS E	9.8	68.7	Short	100	0.0	NA
Approach	377	0.0		0.826		42.9	LOS D	9.8	68.7				
East: Sunbury Road (East)													
Lane 1	82	2.4	657	0.125	100	24.9	LOS C	2.4	17.5	Short	100	0.0	NA
Lane 2	193	11.1	437	0.441	100	35.3	LOS D	8.1	62.1	Short	300	0.0	NA
Lane 3	193	11.1	437	0.441	100	35.3	LOS D	8.1	62.1	Full	500	0.0	0.0
Lane 4	193	11.1	437	0.441	100	35.3	LOS D	8.1	62.1	Full	500	0.0	0.0
Lane 5	276	0.2	390	0.709	89[6]	47.0	LOS D	13.0	91.4	Short	300	0.0	NA
Lane 6	309	0.2	390	0.793	100	50.4	LOS D	15.5	108.7	Short	250	0.0	NA
Approach	1245	5.4		0.793		40.9	LOS D	15.5	108.7				
North: Lancefield Road (North)													
Lane 1	440	0.2	1020	0.432	86[6]	19.8	LOS B	12.5	88.0	Short	90	0.0	NA
Lane 2	513	0.2	1020	0.503	100	20.5	LOS C	15.4	108.1	Short	120	0.0	NA
Lane 3	303	0.3	545	0.556	100	33.3	LOS C	12.7	89.2	Short	200	0.0	NA
Lane 4	63	0.8	222	0.282	100	50.3	LOS D	2.9	20.3	Full	500	0.0	0.0
Lane 5	63	0.8	222	0.282	100	50.3	LOS D	2.9	20.3	Short	100	0.0	NA
Approach	1381	0.3		0.556		25.8	LOS C	15.4	108.1				
West: Sunbury Road (West)													
Lane 1	25	0.0	1207	0.021	100	8.4	LOS A	0.3	1.9	Short	100	0.0	NA
Lane 2	200	10.9	273	0.731	100	47.0	LOS D	9.9	76.1	Short	150	0.0	NA
Lane 3	200	10.9	273	0.731	100	47.0	LOS D	9.9	76.1	Full	500	0.0	0.0
Lane 4	200	10.9	273	0.731	100	47.0	LOS D	9.9	76.1	Full	500	0.0	0.0
Lane 5	93	0.0	223	0.417	100	51.2	LOS D	4.4	30.6	Short	100	0.0	NA
Approach	717	9.1		0.731		46.2	LOS D	9.9	76.1				
Intersection	3720	3.7		0.826		36.5	LOS D	15.5	108.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

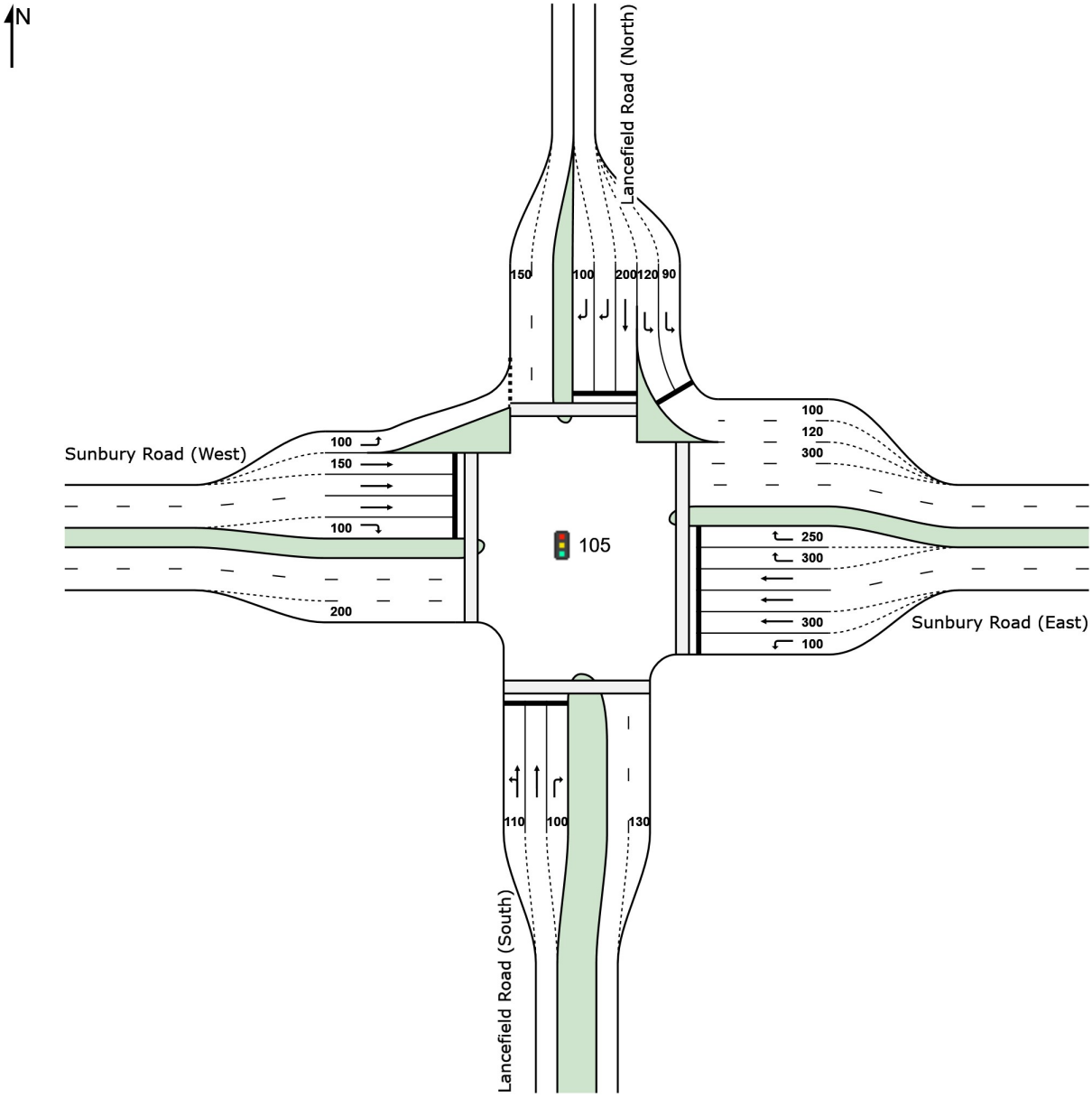
6 Lane under-utilisation due to downstream effects

Site: 105 [SS-IN-03-PM Peak - 50% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

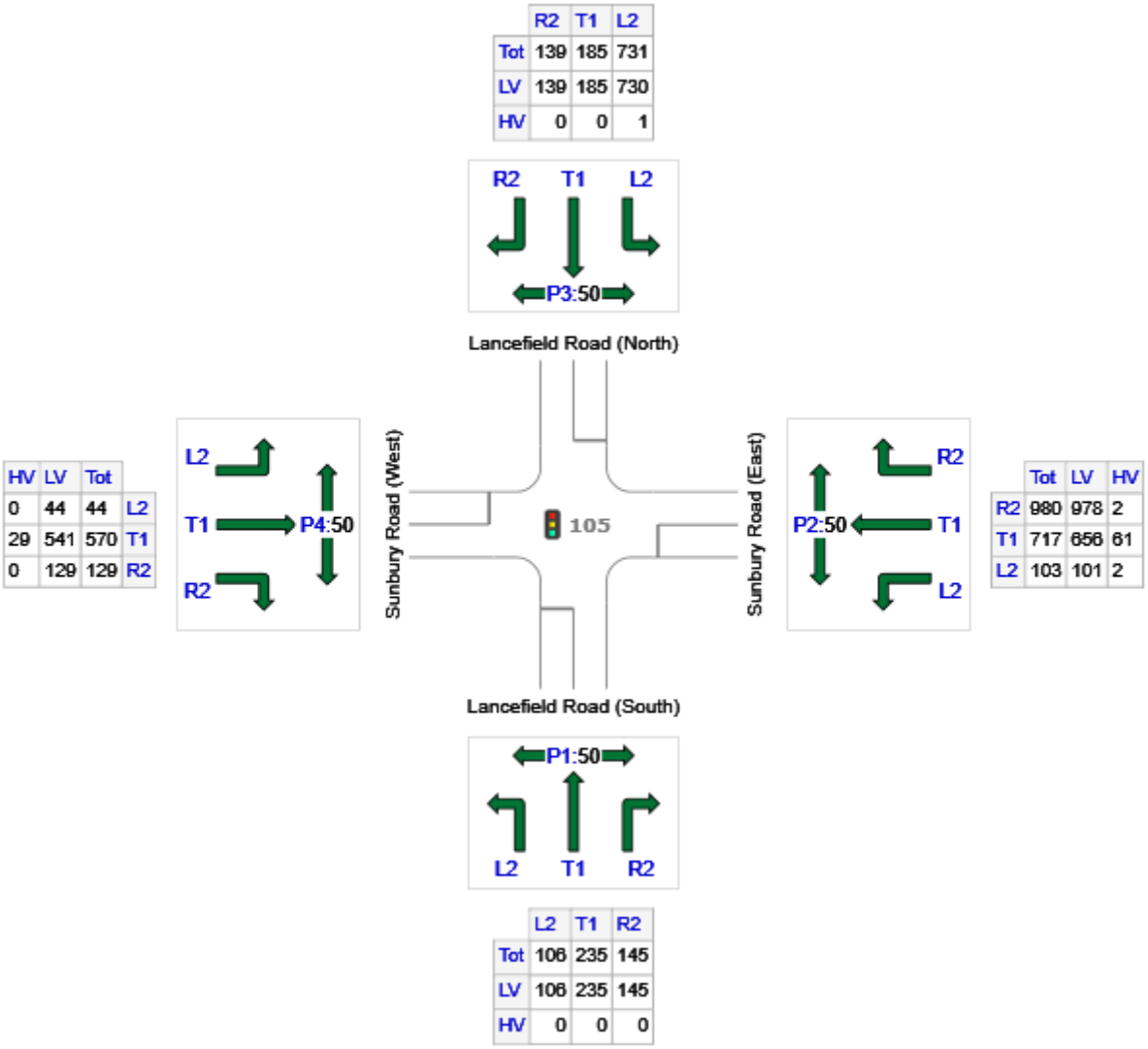
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



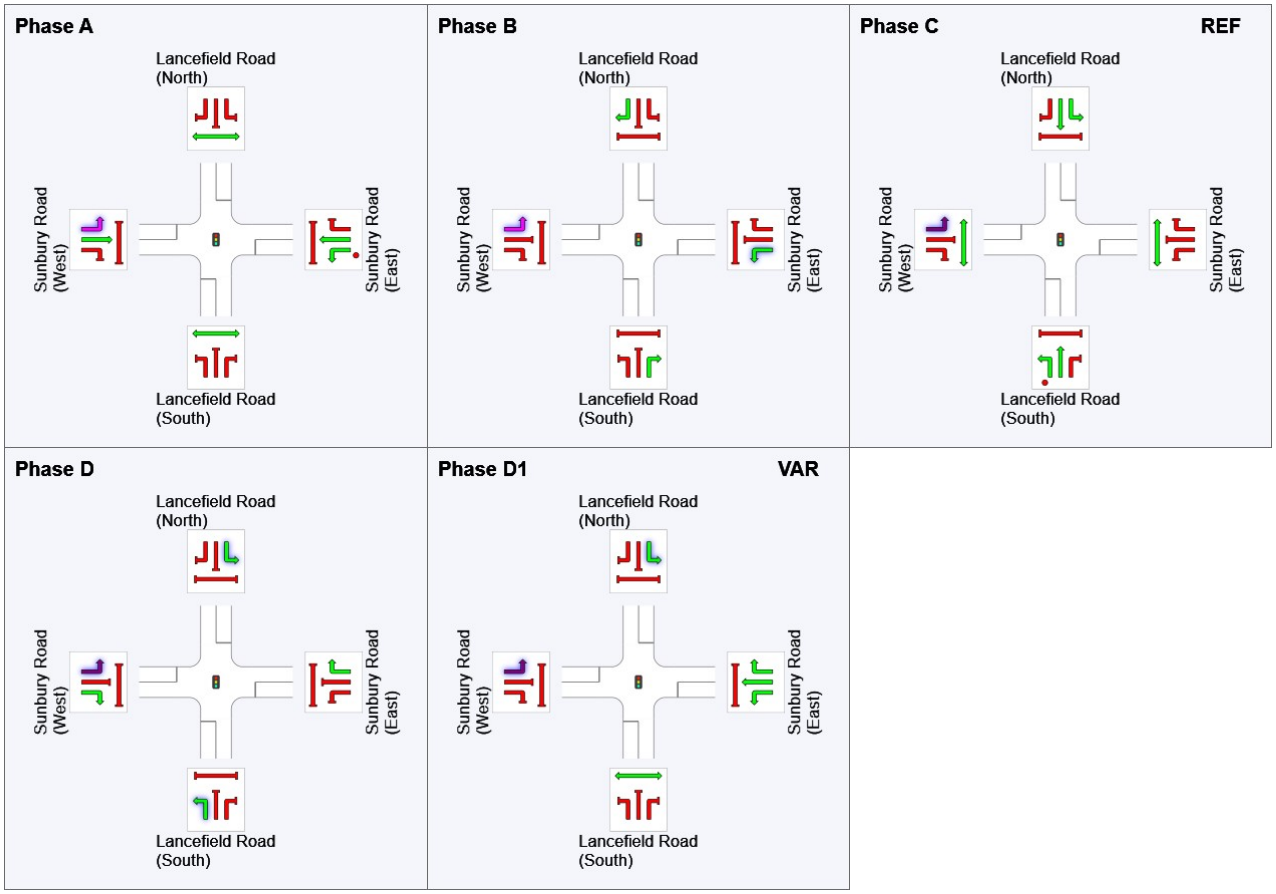
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	486	486	0
E: Sunbury Road (East)	1800	1735	65
N: Lancefield Road (North)	1055	1054	1
W: Sunbury Road (West)	743	714	29
Total	4084	3989	95

Phase Timing Summary

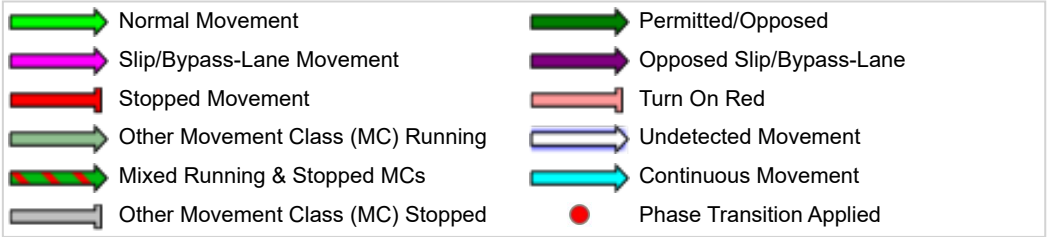
Phase	A	B	C	D	D1
Phase Change Time (sec)	81	103	0	36	61
Green Time (sec)	16	11	30	19	14
Phase Time (sec)	22	17	36	25	20
Phase Split	18%	14%	30%	21%	17%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	171	0.0	521	0.328	94[6]	35.3	LOS D	7.4	51.5	Short	110	0.0	NA
Lane 2	170	0.0	488	0.349	100	39.8	LOS D	8.2	57.3	Full	500	0.0	0.0
Lane 3	145	0.0	170	0.852	100	72.4	LOS E	9.4	65.7	Short	100	0.0	NA
Approach	486	0.0		0.852		48.0	LOS D	9.4	65.7				
East: Sunbury Road (East)													
Lane 1	103	1.9	717	0.144	100	27.0	LOS C	3.5	25.2	Short	100	0.0	NA
Lane 2	239	8.5	554	0.431	100	36.3	LOS D	11.2	84.5	Short	300	0.0	NA
Lane 3	239	8.5	554	0.431	100	36.3	LOS D	11.2	84.5	Full	500	0.0	0.0
Lane 4	239	8.5	554	0.431	100	36.3	LOS D	11.2	84.5	Full	500	0.0	0.0
Lane 5	463	0.2	603	0.768	89[6]	46.2	LOS D	25.0	175.0	Short	300	0.0	NA
Lane 6	517	0.2	603	0.858	100	54.0	LOS D	31.5	221.1	Short	250	0.0	NA
Approach	1800	3.6		0.858		43.4	LOS D	31.5	221.1				
North: Lancefield Road (North)													
Lane 1	338	0.1	1160	0.291	86[6]	16.5	LOS B	8.9	62.2	Short	90	0.0	NA
Lane 2	393	0.1	1160	0.339	100	16.9	LOS B	10.7	75.3	Short	120	0.0	NA
Lane 3	185	0.0	488	0.379	100	40.2	LOS D	9.0	62.9	Short	200	0.0	NA
Lane 4	70	0.0	170	0.408	100	63.3	LOS E	4.0	28.0	Full	500	0.0	0.0
Lane 5	70	0.0	170	0.408	100	63.3	LOS E	4.0	28.0	Short	100	0.0	NA
Approach	1055	0.1		0.408		27.0	LOS C	10.7	75.3				
West: Sunbury Road (West)													
Lane 1	44	0.0	967	0.046	100	13.5	LOS B	0.9	6.3	Short	100	0.0	NA
Lane 2	190	5.1	252	0.755	100	57.9	LOS E	11.4	83.3	Short	150	0.0	NA
Lane 3	190	5.1	252	0.755	100	57.9	LOS E	11.4	83.3	Full	500	0.0	0.0
Lane 4	190	5.1	252	0.755	100	57.9	LOS E	11.4	83.3	Full	500	0.0	0.0
Lane 5	129	0.0	294	0.439	100	55.7	LOS E	7.0	48.8	Short	100	0.0	NA
Approach	743	3.9		0.755		54.9	LOS D	11.4	83.3				
Intersection	4084	2.3		0.858		41.8	LOS D	31.5	221.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

6 Lane under-utilisation due to downstream effects

USER REPORT FOR SITE

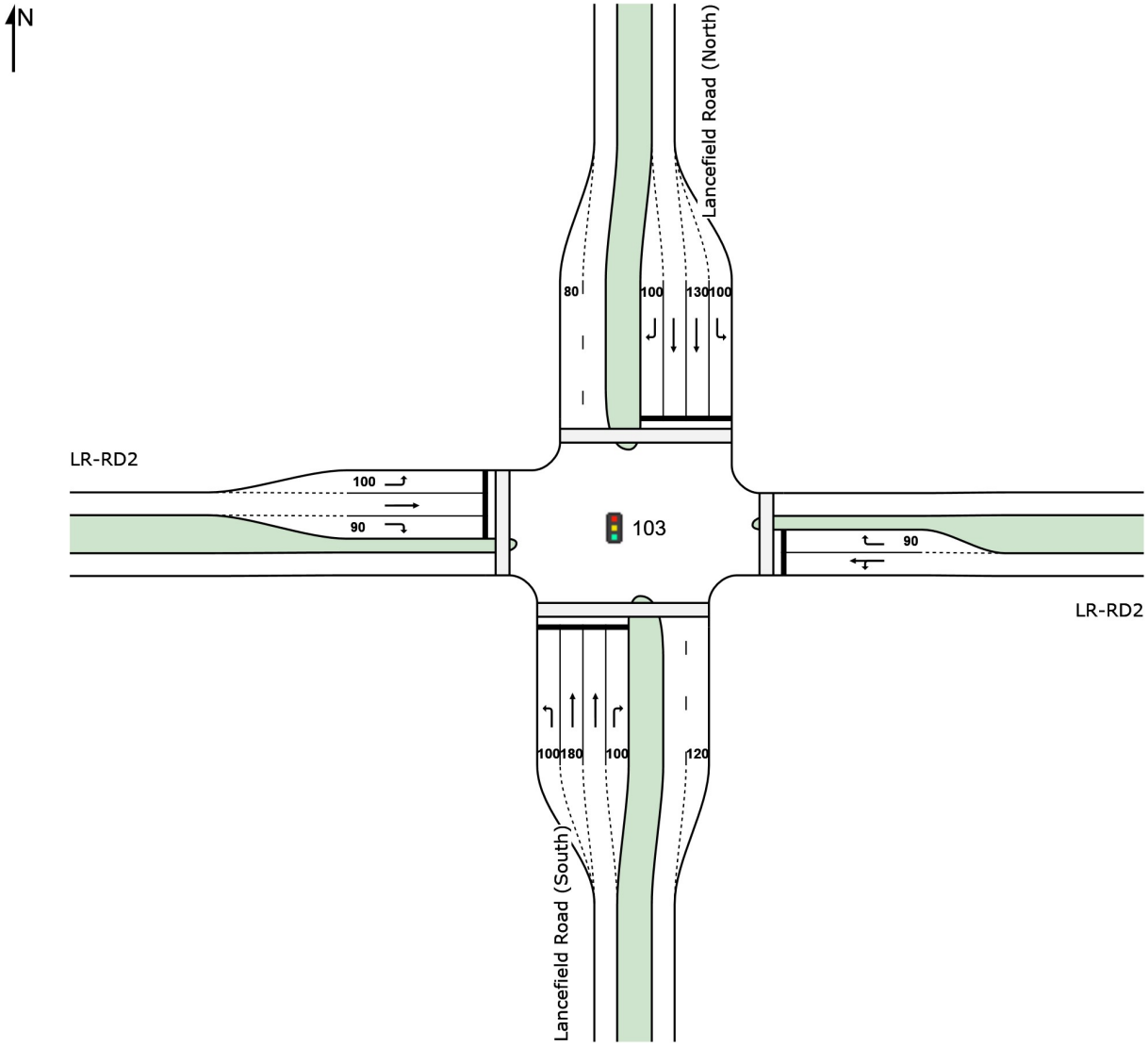
Project: 201208-V198070-Sunbury Growth ICP Modelling **Template: GTA Appendix**

Site: 103 [LR-IN-04-AM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

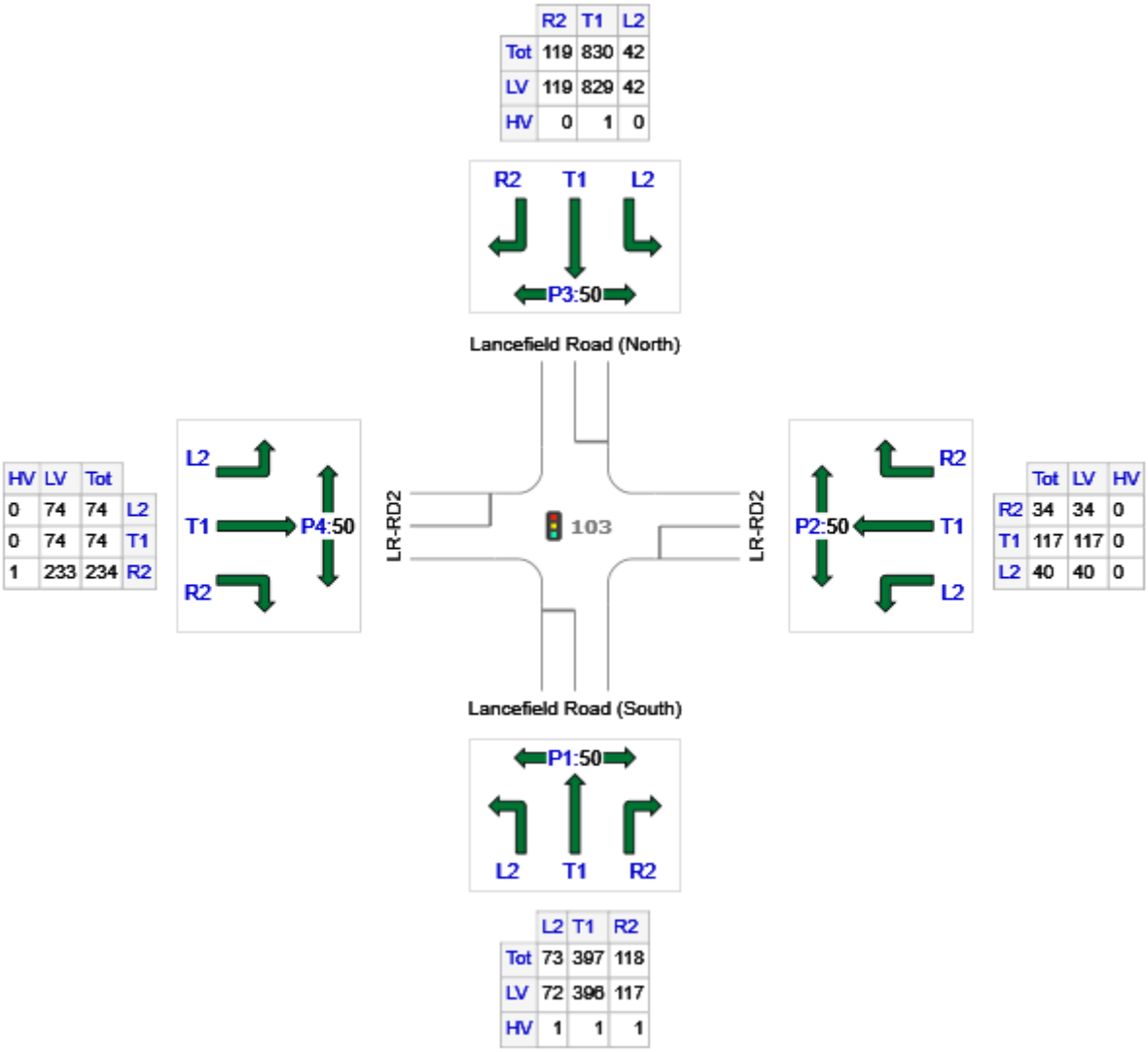
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	588	585	3
E: LR-RD2	191	191	0
N: Lancefield Road (North)	991	990	1
W: LR-RD2	382	381	1
Total	2152	2147	5

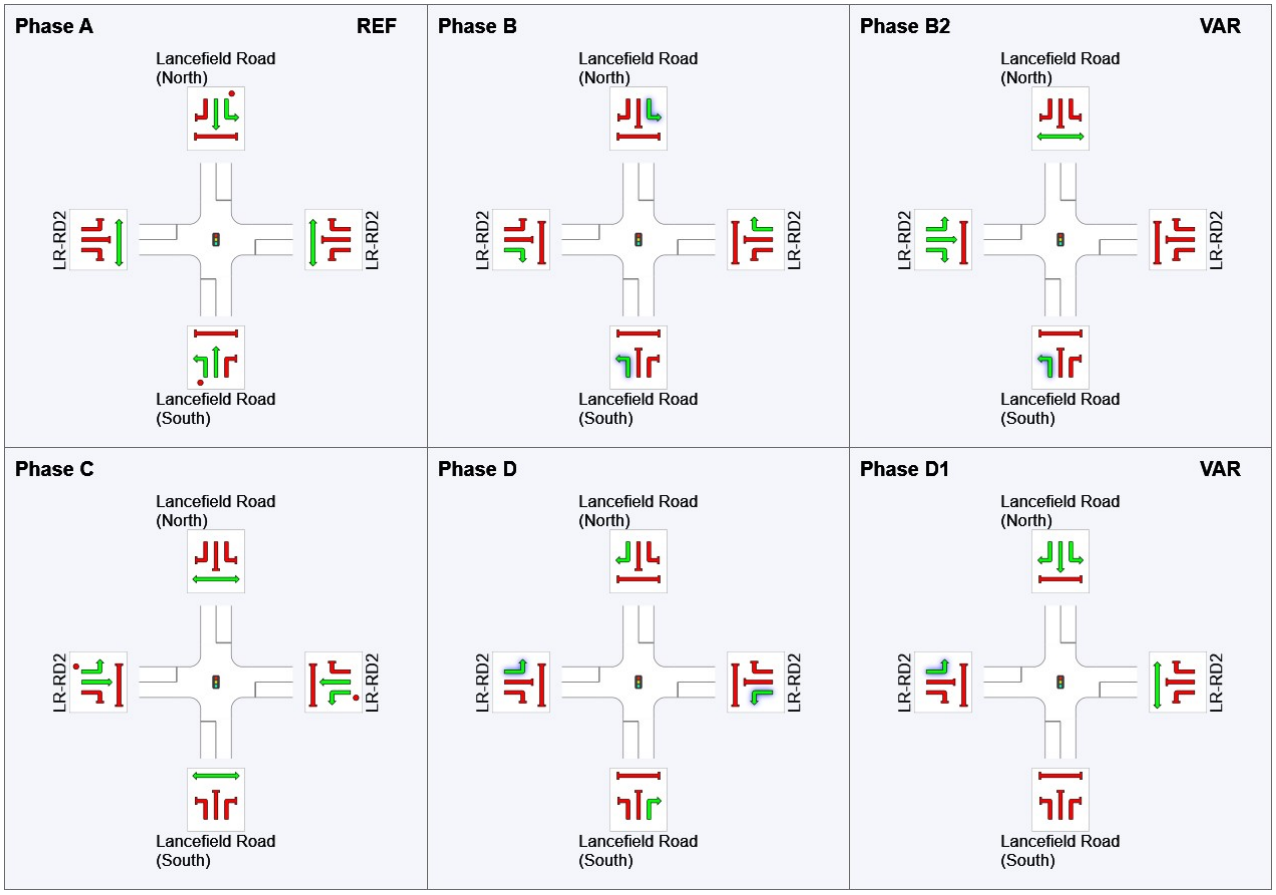
Phase Timing Summary

Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	0	30	46	50	73	86
Green Time (sec)	24	10	***	17	7	***
Phase Time (sec)	30	16	4	23	13	4
Phase Split	33%	18%	4%	26%	14%	4%

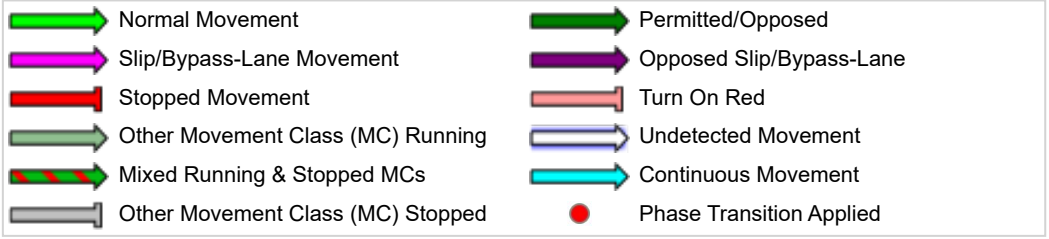
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified.
If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	73	1.4	777	0.094	100	19.0	LOS B	1.7	12.2	Short	100	0.0	NA
Lane 2	125	0.3	519	0.241	46[6]	28.0	LOS C	4.3	30.4	Short	180	0.0	NA
Lane 3	272	0.3	519	0.524	100	30.7	LOS C	10.3	72.4	Full	500	0.0	0.0
Lane 4	118	0.8	144	0.822	100	56.8	LOS E	5.8	40.9	Short	100	0.0	NA
Approach	588	0.5		0.822		33.9	LOS C	10.3	72.4				
East: LR-RD2													
Lane 1	157	0.0	377	0.416	100	30.8	LOS C	5.6	39.5	Full	500	0.0	0.0
Lane 2	34	0.0	206	0.165	100	46.1	LOS D	1.4	9.8	Short	90	0.0	NA
Approach	191	0.0		0.416		33.6	LOS C	5.6	39.5				
North: Lancefield Road (North)													
Lane 1	42	0.0	784	0.054	100	18.7	LOS B	1.0	6.7	Short	100	0.0	NA
Lane 2	329	0.1	606	0.543	66[6]	27.9	LOS C	12.1	84.6	Short	130	0.0	NA
Lane 3	501	0.1	606	0.827	100	36.3	LOS D	22.7	158.9	Full	500	0.0	0.0
Lane 4	119	0.0	227	0.524	100	47.3	LOS D	5.1	35.9	Short	100	0.0	NA
Approach	991	0.1		0.827		34.1	LOS C	22.7	158.9				
West: LR-RD2													
Lane 1	74	0.0	660	0.112	100	22.8	LOS C	2.0	13.8	Short	100	0.0	NA
Lane 2	74	0.0	455	0.163	100	29.8	LOS C	2.6	18.3	Full	500	0.0	0.0
Lane 3	234	0.4	288	0.812	100	51.1	LOS D	11.1	78.0	Short	90	0.0	NA
Approach	382	0.3		0.812		41.5	LOS D	11.1	78.0				
Intersection	2152	0.2		0.827		35.3	LOS D	22.7	158.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

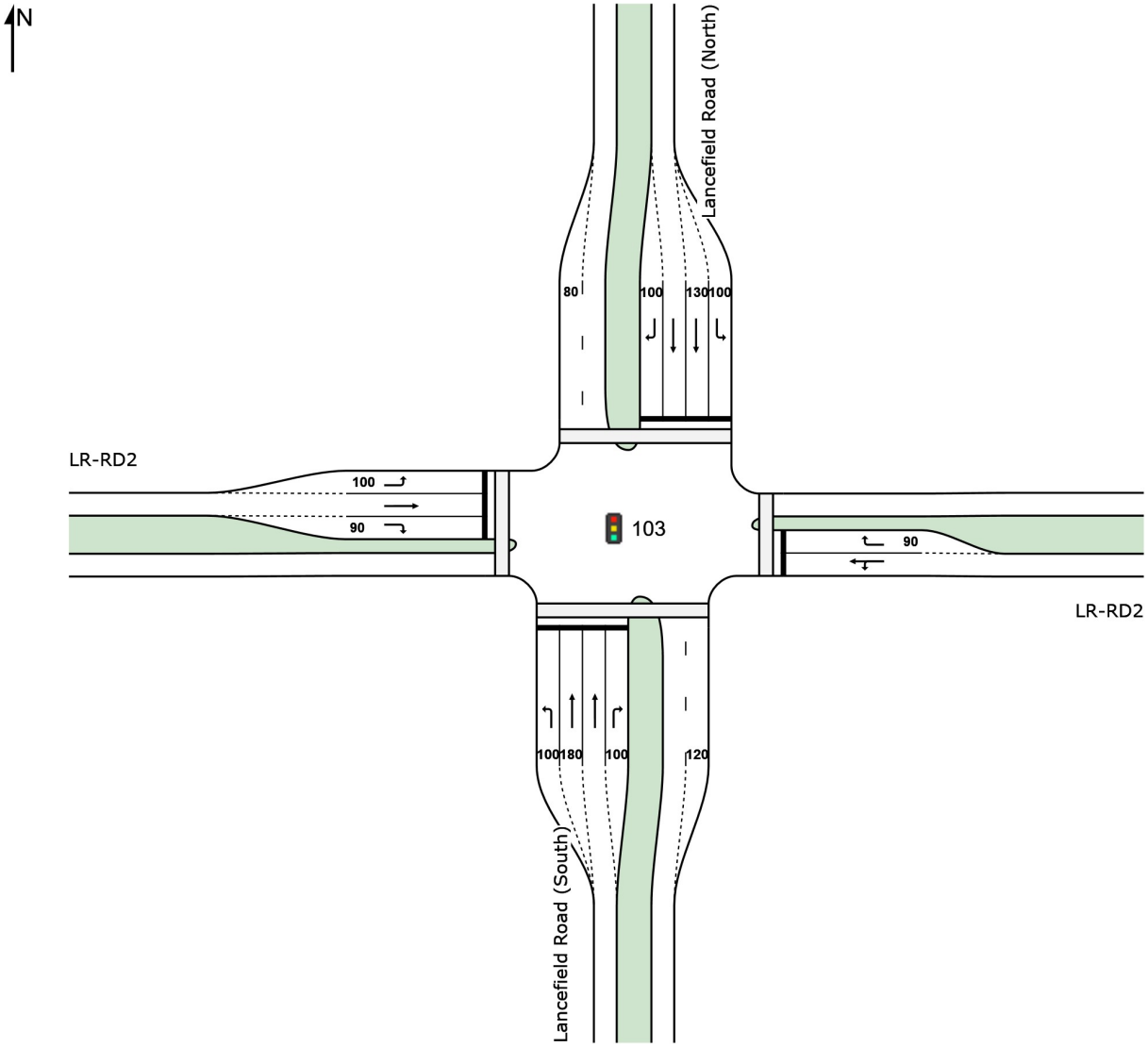
6 Lane under-utilisation due to downstream effects

Site: 103 [LR-IN-04-PM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

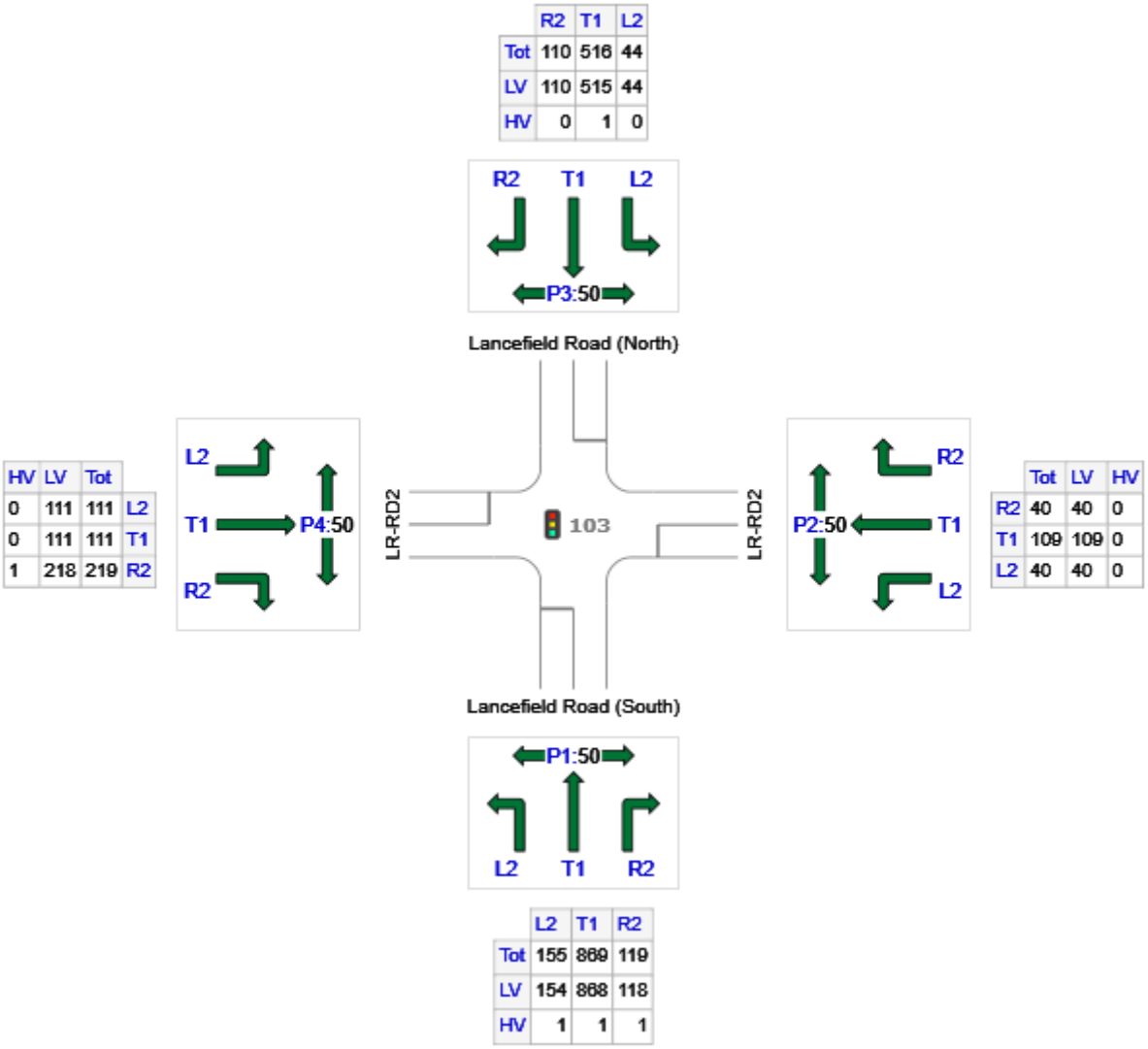
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1143	1140	3
E: LR-RD2	189	189	0
N: Lancefield Road (North)	670	669	1
W: LR-RD2	441	440	1
Total	2443	2438	5

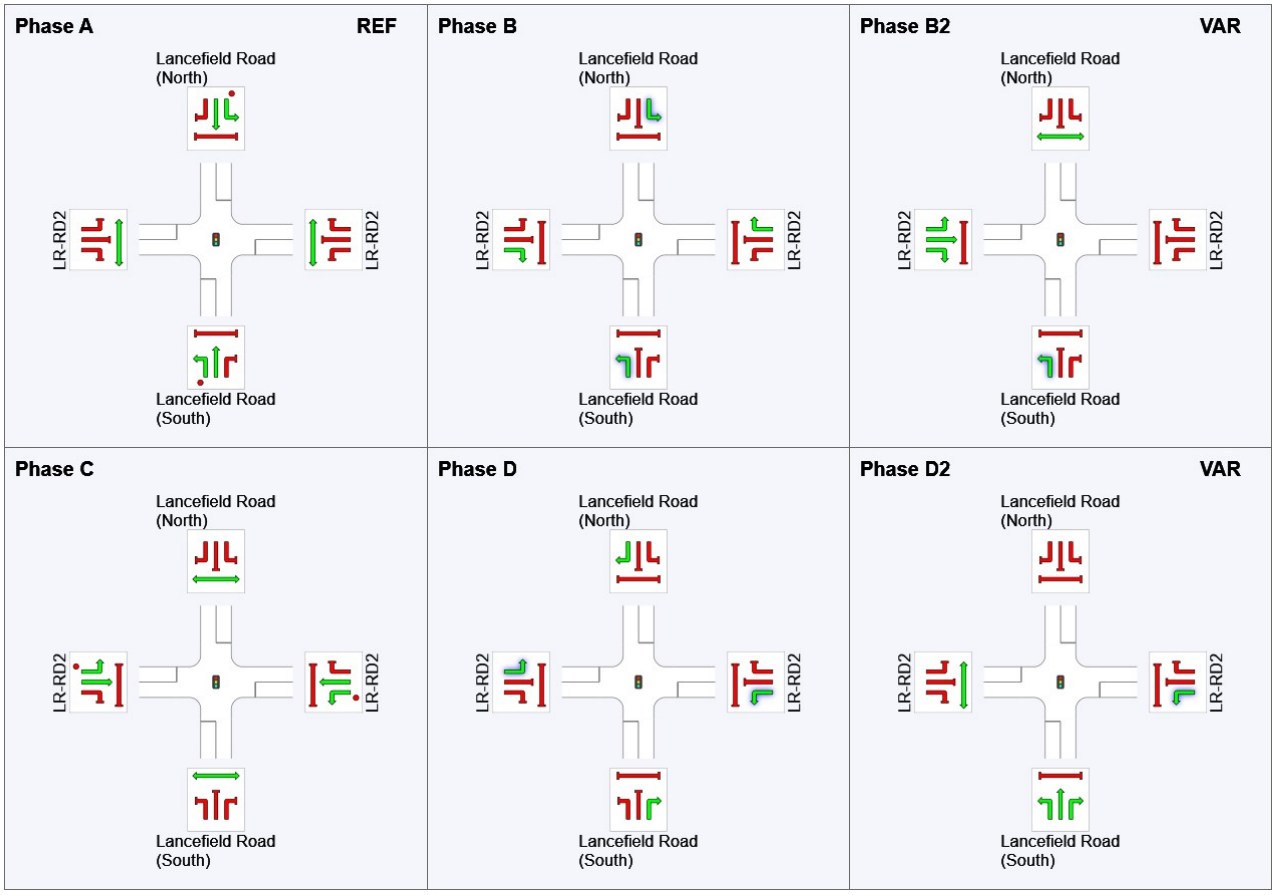
Phase Timing Summary

Phase	A	B	B2	C	D	D2
Phase Change Time (sec)	0	32	46	50	73	85
Green Time (sec)	26	8	***	17	6	***
Phase Time (sec)	32	14	4	23	12	5
Phase Split	36%	16%	4%	26%	13%	6%

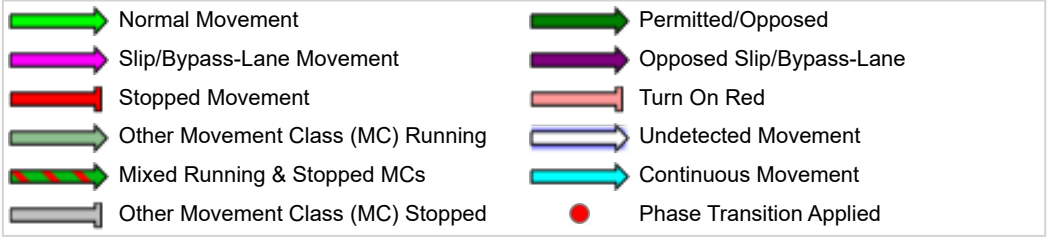
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	155	0.6	883	0.175	100	16.8	LOS B	3.4	23.9	Short	100	0.0	NA
Lane 2	274	0.1	671	0.408	46[6]	24.3	LOS C	9.2	64.4	Short	180	0.0	NA
Lane 3	595	0.1	671	0.887	100	41.3	LOS D	29.8	208.9	Full	500	0.0	0.0
Lane 4	119	0.8	226	0.527	100	47.4	LOS D	5.1	36.2	Short	100	0.0	NA
Approach	1143	0.3		0.887		34.5	LOS C	29.8	208.9				
East: LR-RD2													
Lane 1	149	0.0	378	0.394	100	30.8	LOS C	5.3	37.3	Full	500	0.0	0.0
Lane 2	40	0.0	165	0.242	100	48.9	LOS D	1.7	12.1	Short	90	0.0	NA
Approach	189	0.0		0.394		34.6	LOS C	5.3	37.3				
North: Lancefield Road (North)													
Lane 1	44	0.0	702	0.063	100	21.1	LOS C	1.1	7.7	Short	100	0.0	NA
Lane 2	204	0.2	563	0.363	66[6]	27.6	LOS C	7.2	50.4	Short	130	0.0	NA
Lane 3	312	0.2	563	0.554	100	29.5	LOS C	11.7	82.1	Full	500	0.0	0.0
Lane 4	110	0.0	124	0.888	100	61.5	LOS E	5.7	39.8	Short	100	0.0	NA
Approach	670	0.1		0.888		33.6	LOS C	11.7	82.1				
West: LR-RD2													
Lane 1	111	0.0	557	0.199	100	26.7	LOS C	3.3	23.3	Short	100	0.0	NA
Lane 2	111	0.0	455	0.244	100	30.5	LOS C	4.0	28.1	Full	500	0.0	0.0
Lane 3	219	0.5	247	0.887	100	58.3	LOS E	11.3	79.2	Short	90	0.0	NA
Approach	441	0.2		0.887		43.4	LOS D	11.3	79.2				
Intersection	2443	0.2		0.888		35.9	LOS D	29.8	208.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

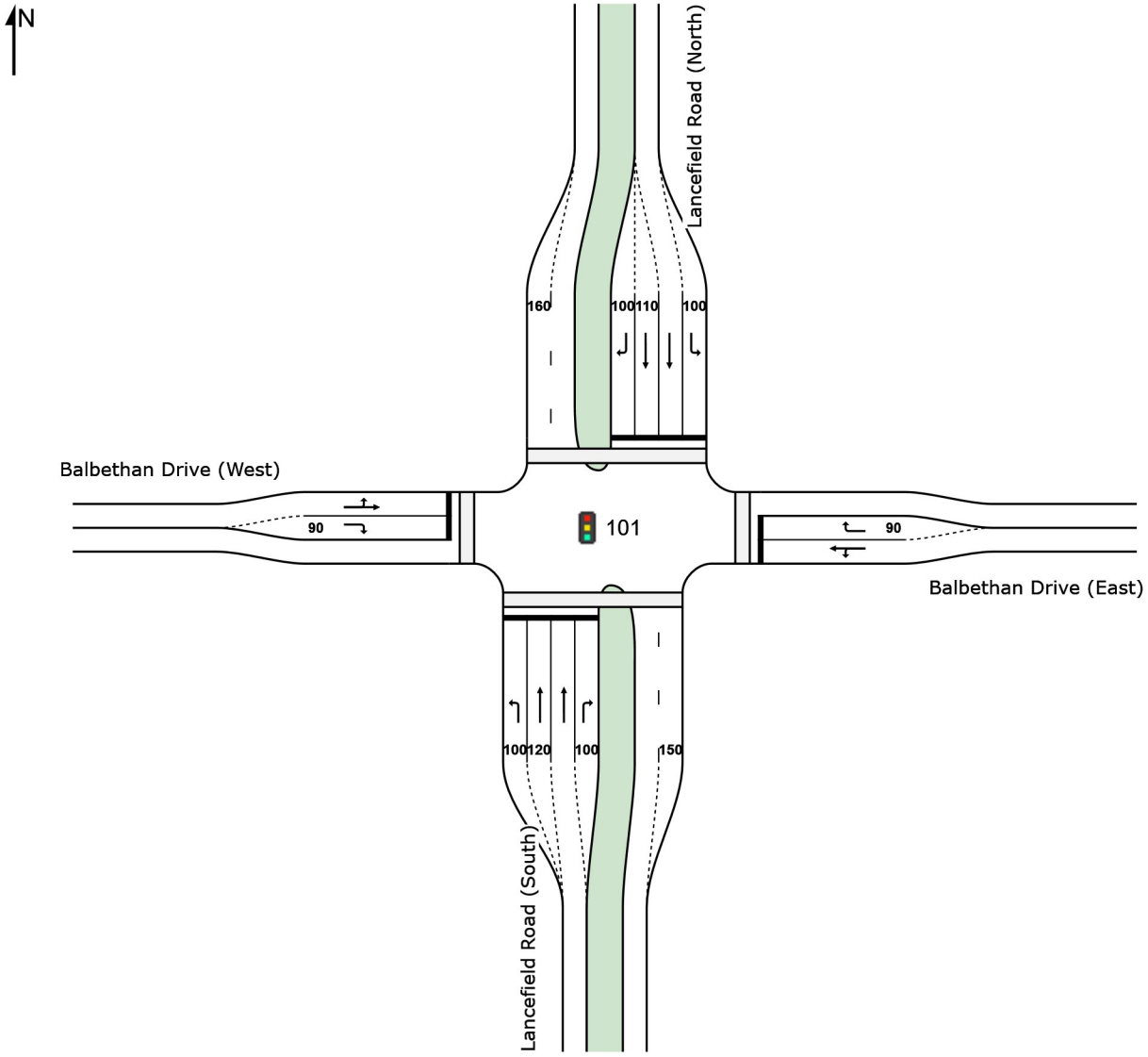
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-AM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

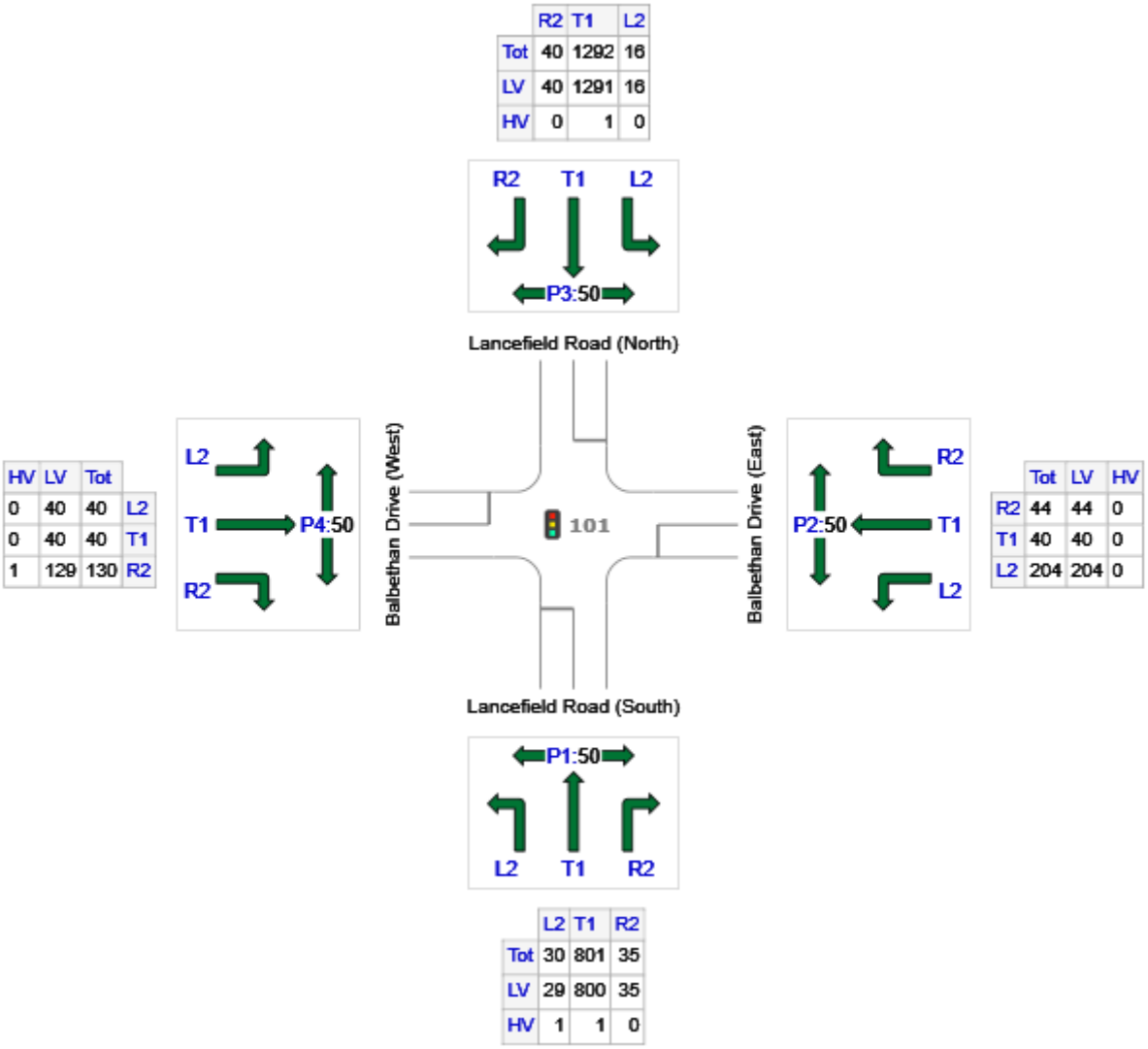
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



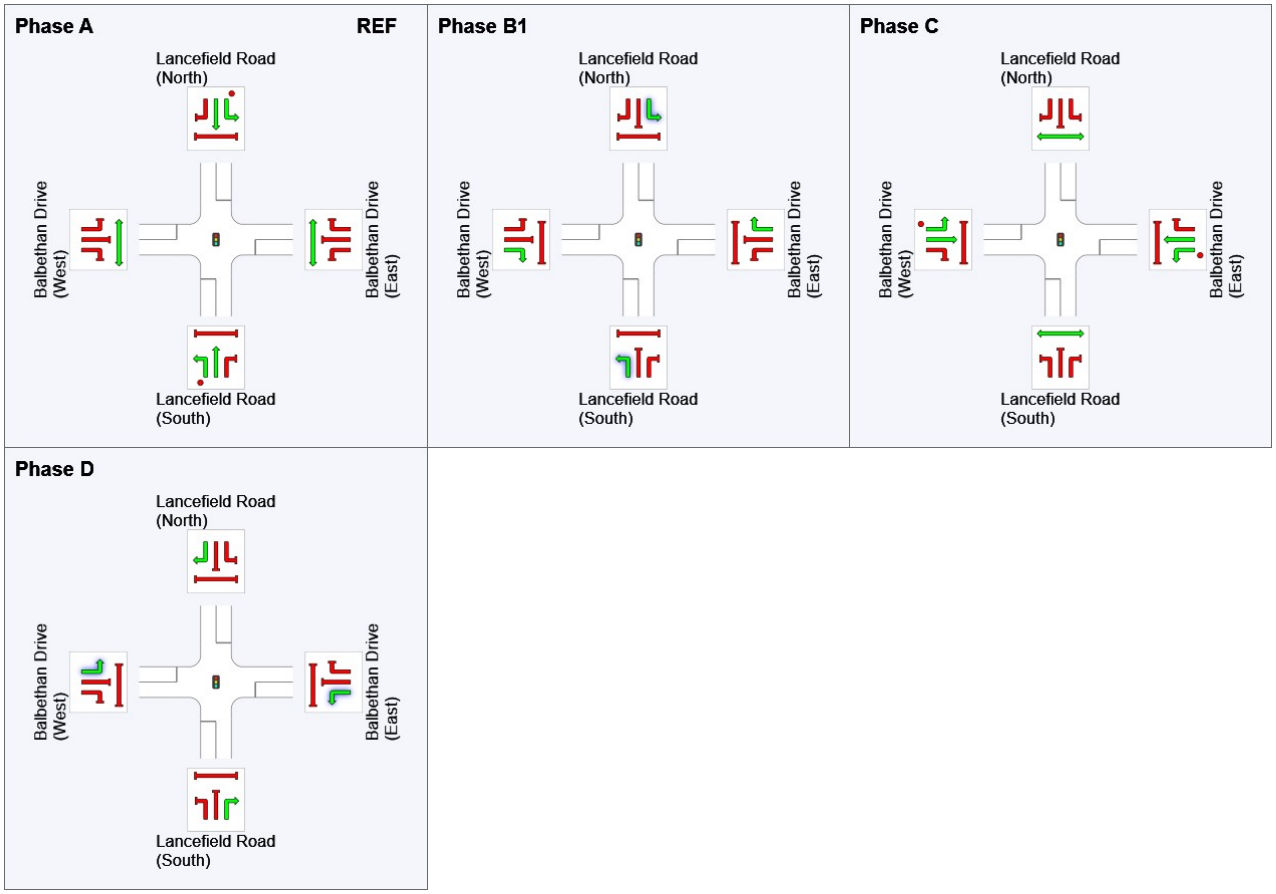
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	866	864	2
E: Balbethan Drive (East)	288	288	0
N: Lancefield Road (North)	1348	1347	1
W: Balbethan Drive (West)	210	209	1
Total	2712	2708	4

Phase Timing Summary

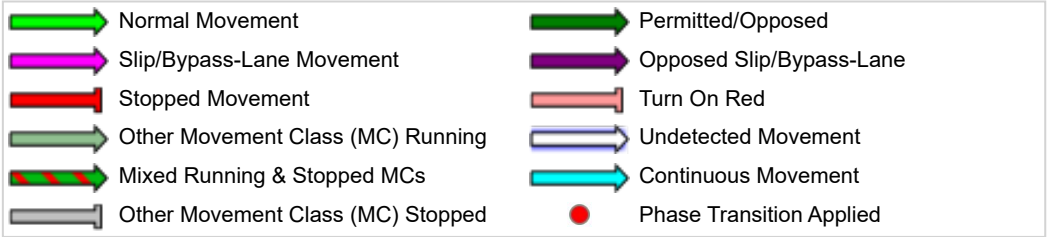
Phase	A	B1	C	D
Phase Change Time (sec)	0	49	63	88
Green Time (sec)	43	8	19	6
Phase Time (sec)	49	14	25	12
Phase Split	49%	14%	25%	12%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	30	3.3	925	0.032	100	15.7	LOS B	0.6	4.5	Short	100	0.0	NA
Lane 2	368	0.1	838	0.440	85[6]	21.4	LOS C	12.6	88.0	Short	120	0.0	NA
Lane 3	433	0.1	838	0.516	100	22.4	LOS C	15.4	107.9	Full	500	0.0	0.0
Lane 4	35	0.0	111	0.314	100	57.5	LOS E	1.8	12.3	Short	100	0.0	NA
Approach	866	0.2		0.516		23.2	LOS C	15.4	107.9				
East: Balbethan Drive (East)													
Lane 1	244	0.0	443	0.551	100	36.0	LOS D	9.8	68.8	Full	500	0.0	0.0
Lane 2	44	0.0	149	0.296	100	54.8	LOS D	2.1	14.9	Short	90	0.0	NA
Approach	288	0.0		0.551		38.9	LOS D	9.8	68.8				
North: Lancefield Road (North)													
Lane 1	16	0.0	947	0.017	100	15.6	LOS B	0.3	2.3	Short	100	0.0	NA
Lane 2	605	0.1	838	0.722	80[6]	25.3	LOS C	24.4	170.6	Full	500	0.0	0.0
Lane 3	687	0.1	758[1]	0.906	100	42.3	LOS D	37.2	260.7	Short	110	0.0	NA
Lane 4	40	0.0	111	0.359	100	57.7	LOS E	2.0	14.1	Short	100	0.0	NA
Approach	1348	0.1		0.906		34.8	LOS C	37.2	260.7				
West: Balbethan Drive (West)													
Lane 1	80	0.0	395	0.203	100	33.4	LOS C	3.0	21.1	Full	500	0.0	0.0
Lane 2	130	0.8	148	0.880	100	65.4	LOS E	7.3	51.6	Short	90	0.0	NA
Approach	210	0.5		0.880		53.2	LOS D	7.3	51.6				
Intersection	2712	0.1		0.906		32.9	LOS C	37.2	260.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

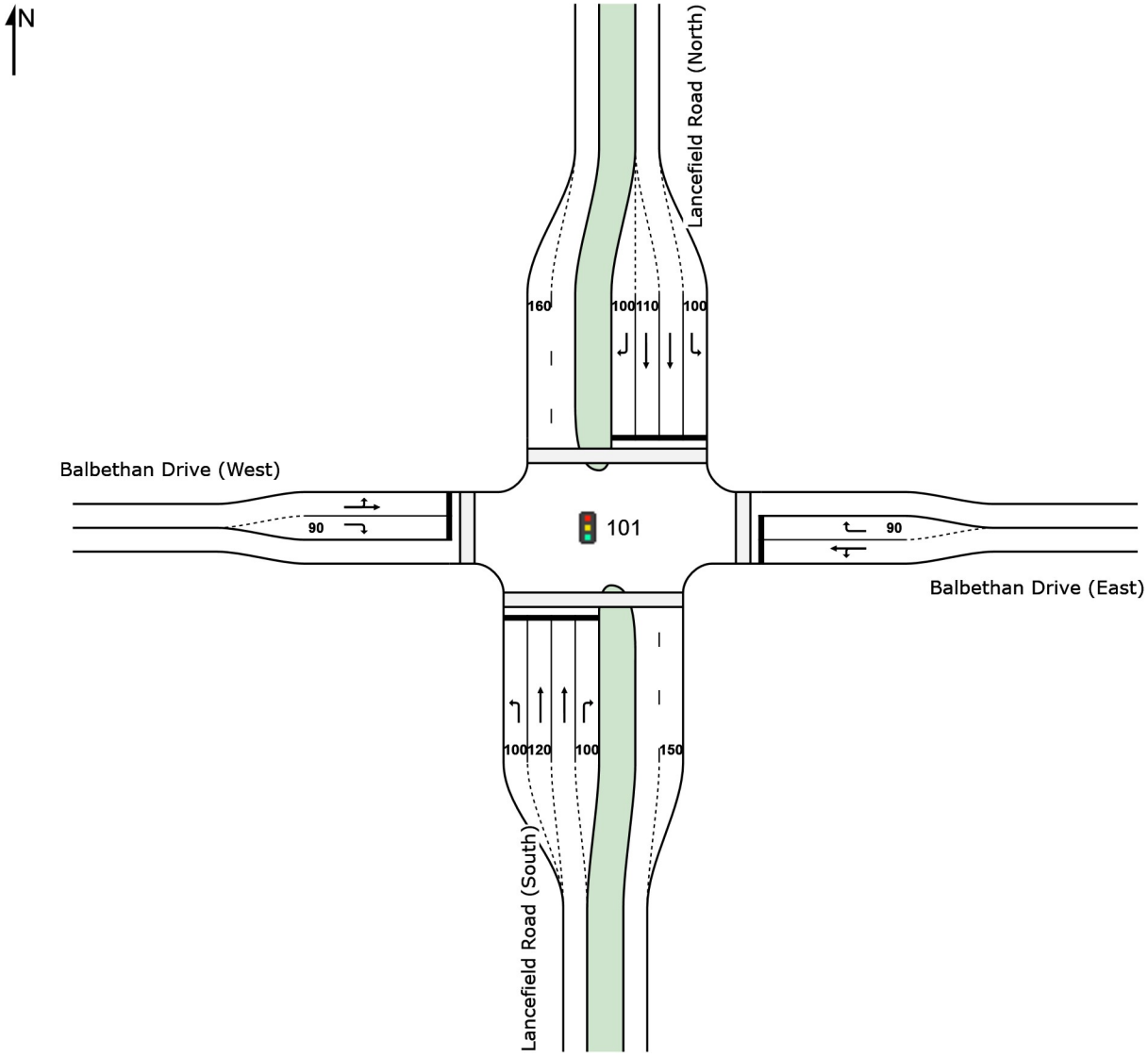
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 101 [LR-IN-03-PM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 120 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

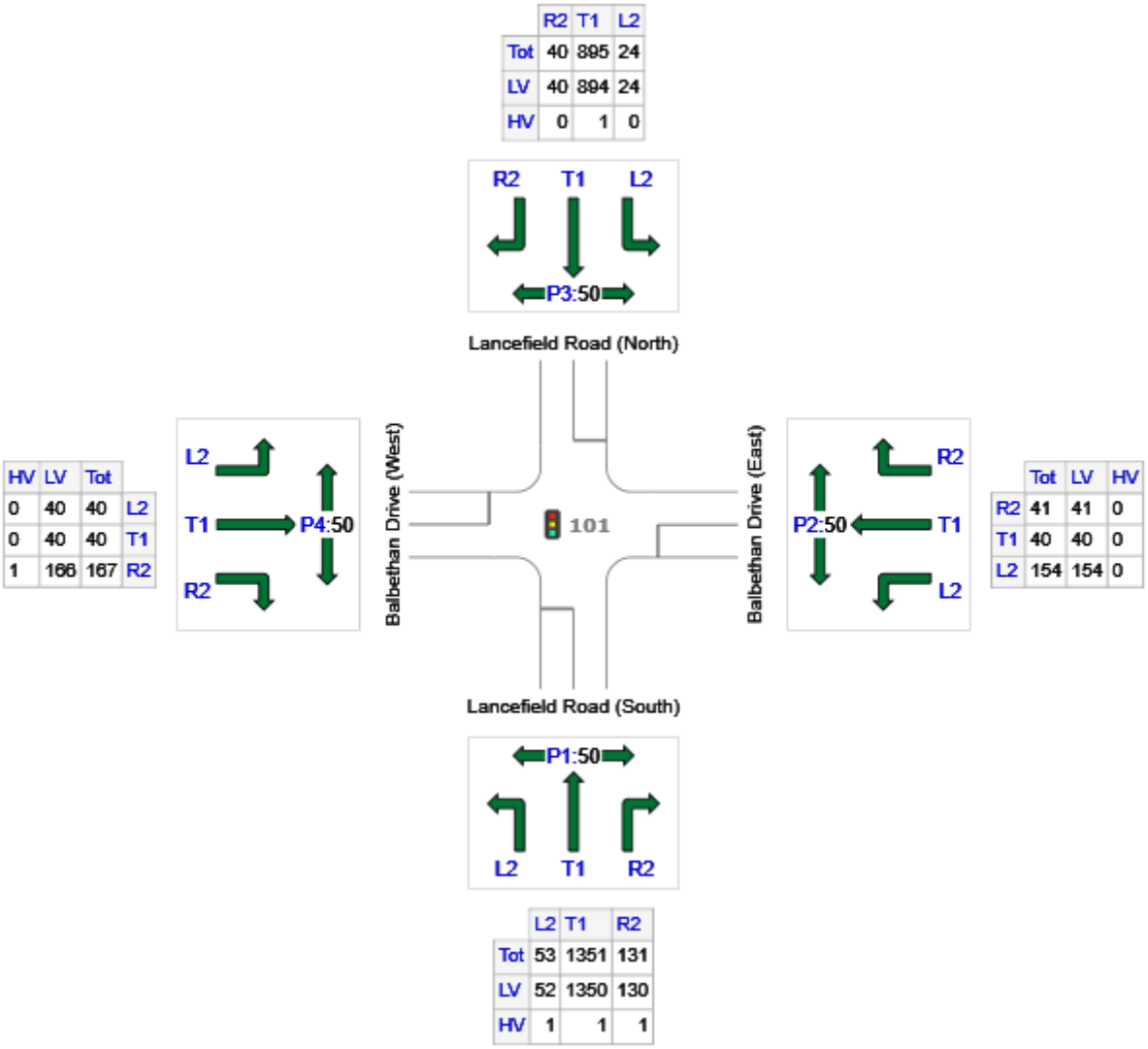
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B1, B2*, B3*, C, D, D1*, D2*
Output Phase Sequence: A, B1, C, D, D2*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



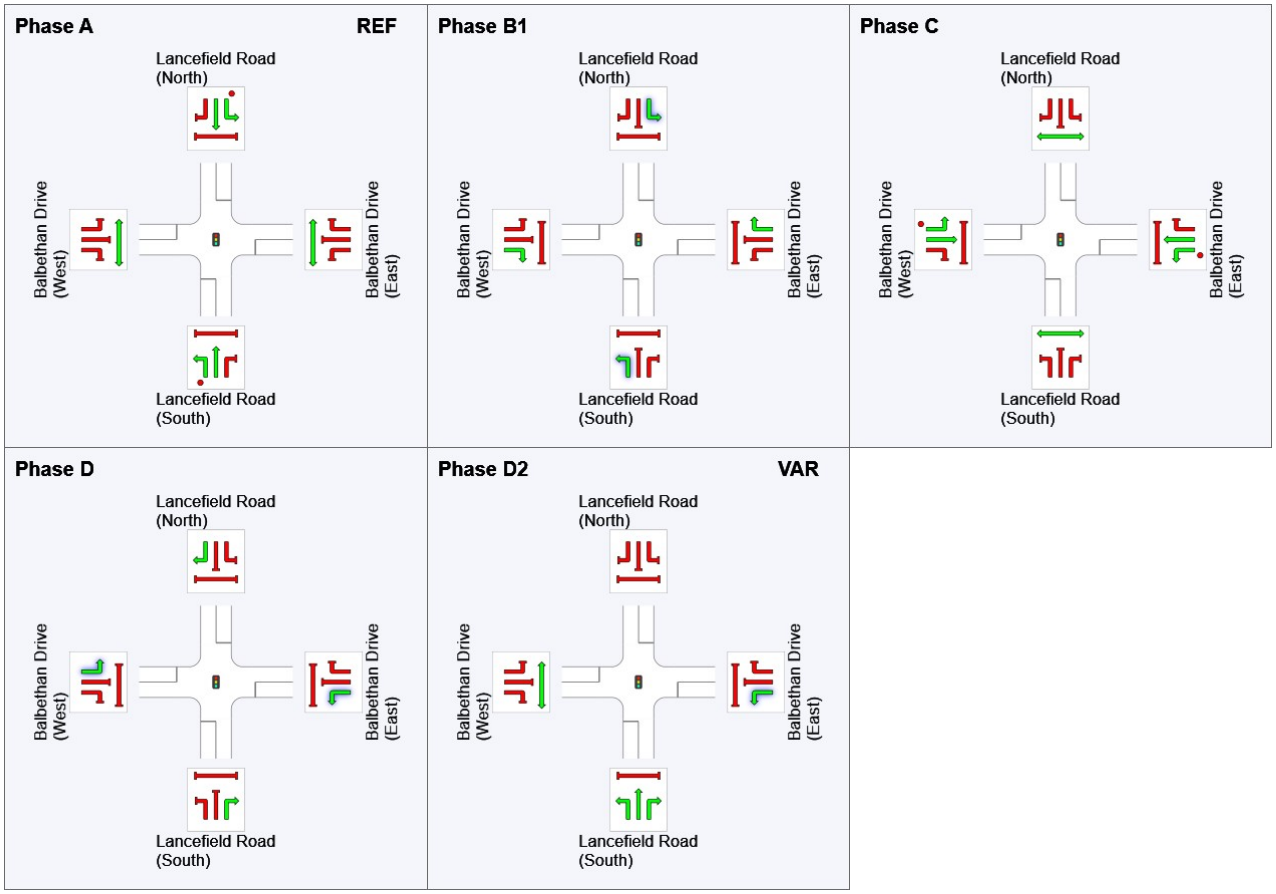
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	1535	1532	3
E: Balbethan Drive (East)	235	235	0
N: Lancefield Road (North)	959	958	1
W: Balbethan Drive (West)	247	246	1
Total	2976	2971	5

Phase Timing Summary

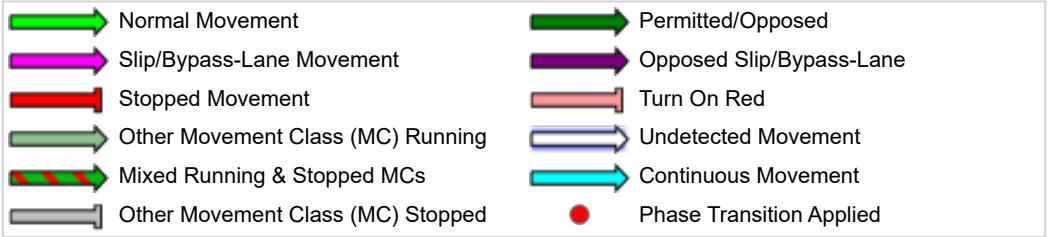
Phase	A	B1	C	D	D2
Phase Change Time (sec)	0	55	73	100	112
Green Time (sec)	49	12	21	6	2
Phase Time (sec)	55	18	27	12	8
Phase Split	46%	15%	23%	10%	7%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	53	1.9	1054	0.050	100	14.9	LOS B	1.2	8.3	Short	100	0.0	NA
Lane 2	657	0.1	875[1]	0.750	85[6]	26.6	LOS C	30.1	211.0	Short	120	0.0	NA
Lane 3	694	0.1	788[1]	0.881	100	37.9	LOS D	38.6	270.7	Full	500	0.0	0.0
Lane 4	131	0.8	215	0.608	100	61.8	LOS E	7.6	53.3	Short	100	0.0	NA
Approach	1535	0.2		0.881		34.3	LOS C	38.6	270.7				
East: Balbethan Drive (East)													
Lane 1	194	0.0	424	0.457	100	42.3	LOS D	9.2	64.7	Full	500	0.0	0.0
Lane 2	41	0.0	186	0.221	100	60.7	LOS E	2.3	15.9	Short	90	0.0	NA
Approach	235	0.0		0.457		45.5	LOS D	9.2	64.7				
North: Lancefield Road (North)													
Lane 1	24	0.0	944	0.025	100	18.2	LOS B	0.6	4.3	Short	100	0.0	NA
Lane 2	397	0.1	796	0.499	80[6]	28.1	LOS C	17.1	119.9	Full	500	0.0	0.0
Lane 3	498	0.1	796	0.626	100	30.1	LOS C	23.0	161.1	Short	110	0.0	NA
Lane 4	40	0.0	93	0.431	100	69.5	LOS E	2.4	17.1	Short	100	0.0	NA
Approach	959	0.1		0.626		30.6	LOS C	23.0	161.1				
West: Balbethan Drive (West)													
Lane 1	80	0.0	360	0.222	100	42.1	LOS D	3.7	26.2	Full	500	0.0	0.0
Lane 2	167	0.6	185	0.903	100	77.1	LOS E	11.3	79.7	Short	90	0.0	NA
Approach	247	0.4		0.903		65.8	LOS E	11.3	79.7				
Intersection	2976	0.2		0.903		36.6	LOS D	38.6	270.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

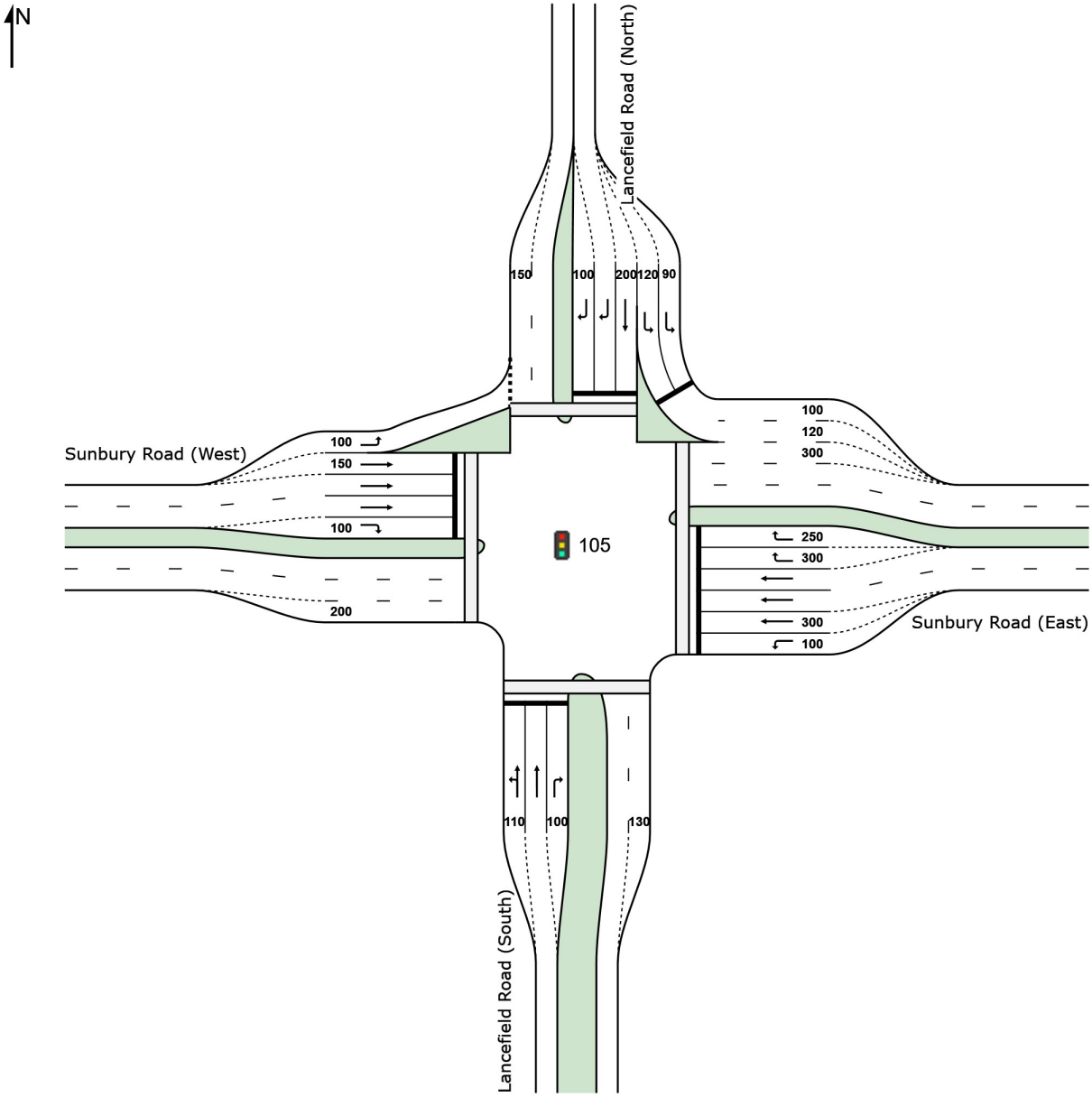
1 Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
6 Lane under-utilisation due to downstream effects

Site: 105 [SS-IN-03-AM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 110 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

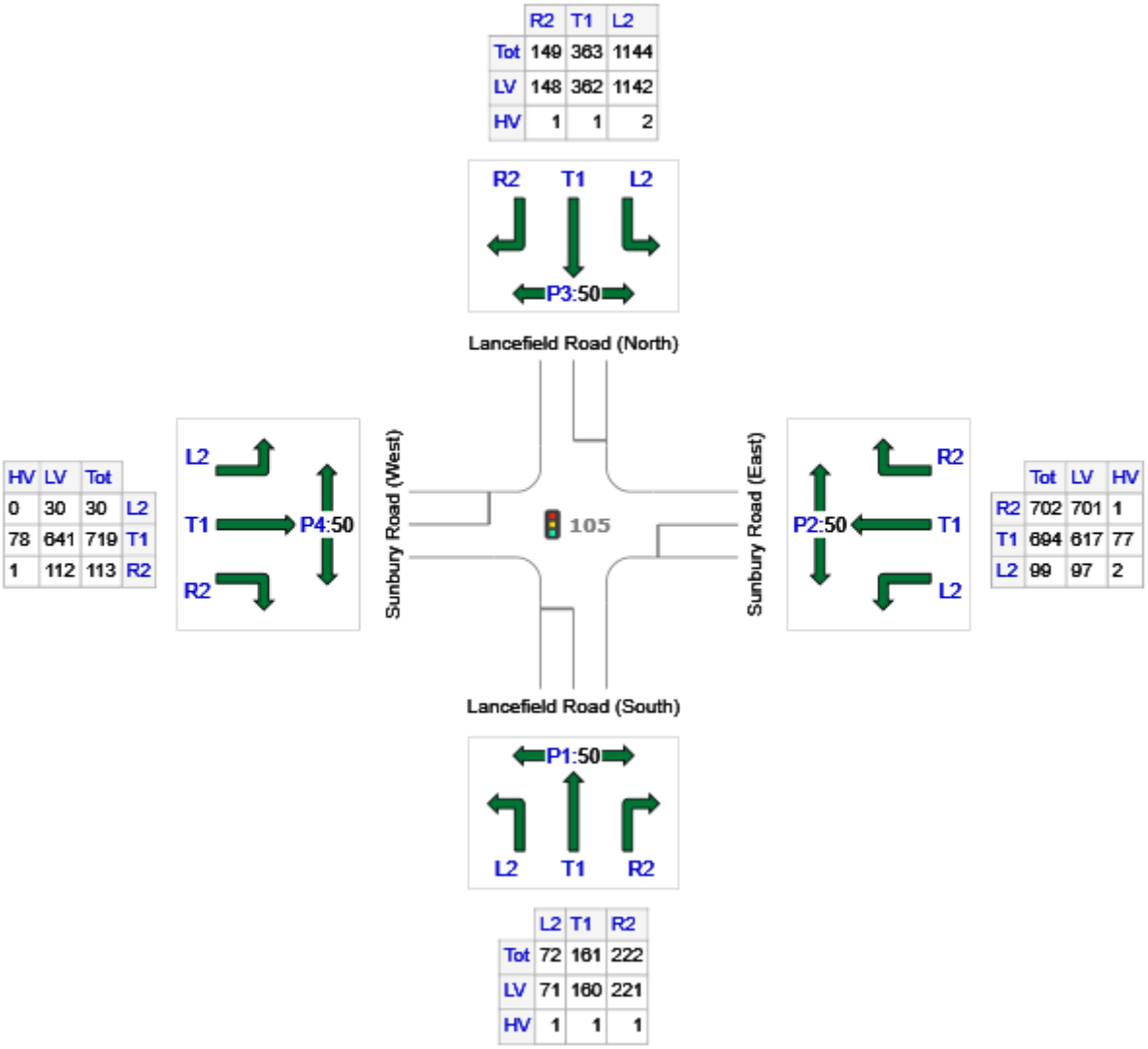
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



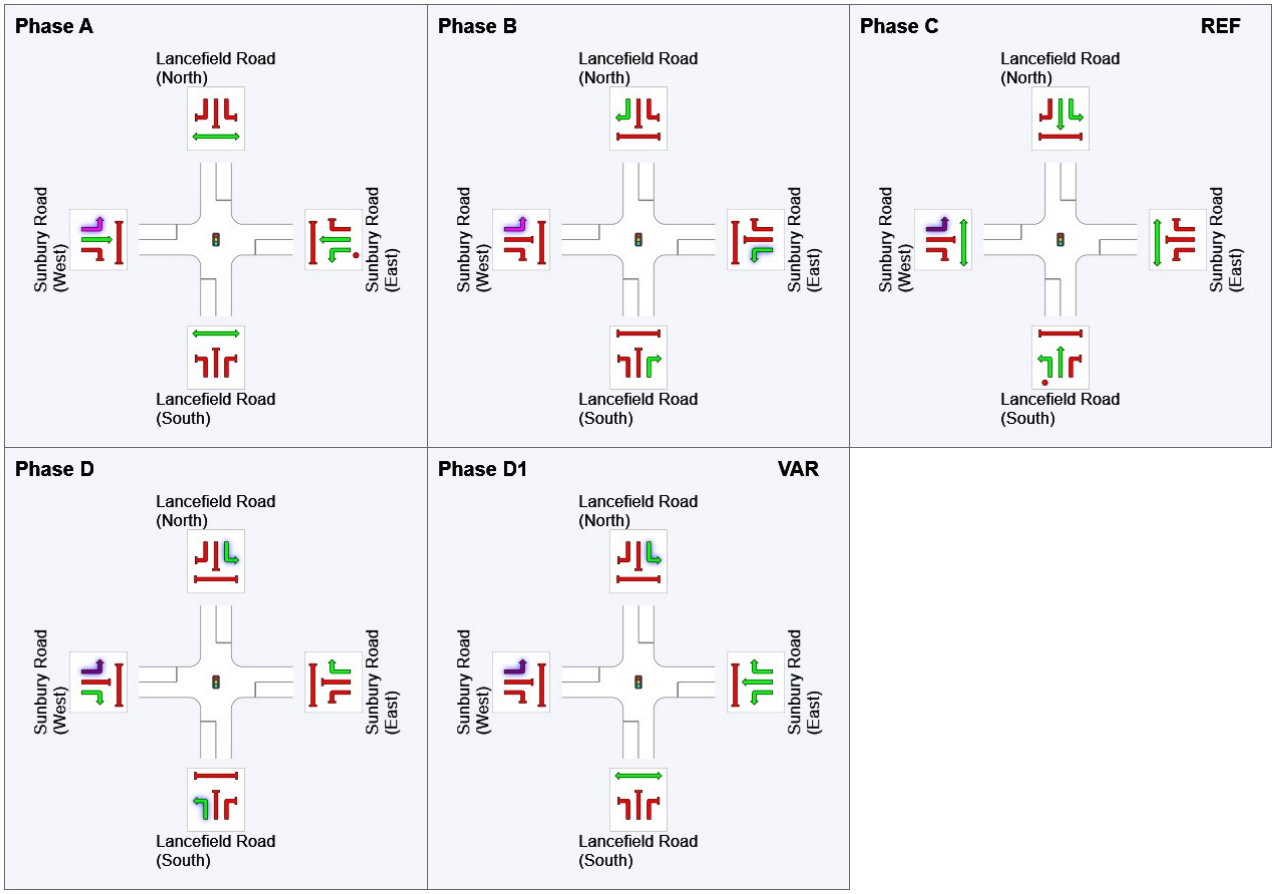
	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	455	452	3
E: Sunbury Road (East)	1495	1415	80
N: Lancefield Road (North)	1656	1652	4
W: Sunbury Road (West)	862	783	79
Total	4468	4302	166

Phase Timing Summary

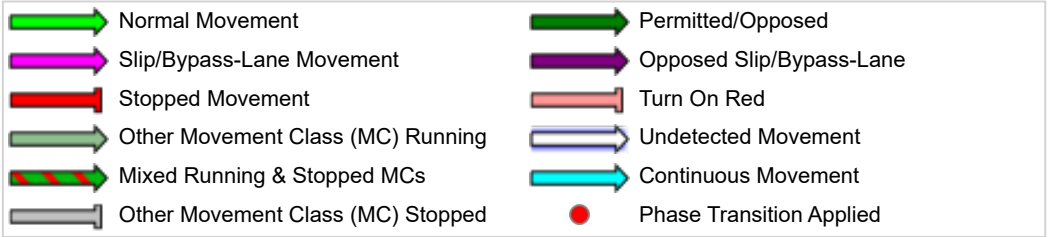
Phase	A	B	C	D	D1
Phase Change Time (sec)	66	89	0	35	55
Green Time (sec)	17	15	29	14	5
Phase Time (sec)	23	21	35	20	11
Phase Split	21%	19%	32%	18%	10%

See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	117	1.1	546	0.214	94[6]	30.0	LOS C	4.3	30.5	Short	110	0.0	NA
Lane 2	116	0.6	512	0.227	100	34.1	LOS C	4.9	34.4	Full	500	0.0	0.0
Lane 3	222	0.5	252	0.879	100	66.9	LOS E	13.5	95.1	Short	100	0.0	NA
Approach	455	0.7		0.879		49.1	LOS D	13.5	95.1				
East: Sunbury Road (East)													
Lane 1	99	2.0	716	0.138	100	25.1	LOS C	3.1	22.2	Short	100	0.0	NA
Lane 2	231	11.1	463	0.500	100	38.0	LOS D	10.7	82.1	Short	300	0.0	NA
Lane 3	231	11.1	463	0.500	100	38.0	LOS D	10.7	82.1	Full	500	0.0	0.0
Lane 4	231	11.1	463	0.500	100	38.0	LOS D	10.7	82.1	Full	500	0.0	0.0
Lane 5	331	0.1	422	0.786	89[6]	52.5	LOS D	17.9	125.3	Short	300	0.0	NA
Lane 6	371	0.1	422	0.879	100	60.7	LOS E	22.3	156.3	Short	250	0.0	NA
Approach	1495	5.4		0.879		46.0	LOS D	22.3	156.3				
North: Lancefield Road (North)													
Lane 1	529	0.2	1012	0.522	86[6]	22.5	LOS C	17.8	124.9	Short	90	0.0	NA
Lane 2	615	0.2	1012	0.608	100	23.7	LOS C	22.2	155.8	Short	120	0.0	NA
Lane 3	363	0.3	513	0.707	100	40.1	LOS D	17.9	125.4	Short	200	0.0	NA
Lane 4	75	0.7	252	0.296	100	52.8	LOS D	3.7	26.0	Full	500	0.0	0.0
Lane 5	75	0.7	252	0.296	100	52.8	LOS D	3.7	26.0	Short	100	0.0	NA
Approach	1656	0.2		0.707		29.5	LOS C	22.2	155.8				
West: Sunbury Road (West)													
Lane 1	30	0.0	1165	0.026	100	9.7	LOS A	0.4	2.9	Short	100	0.0	NA
Lane 2	240	10.8	282	0.851	100	57.3	LOS E	14.1	108.2	Short	150	0.0	NA
Lane 3	240	10.8	282	0.851	100	57.3	LOS E	14.1	108.2	Full	500	0.0	0.0
Lane 4	240	10.8	282	0.851	100	57.3	LOS E	14.1	108.2	Full	500	0.0	0.0
Lane 5	113	0.9	235	0.481	100	55.3	LOS E	5.8	41.1	Short	100	0.0	NA
Approach	862	9.2		0.851		55.4	LOS E	14.1	108.2				
Intersection	4468	3.7		0.879		42.0	LOS D	22.3	156.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

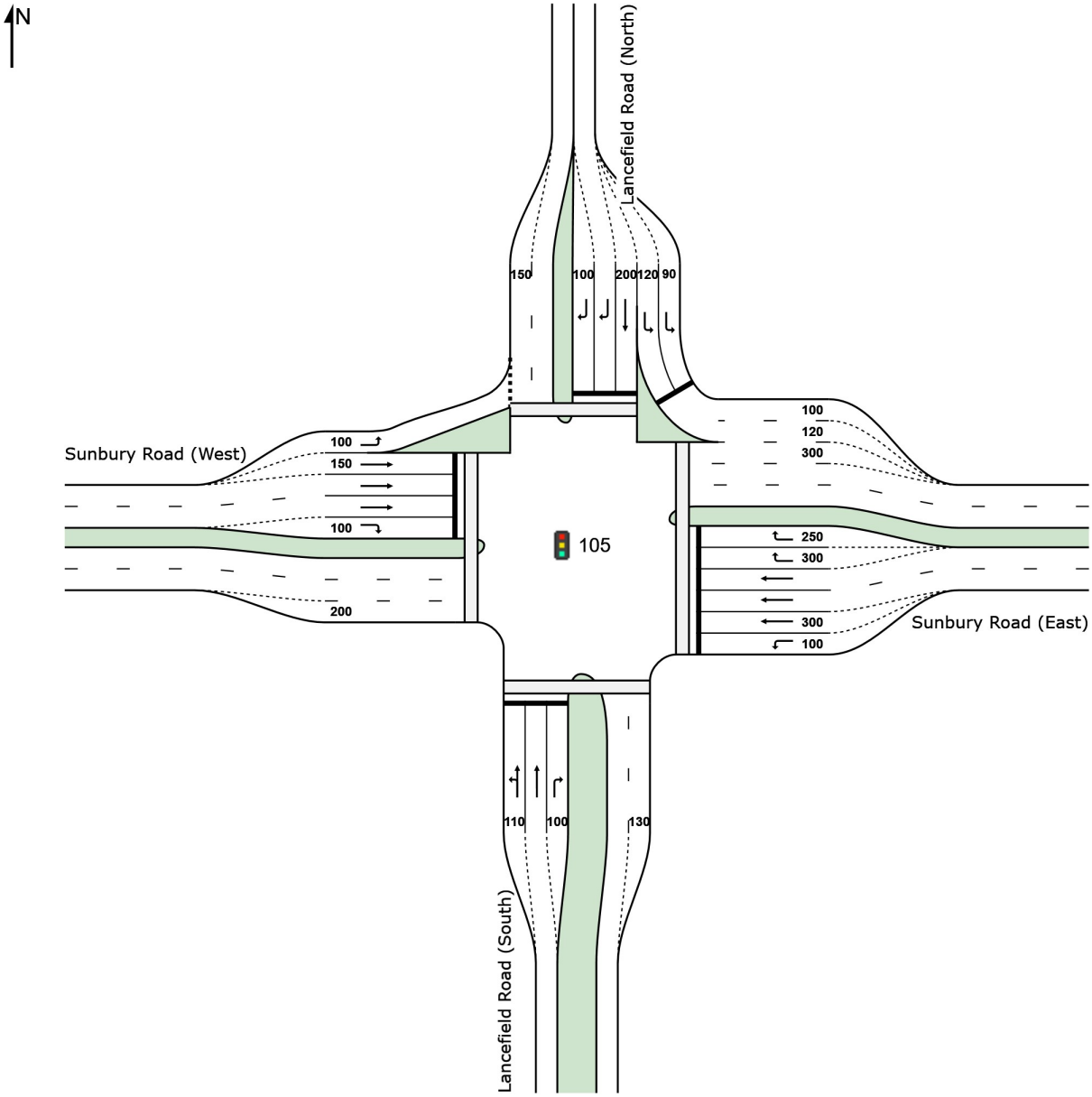
6 Lane under-utilisation due to downstream effects

Site: 105 [SS-IN-03-PM Peak - 60% (Option 2a) - PSP Interim Design]

New Site
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 140 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

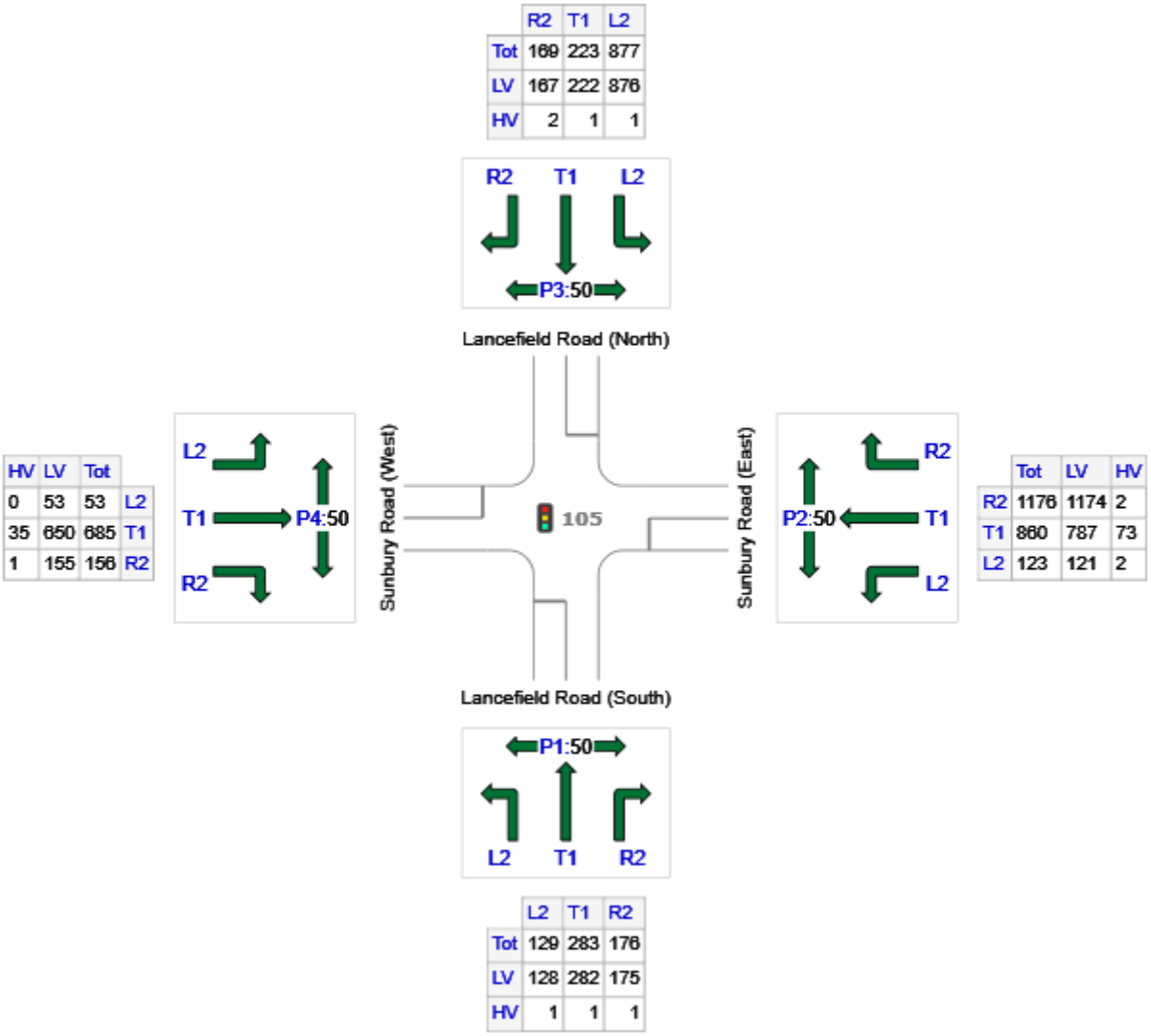
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: A, B, B1*, B2*, C, D, D1*, D2*
Output Phase Sequence: A, B, B2*, C, D, D1*
(* Variable Phase)

Site Layout



Input Volumes

Volume Display Method: Separate



	All MCs	Light Vehicles (LV)	Heavy Vehicles (HV)
S: Lancefield Road (South)	588	585	3
E: Sunbury Road (East)	2159	2082	77
N: Lancefield Road (North)	1269	1265	4
W: Sunbury Road (West)	894	858	36
Total	4910	4790	120

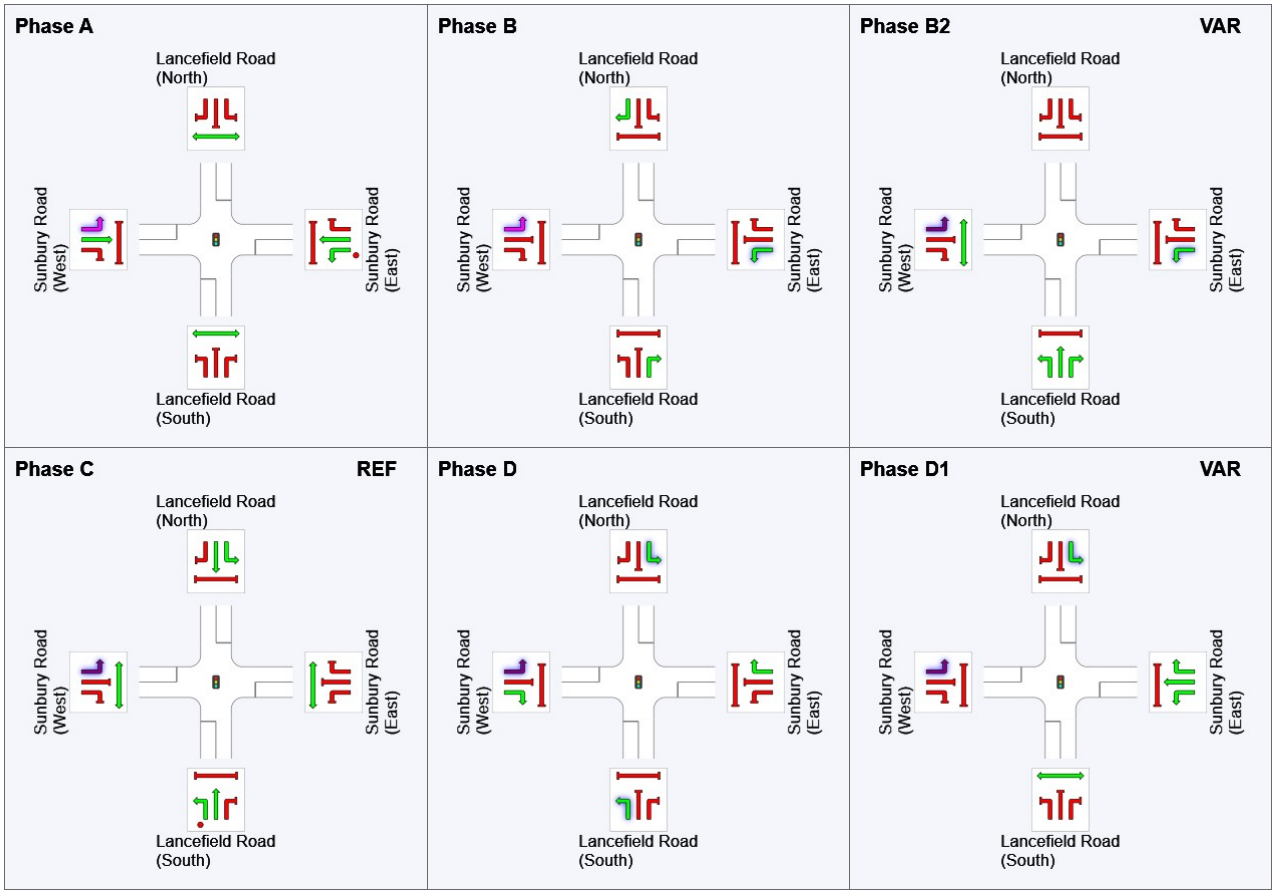
Phase Timing Summary

Phase	A	B	B2	C	D	D1
Phase Change Time (sec)	94	119	139	0	38	68
Green Time (sec)	19	14	***	32	24	20
Phase Time (sec)	25	20	1	38	30	26
Phase Split	18%	14%	1%	27%	21%	19%

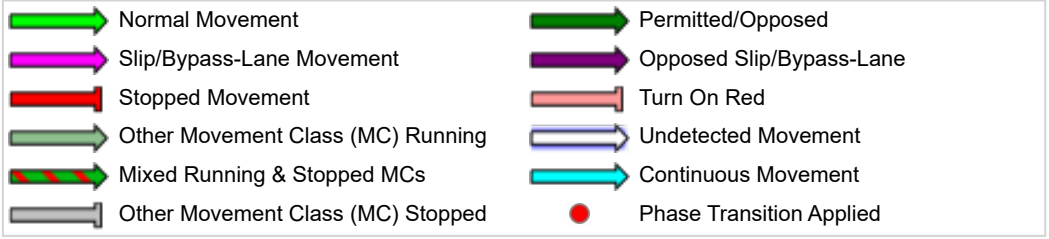
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified. If a green time is required for this phase, specify a dummy movement with a non-zero minimum green time.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Lancefield Road (South)													
Lane 1	206	0.6	487	0.423	94[6]	44.3	LOS D	11.0	77.1	Short	110	0.0	NA
Lane 2	206	0.4	459	0.449	100	49.2	LOS D	12.0	84.4	Full	500	0.0	0.0
Lane 3	176	0.6	198	0.888	100	84.5	LOS F	13.5	94.9	Short	100	0.0	NA
Approach	588	0.5		0.888		58.1	LOS E	13.5	94.9				
East: Sunbury Road (East)													
Lane 1	123	1.6	787	0.156	100	28.0	LOS C	4.7	33.4	Short	100	0.0	NA
Lane 2	287	8.5	594	0.483	100	40.8	LOS D	15.6	117.3	Short	300	0.0	NA
Lane 3	287	8.5	594	0.483	100	40.8	LOS D	15.6	117.3	Full	500	0.0	0.0
Lane 4	287	8.5	594	0.483	100	40.8	LOS D	15.6	117.3	Full	500	0.0	0.0
Lane 5	555	0.2	662	0.838	89[6]	54.2	LOS D	36.7	257.4	Short	300	0.0	NA
Lane 6	621	0.2	662	0.937	100	74.5	LOS E	50.4	353.5	Short	250	0.0	NA
Approach	2159	3.6		0.937		53.2	LOS D	50.4	353.5				
North: Lancefield Road (North)													
Lane 1	405	0.1	1166	0.347	86[6]	18.6	LOS B	12.8	90.0	Short	90	0.0	NA
Lane 2	472	0.1	1166	0.405	100	19.2	LOS B	15.7	109.9	Short	120	0.0	NA
Lane 3	223	0.4	444	0.502	100	50.7	LOS D	13.3	93.4	Short	200	0.0	NA
Lane 4	85	1.2	184	0.459	100	71.6	LOS E	5.6	39.7	Full	500	0.0	0.0
Lane 5	85	1.2	184	0.459	100	71.6	LOS E	5.6	39.7	Short	100	0.0	NA
Approach	1269	0.3		0.502		31.5	LOS C	15.7	109.9				
West: Sunbury Road (West)													
Lane 1	53	0.0	876	0.060	100	19.7	LOS B	1.6	11.1	Short	100	0.0	NA
Lane 2	228	5.1	256	0.891	100	76.8	LOS E	17.5	127.7	Short	150	0.0	NA
Lane 3	228	5.1	256	0.891	100	76.8	LOS E	17.5	127.7	Full	500	0.0	0.0
Lane 4	228	5.1	256	0.891	100	76.8	LOS E	17.5	127.7	Full	500	0.0	0.0
Lane 5	156	0.6	317	0.492	100	62.8	LOS E	9.8	68.7	Short	100	0.0	NA
Approach	894	4.0		0.891		70.9	LOS E	17.5	127.7				
Intersection	4910	2.4		0.937		51.4	LOS D	50.4	353.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

6 Lane under-utilisation due to downstream effects

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