

Westmead Catholic Community Education Campus

Traffic Modelling Assessment Report

Department of Planning, Industry and Environment

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1. INTRODUCTION

1.1 Background

The Westmead Catholic Community (WCC) Education Precinct is seeking approval for expanded use of their precinct. A number of additional uses have been identified with the key peak hour traffic generating components include:

- Increased capacity of the Primary School of up to 1,680 students
- A Catholic Early Learning Centre (CELC) with capacity for up to 200 children
- An Out of School Hours (OOSH) facility.

The proposed development has been identified as a State Significant Development (SSD-10383). The proponent prepared a Transport & Accessibility Impact Assessment (TAIA) report which was submitted to the Department of Planning, Industry and Environment (DPIE). DPIE subsequently engaged Bitzios Consulting to undertake a peer review of the TAIA report and associated traffic models prepared by The Transport Planning Partnership.

Bitzios Consulting's review identified a number of issues with the traffic assessment report with key items including:

- Underlying assumptions made in the Development Traffic Generation and Distribution
- Calculation of background traffic growths
- SIDRA traffic modelling.

1.2 Purpose of this Report

Bitzios Consulting was subsequently engaged by DPIE to address these key issues. This report summarises the outcomes of the updated traffic analysis. It should be noted that this report only includes an assessment of the private vehicular traffic component. Other modes of transport including public transport and active transport were not part of the scope of this report.

1.3 Scope of Works

The scope of works included the following tasks as detailed in this report:

- Re-calibrate and re-validate the 2018 base SIDRA model to the *Transport for NSW (TfNSW) Traffic Modelling Guidelines (2013)* and other industry guidelines
- Update the development trip generation and distribution to address the issues identified in Bitzios Consulting's peer review
- Update the future year SIDRA models to reflect the revised trip generation and distribution
- Undertake a sensitivity analysis to understand the level of development traffic that is likely to be serviced by the surrounding road network.

1.4 Study Area

The study area is bounded by Darcy Road in the north, Hawkesbury Road in the east, Alexandra Avenue in the south and Bridge Road in the west. There are 11 key intersections within the study area, seven of which are signal controlled as shown in Figure 1.1.

There are a number of educational institutions located within the study area, including the Western Sydney University Westmead Campus. The other institutions include Mother Teresa Primary School, Catherine McAuley Westmead, which is a Catholic girls' secondary school, and Parramatta Marish High School. In the northern boundary of the study area are Westmead Hospital and Westmead Private Hospital. Both have accesses on Darcy Road.

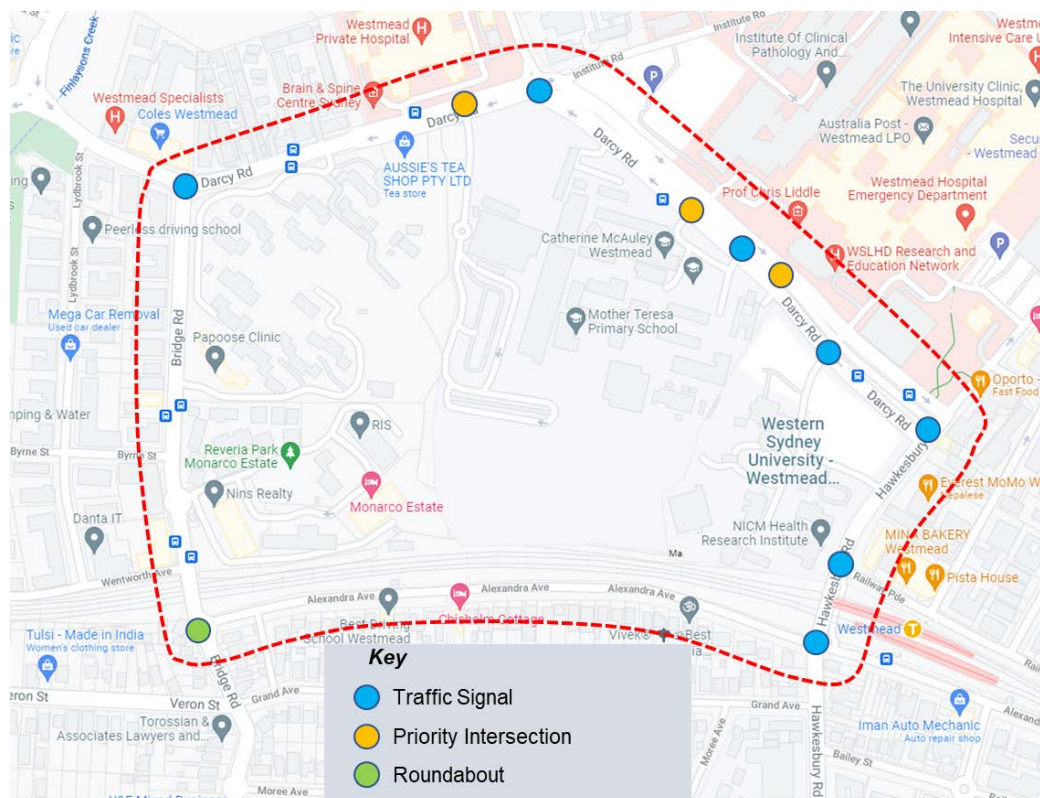


Figure 1.1: Study Area

The TfNSW's Parramatta Light Rail (PLR) Stage 1 is currently being constructed. The Parramatta / Westmead terminus is located east of Hawkesbury Road close to its intersection with Darcy Road. The section of Hawkesbury Road located within the study area is currently undergoing significant transformation, with the Darcy Road / Hawkesbury Road intersection being upgraded to cater for the PLR vehicles.

1.5 Report Structure

The structure of this report is as follows:

- Chapter One: This chapter which discusses the study background, scope of the study and the study area
- Chapter Two: Summarises the SIDRA 2018 Base Model Re-Calibration and Re-Validation
- Chapter Three: Includes underlying assumptions in estimating the future traffic growths
- Chapter Four: Summarises the Do Minimum SIDRA modelling results
- Chapter Five: Includes a summary of modelling assessment with the Development Traffic
- Chapter Six: Summarises the modelling assessment with the Development Traffic and with intersection upgrade works
- Chapter Seven: Includes a sensitivity analysis
- Chapter Eight: Summarises the key modelling outcomes and recommendations from this study

2. SIDRA BASE MODEL RE-CALIBRATION AND RE-VALIDATION

2.1 Overview

The development proponent developed a 2018 Base SIDRA Network model. The base model was used to assess the impact of the development traffic on the study area road network. The model was developed for the AM (7:45-8:45am) and PM (3-4pm) school peak traffic conditions.

Bitzios Consulting's review of the base SIDRA model identified a number of issues with the key items including:

- Calibration parameters
- Traffic signal operation
- Network traffic flows
- Lack of acceptable model validation at key intersections.

The 2018 Base SIDRA network model was updated to address these issues. This section surmises the SIDRA model re-calibration and re-validation. All SIDRA models were recreated using SIDRA Intersection version 9.0 software.

2.2 Data Collation

The proponent of the development commissioned extensive traffic surveys. It was understood that the traffic surveys had been undertaken prior to the commencement of the PLR construction work and intersection upgrade works at Darcy Road/Mons Road/Institute Road. The following traffic data were collated from the proponent of the development:

- **Intersection Turning Count Surveys** at 11 intersections. The data was used to re-calibrate the SIDRA model
- **Queue Length Surveys** at all 11 intersections. The data was used to re-validate SIDRA model
- **SCATS History Data**, controller settings and intersection graphics for all seven signalised intersections. The data was used to re-validate the SIDRA model.

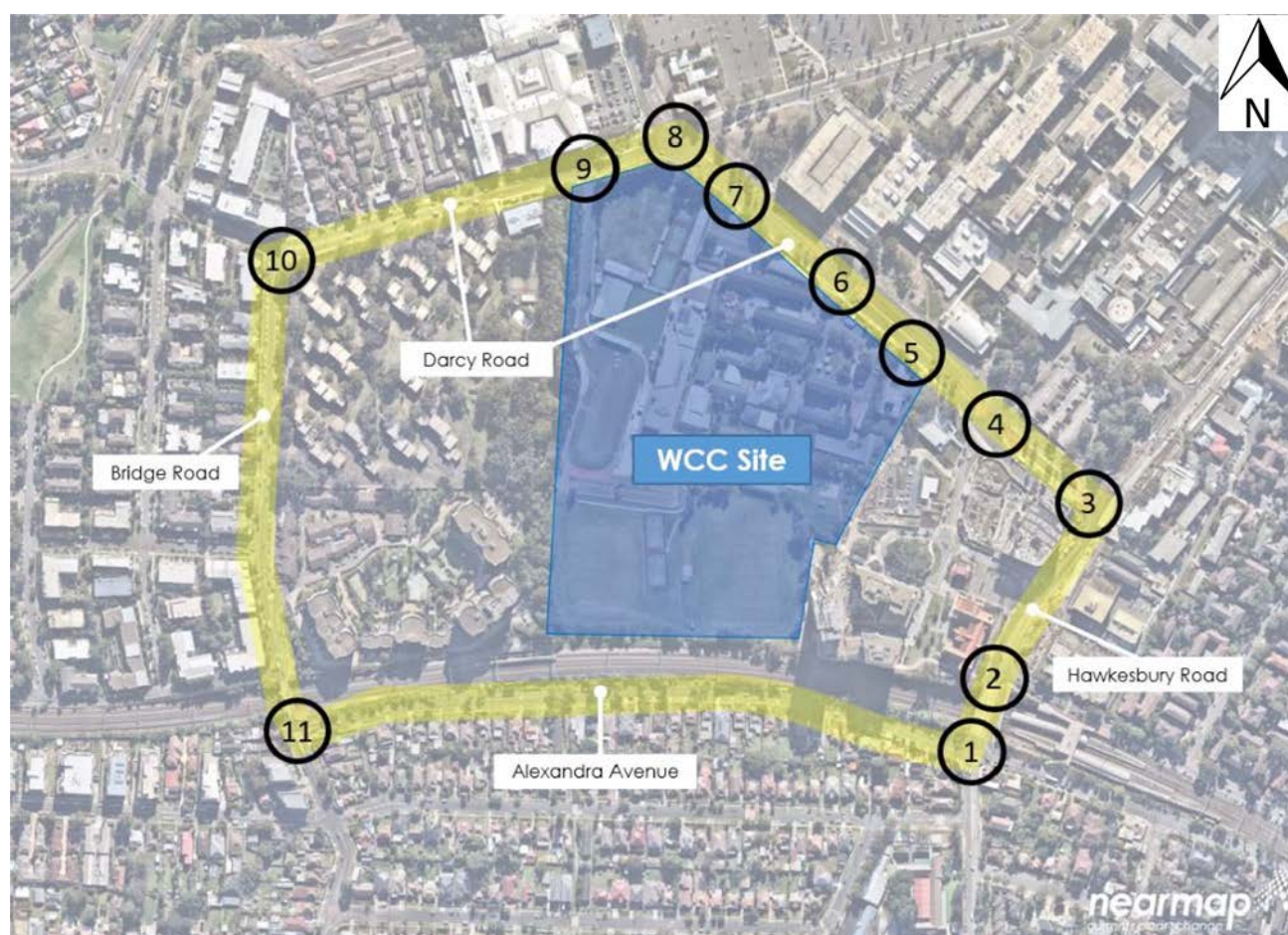
2.2.1 Intersection Turning Count Surveys

The intersection turning count surveys were undertaken at 11 intersections on Wednesday 17 October 2018 as listed in Table 2.1 and also shown in Figure 2.1. The counts were recorded in 15-minute increments and classified into the following vehicle classes:

- Light vehicles
- Heavy vehicles using the general traffic lanes
- Buses using bus lanes and the North-west T-way at relevant intersections.

Table 2.1: Surveyed Intersections

No.	Intersection	Control Type
1	Hawkesbury Road / Alexandra Avenue	Signals
2	Hawkesbury Road / Railway Parade	Signals
3	Hawkesbury Road / Darcy Road	Signals
4	Darcy Road / Farm House Road	Signals
5	Darcy Road / Parramatta Marist HS Access	Priority/driveway
6	Darcy Road / Westmead Dental Hospital Access	Signals
7	Darcy Road / Catherine McAuley Access	Priority/driveway
8	Darcy Road / Mons Road / Institute Road	Signals
9	Darcy Road / Mother Teresa PS Access	Priority/driveway
10	Darcy Road / Bridge Road / Coles Westmead Access	Signals
11	Bridge Road / Alexandra Avenue	Roundabout

**Figure 2.1: Surveyed Intersection Locations**

The traffic survey data was analysed by the proponent and presented in their calibration and validation report. Bitzios Consulting review identified the following issues:

- The volume diagram did not consider bus volumes along the T-way
- There were flow mismatches between adjacent intersections.

These issues have been addressed and the resulting AM and PM peak stick diagrams are presented in Figure 2.2 and Figure 2.3. These are also provided in **Appendix A**.

P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2018 Base - Total Vehicles

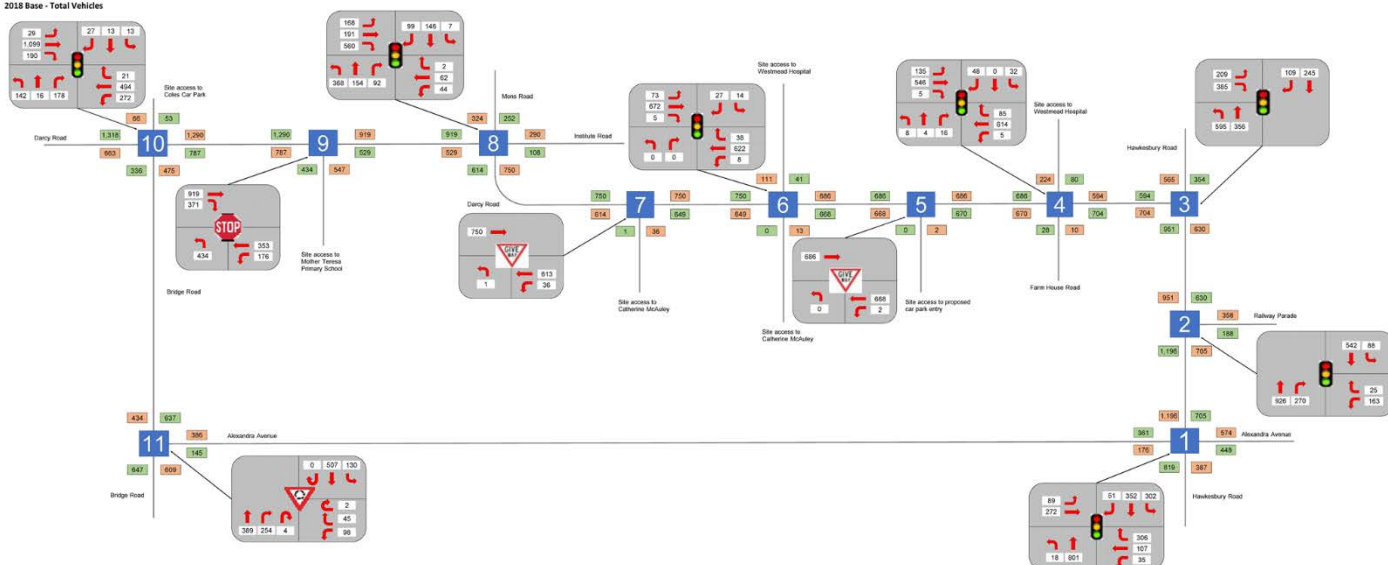


Figure 2.2: Stick Diagram – 2018 AM Peak

P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2018 Base - Total Vehicles

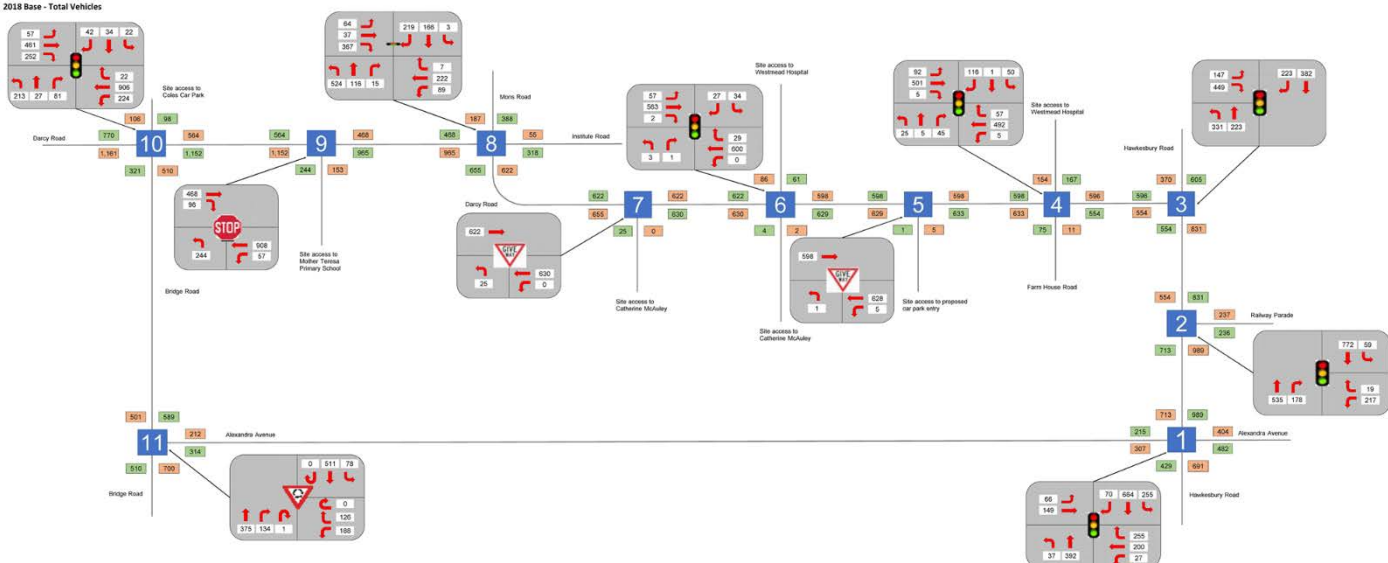


Figure 2.3: Stick Diagram – 2018 PM Peak

2.2.2 Queue Survey Data

Queue length spot checks at the 11 intersections were undertaken by the proponent at the same times as the intersection counts. The queue data was used to validate the SIDRA models.

2.2.3 SCATS Traffic Signal Data

SCATS Intersection Diagnostic Monitor (IDM) data for Wednesday, 17 October 2018 for all seven signalised intersections within the study area were collated from TfNSW for all 24 hours in 15-minute increments.

SCATS data for the seven signalised intersections on were utilised by the proponent for their SIDRA modelling.

The “.LX” file for the region was also obtained. The “.LX” file contains information on SCATS settings including interphase times, phase sequence, pedestrian green time and clearance time, SCATS zone, offsets, high and low cycle time. A list of the signalised intersections is provided in Table 2.2.

Table 2.2: TCS Intersection Within the Study Area

TCS Site	Intersection	Comments
TCS 1571	Alexandra Avenue / Hawkesbury Road	Two intersections part of a single controller
	Hawkesbury Road / Railway Parade	
TCS 1631	Hawkesbury Road / Darcy Road	-
TCS 3281	Darcy Road / Farm House Road	-
TCS 3282	Darcy Road / Westmead Hospital Access	-
TCS 2393	Darcy Road / Mons Road / Institute Road	-
TCS 1630	Darcy Road / Bridge Road /Coles Access	-

2.3 SIDRA Model Development

2.3.1 SIDRA Network

The SIDRA Network model network was redeveloped using SIDRA Intersection version 9.0 software. Generally, the proponent’s SIDRA model network, developed using SIDRA Intersection version 8.0 software (the latest version at the time of their assessment), was with adequate and detailed. No major issues were identified. Some minor insignificant issues were identified and subsequently fixed (i.e. approach distances and controls). The SIRA network is shown in Figure 2.4.



Figure 2.4: SIDRA Network Model

2.3.2 SCATS Zones

The signalised intersections within the study area are under four separate SCATS controllers:

- **Sub System 44:** Hawkesbury Road intersections with Alexandra Avenue and Railway Parade
- **Sub System 41:** Darcy Road intersections with Hawkesbury Road, Farm House Road and Westmead Dental Hospital Access
- **Sub System 25:** Darcy Road / Institute Road / Mons Road intersection
- **Sub System 25:** Darcy Road / Bridge Road intersection.

A review of the “.LX” file shows that the Hawkesbury Road / Alexandra Avenue / Railway Parade is the reference intersection in the network model and signal offsets of the remaining intersections are determined based on the offset from this key intersection as shown with trailing arrows in Figure 2.5.

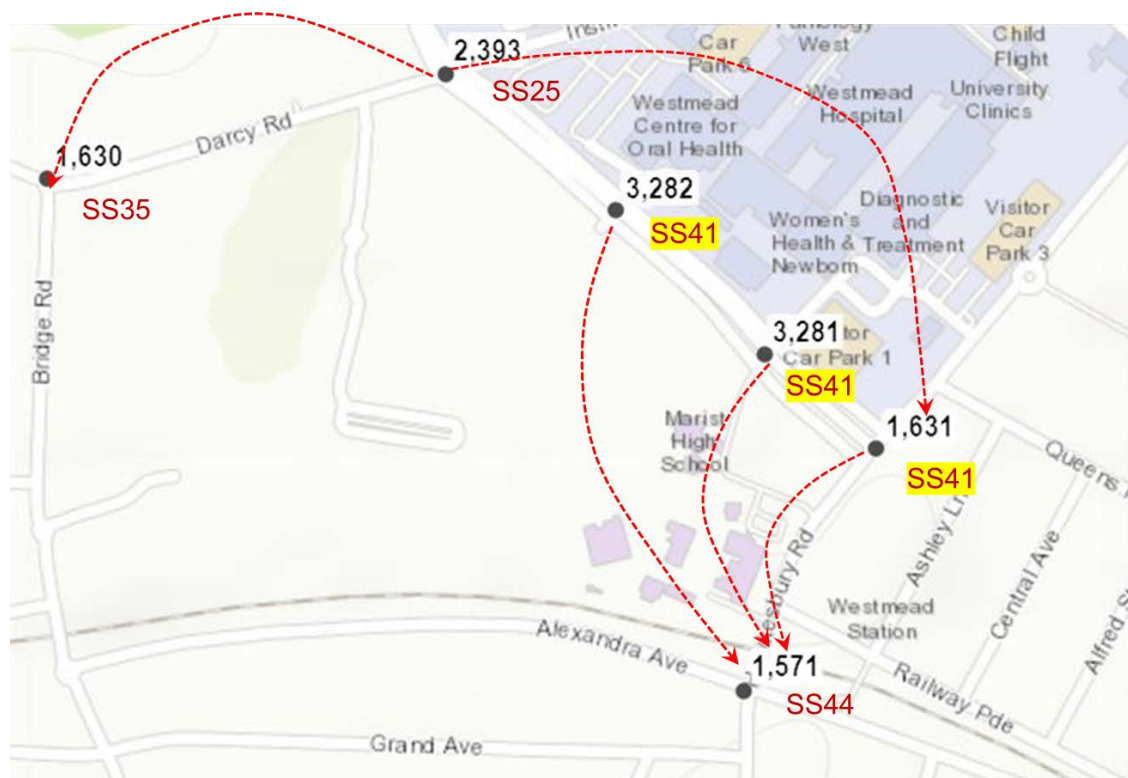


Figure 2.5: SCATS Sub System

2.4 SIDRA Model Re-Calibration

Table 2.3 details the input parameters which were adjusted in the base SIDRA models for calibration purposes based on local traffic operations, including Critical Gap, Area Type Factor and Extra Bunching.

Table 2.3: Base Model Calibration Parameters

Intersection	Parameter (default value)	AM Peak	PM Peak
Hawkesbury Road / Alexandra Avenue	Extra Bunching (Network Analysis) (Program)	▪ N Approach: 50%	-
	Area Type Factor (1)	▪ E Approach: 1.1 ▪ W Approach: 1.55	-
	Critical Gap (4.5 sec)	-	▪ N Approach Right: 4 sec
	Follow-up Headway (2.6 sec)	-	▪ N Approach Right: 2 sec
	Arrival Type (Program)	▪ E Approach All: 5 ▪ S Approach All: 6	-
Hawkesbury Road / Railway Parade	Extra Bunching (Network Analysis) (Program)	▪ S Approach: 50%	▪ N Approach: 50%
	Area Type Factor (1)	▪ N Approach: 2.0 ▪ S Approach: 1.2	▪ N Approach: 2.0
Hawkesbury Road / Darcy Road	Extra Bunching (Network Analysis) (Program)	▪ S Approach: 50%	-
	Area Type Factor (1)	▪ S Approach: 1.2	▪ NE Approach: 1.5 ▪ SW Approach: 1.5 ▪ NW Approach: 0.8
	Arrival Type (Program)	-	▪ NE Approach All: 5
Darcy Road / Westmead Dental Hospital Access	Area Type Factor (1)	-	▪ NW Approach: 1.5
Darcy Road / Mons Road / Institute Road	Extra Bunching (Network Analysis) (Program)	-	▪ SE Approach: 50%
	Area Type Factor (1)	-	▪ N Approach All: 5 ▪ E Approach Left/Right: 4 ▪ E Approach Through: 6
Darcy Road / Mother Teresa PS Access	Critical Gap (7 sec)	▪ W Approach Right: 4 sec	▪ W Approach Right: 4 sec
	Follow-up Headway (4 sec)	▪ W Approach Right: 2 sec	▪ W Approach Right: 2 sec
Darcy Road / Bridge Road	Extra Bunching (Network Analysis) (Program)	▪ S Approach: 50%	-
	Area Type Factor (1)	-	▪ E Approach: 2 ▪ W Approach: 1.2
	Lane Utilisation Ratio (Program)	▪ E Approach L2: 100%	▪ E Approach: 2 ▪ W Approach: 1.2
	Critical Gap (4.5 sec)	▪ S Approach Right: 3.5 sec	▪ S Approach Right: 3.5 sec
	Follow-up Headway (2.6 sec)	▪ S Approach Right: 2 sec	▪ S Approach Right: 2 sec
	Arrival Type (Program)	▪ W Approach Through/ Right: 4	-

2.5 SIDRA Model Re-Validation

The queue lengths calculated by SIDRA were validated against the survey queue length. The acceptable validation error was adopted from VicRoads Transport Modelling Guidelines and reproduced in Table 2.4.

Table 2.4: Acceptable Queue Validation Error

Observed Queue Range (m)	Acceptable Validation Error (m)
1-20	±10
21-50	±15
51-100	±20
101-150	±25
151-200	±30
201-250	±35
251-500	±100
501-1000	±150
1000+	±200

Source: VicRoads Transport Modelling Guidelines Volume 5: Intersection Modelling (DRAFT, June 2020) – Table 28

The observed and modelled 95th percentile queue lengths during the AM and PM peaks are compared in Table 2.5 and Table 2.6.

The AM peak queues validate very well with the observed queues. The key observations include:

- Generally, the modelled queues were deemed to be comparable if found to be very close of the observed queues
- The Darcy Road / Mons Road / Institute Road intersection west approach modelled queues are shorter than the observed queues. However, SIDRA is only reporting queues between Mons Road and the previous Mother Teresa Primary School Access intersection, meaning that the actual queues of “slow moving” vehicles on this approach was not adequately reflected in SIDRA.

Table 2.5: Base Model Queue Validation – AM Peak

Intersection	Approach	Observed (m)	Acceptable Queue Range (m)	Modelled (m)	Within Acceptable Range?	Difference if Outside Acceptable Range (m)
AM Peak						
Hawkesbury Road / Alexandra Avenue	North	49	34-64	56	Yes	-
	East	56	36-76	123	No	47
	South	98	78-118	168	No	50
	West	98	78-118	131	No	13
Hawkesbury Road / Railway Parade	North	49	34-64	99	No	35
	East	49	34-64	35	Yes	-
	South	56	36-76	53	Yes	-
Hawkesbury Road / Darcy Road	North-east	70	50-90	85	Yes	-
	South-west	70	50-90	150	No	60
	North-west	84	64-104	103	Yes	-
Darcy Road / Farm House Road	North-east	14	4-24	25	No	1
	South-east	70	50-90	69	Yes	-
	North-west	56	36-76	40	Yes	-
Darcy Road / Westmead Dental Hospital Access	North-east	7	0-17	11	Yes	-
	South-east	56	36-76	19	No	17
	South-west	0	0-10	1	Yes	-
	North-west	84	64-104	67	Yes	-
Darcy Road / Mons Road / Institute Road	North	56	36-76	70	Yes	-
	East	28	13-43	32	Yes	-
	South-east	70	50-90	90	Yes	-
	West	343	243-443	91	No	152
Darcy Road / Mother Teresa PS Access	South	56	36-76	27	No	9
	West	70	50-90	27	No	23
Darcy Road / Bridge Road	North	21	6-36	16	Yes	-
	East	56	36-76	151	No	75
	South	35	20-50	77	No	27
	West	105	80-130	96	Yes	-

The PM peak queues validate very well with the observed queues. The key observations include:

- Generally, the modelled queues were deemed to be comparable if found to be very close of the observed queues
- The Mother Teresa Primary Access intersection west approach modelled queues are shorter than the observed queues. The long 95th percentile observed queue was resulting from a significant number of right turning vehicles into the school, mainly to pick up children just before the school finishes.

Table 2.6: Base Model Queue Validation - PM Peak

Intersection	Approach	Observed (m)	Acceptable Queue Range (m)	Modelled (m)	Within Acceptable Range?	Difference if Outside Acceptable Range (m)
PM Peak						
Hawkesbury Road / Alexandra Avenue	East	140	115-165	135	Yes	-
	South	105	80-130	90	Yes	-
	West	56	36-76	70	Yes	-
Hawkesbury Road / Railway Parade	North	98	78-118	173	No	55
	East	49	34-64	50	Yes	-
	South	56	36-76	45	Yes	-
Hawkesbury Road / Darcy Road	North-east	112	87-137	133	Yes	-
	South-west	70	50-90	105	No	15
	North-west	113	88-138	103	Yes	-
Darcy Road / Farm House Road	North-east	28	13-43	47	No	4
	South-east	28	13-43	81	No	38
	North-west	56	36-76	74	Yes	-
Darcy Road / Westmead Dental Hospital Access	North-east	7	0-17	11	Yes	-
	South-east	42	27-57	15	No	12
	South-west	0	0-10	2	Yes	-
	North-west	28	13-43	32	Yes	-
Darcy Road / Mons Road / Institute Road	North	84	64-104	54	No	10
	East	28	13-43	79	No	36
	South-east	42	27-57	90	No	33
	West	56	36-76	91	No	15
Darcy Road / Mother Teresa PS Access	South	56	36-76	15	No	21
	West	70	50-90	4	No	46
Darcy Road / Bridge Road	North	28	13-43	37	Yes	-
	East	56	36-76	134	No	58
	South	90	70-110	95	Yes	-
	West	36	21-51	58	No	7

2.5.1 Signal Validation

2.5.1.1 Data Comparison

The SCATS data obtained for 2018 has been compared with the model signal times. As per the TfNSW Modelling Guidelines, the following signal attributes were used in the comparison:

- **Cycle Time:** Average modelled cycle time in the one-hour period
- **Green Time:** Total of green time over each one-hour period for each phase
- **Call Frequency:** Call frequency if demand-dependent phases (including pedestrian phase calls) to be compared with observed data to ensure phase activation occurs to a similar level over each hour period.

A detailed comparison of modelled and observed Cycle Time, Phase Time and Offset for the intersection across the AM, PM and Weekend peak periods is presented in **Appendix B**. The modelled and observed values are generally similar. Any variations outside the validation tolerance are noted in the following sections.

2.5.1.2 Cycle Time

Signal cycle times similar to SCATS' average cycle time were adopted for the signalised intersections. The AM peak cycle times are within the acceptable tolerance limit (i.e. $\pm 10\%$ of the observed average).

2.5.1.3 Phase Times

Generally, the phase times are within the tolerance limit (i.e. $\pm 10\%$ of the observed average). A few phase times are longer than the SCATS average. In most of the cases, this is the coordinated phase in the actuated signal controller. Therefore, the effective green time is likely to be longer than the model time as any unused green time from Phase B is given to the coordinated phase.

2.5.1.4 Call Frequency

The SCATS data was interrogated to find out which phases are called in most of the cycles. Phases which are infrequent, are modelled as "variable phase" and/or given a Phase Frequency percentage.

2.5.1.5 Pedestrian Phases

Pedestrian protection time were included where the pedestrian phase was called frequently and could impact intersection performance.

2.6 Conclusion

Bitzios Consulting has re-calibrated and re-validated the 2018 (base year) AM and PM peak SIDRA models to undertake assessment of the proposed development.

In developing the base year model, it can be concluded that:

- The network coding reflects the traffic network conditions in typical 2018 AM and PM peak periods
- The traffic demand estimates for the AM and PM peak periods when assigned to the network sufficiently reflect the observed traffic counts undertaken at 11 locations
- The model sufficiently replicates queuing patterns at key intersections.

The SIDRA model adequately replicates the observed queue especially during the critical AM peak period. As such, the results demonstrate that the base SIDRA models are considered to be fit for the purpose of assessing the impact of the proposed development.

2.7 2018 Intersection Performance

The 2019 AM and PM peak intersection performance are summarised in Table 2.7 and Table 2.8. The intersections operate at satisfactory LoS between LoS A and LoS C. All the intersections operate well within capacity in both the peak periods.

Table 2.7: 2018 Base Model Outputs – AM Peak

Intersection	Traffic Volume (veh/h)	DoS (v/c)	Average Delay (s)	LoS	95th Percentile Queue (m)
Hawkesbury Road / Alexandra Avenue	2,333	0.82	35.3	C	168
Hawkesbury Road / Railway Parade	2,014	0.44	13.3	A	99
Hawkesbury Road / Darcy Road	1,899	0.61	32.8	C	150
Darcy Road / Farm House Road	1,499	0.54	20.4	B	69
Darcy Road / Parramatta Marist HS Access	1,357	0.17	11.4	A	0
Darcy Road / Westmead Dental Hospital Access	1,461	0.31	11.3	A	67
Darcy Road / Catherine McAuley Access	1,400	0.19	3.9	A	15
Darcy Road / Mons Road / Institute Road	1,892	0.67	41.7	C	91
Darcy Road / Mother Teresa PS Access	2,253	0.72	13.5	A	92
Darcy Road / Bridge Road	2,490	0.57	23.5	B	151
Bridge Road / Alexandra Avenue	1,430	0.77	15.5	B	67

Table 2.8: 2018 Base Model Outputs – PM Peak

Intersection	Traffic Volume (veh/h)	DoS (v/c)	Average Delay (s)	LoS	95th Percentile Queue (m)
Hawkesbury Road / Alexandra Avenue	2,115	0.73	36.0	C	125
Hawkesbury Road / Railway Parade	1,780	0.72	22.4	B	157
Hawkesbury Road / Darcy Road	1,755	0.74	32.5	C	123
Darcy Road / Farm House Road	1,395	0.48	27.7	B	81
Darcy Road / Parramatta Marist HS Access	1,232	0.19	18.8	B	1
Darcy Road / Westmead Dental Hospital Access	1,317	0.36	10.6	A	57
Darcy Road / Catherine McAuley Access	1,278	0.16	3.7	A	1
Darcy Road / Mons Road / Institute Road	1,828	0.58	39.4	C	91
Darcy Road / Mother Teresa PS Access	1,773	0.46	12.3	A	15
Darcy Road / Bridge Road	2,341	0.61	23.1	B	134
Bridge Road / Alexandra Avenue	1,415	0.61	14.3	A	38

3. FUTURE TRAFFIC VOLUMES

3.1 Overview

The future traffic estimates are based on the growths in the following two components:

- Background traffic growth
- Development Traffic.

Background traffic growth within the study area was extracted from the 2026 and 2036 Sydney Strategic Traffic Forecasting Model (STFM). The **development traffic growths** within the study area were calculated based on the size and scope of the proposed development.

3.2 Background Traffic Growth

The future year background traffic volumes were calculated based on yearly link traffic volume growths provided by TfNSW. A typical growth plot is shown in Figure 3.1. The STFM link plots (Model Version 3.3) were provided for the 2016 and future year 2026 and 2036. Among the future key transport projects include the PLR Stages 1 and 2. These projects will have direct impact on the future traffic flows within the study area.

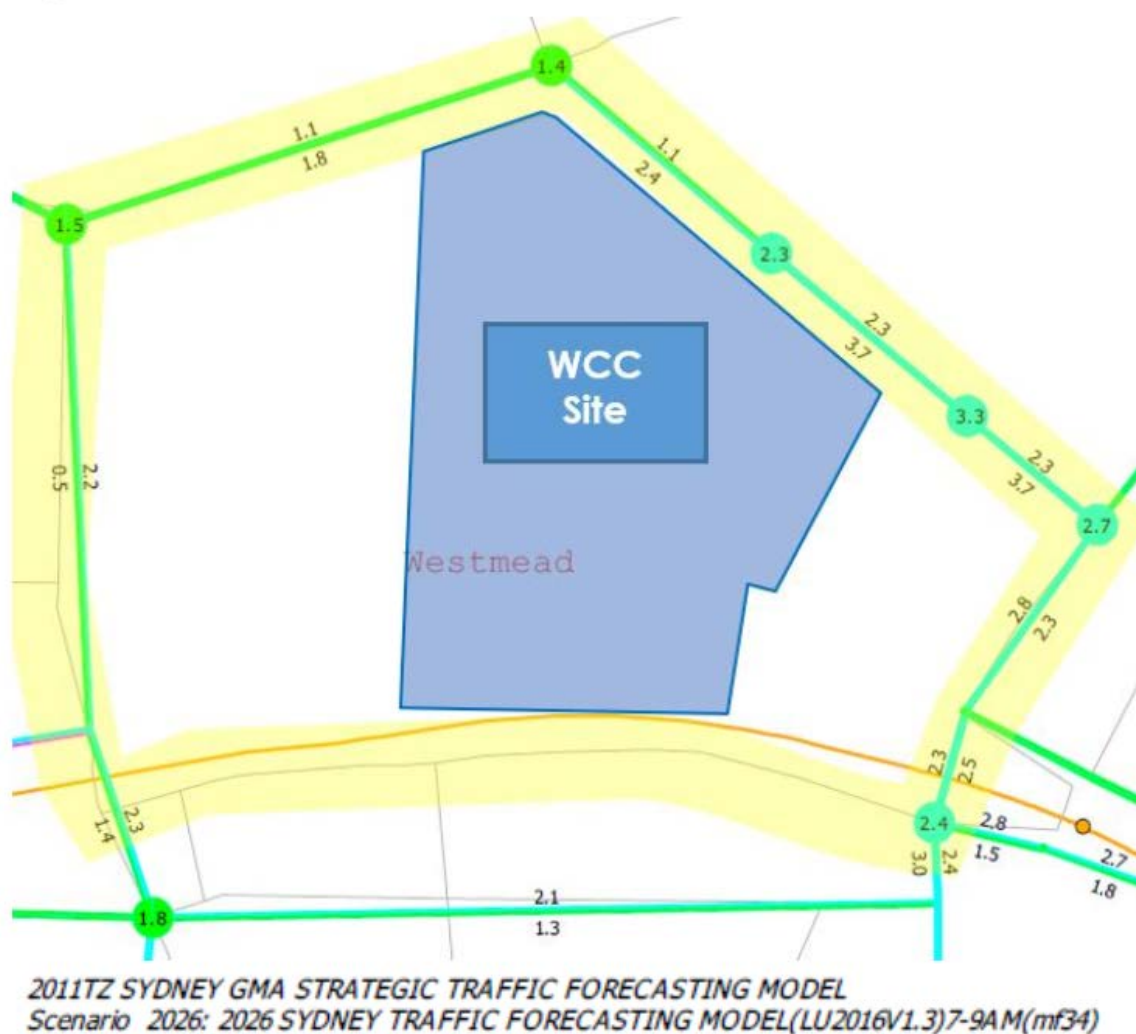


Figure 3.1: STFM Growth Rates (in % per year)

The yearly link traffic growths were applied to each link to estimate the projected growths in background traffic. The STFM projected link growths were applied to all entry movements contributing to the link with the distributions were based on the observed turning flows. The only exception was the school access points. To avoid “double counting”, the school access points were left out of the background flow calculations. Slight ‘imbalance’ resulting from this calculation was subsequently manually adjusted. The resulting AM and PM peak traffic growths are shown in Figure 3.2 to Figure 3.5. The key observations include that between 2016 and 2033:

- Traffic volumes on Darcy Road between Hawkesbury Road and Mons Road is predicted to grow between 1% and 3.7% per year
- Traffic volumes on the section of Darcy Road between Mons Road and Bridge Road would grow between 1% and 1.8% per year
- The Hawkesbury Road would experience 1.3% and 4.7% per year
- The Alexandra Avenue (East) would experience substantial growth of between 1.5% and 3.7% per year

P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2023 Background Growth - Total Vehicles

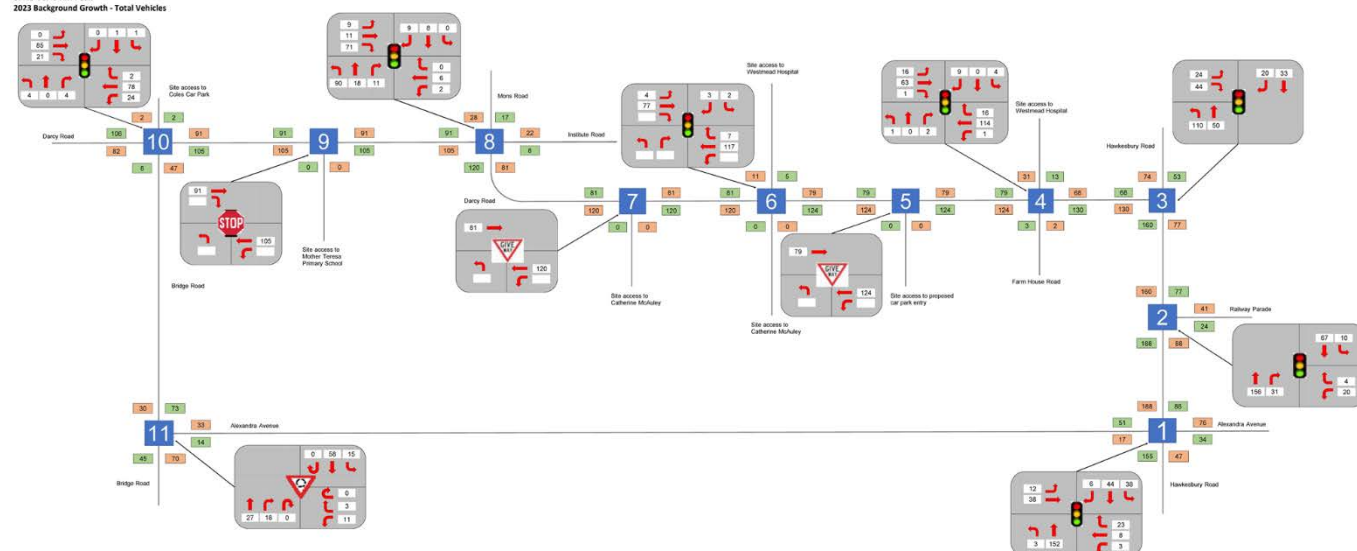


Figure 3.2: AM Peak Background Traffic Growths (2023)

P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2033 Background Growth - Total Vehicles

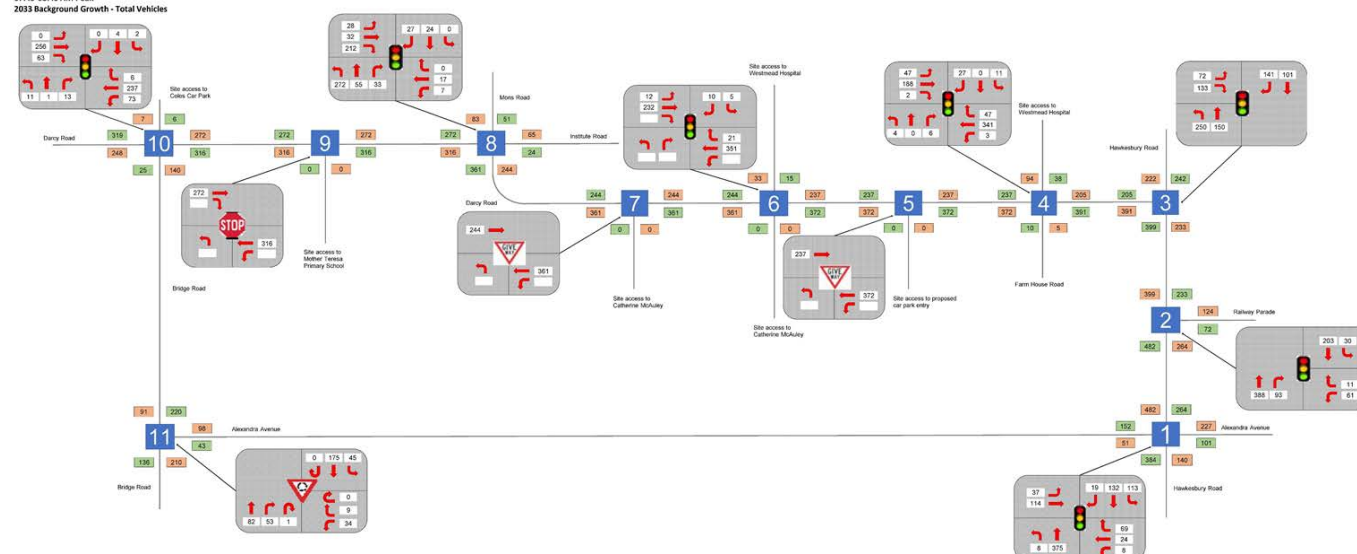


Figure 3.3: AM Peak Background Traffic Growths (2033)

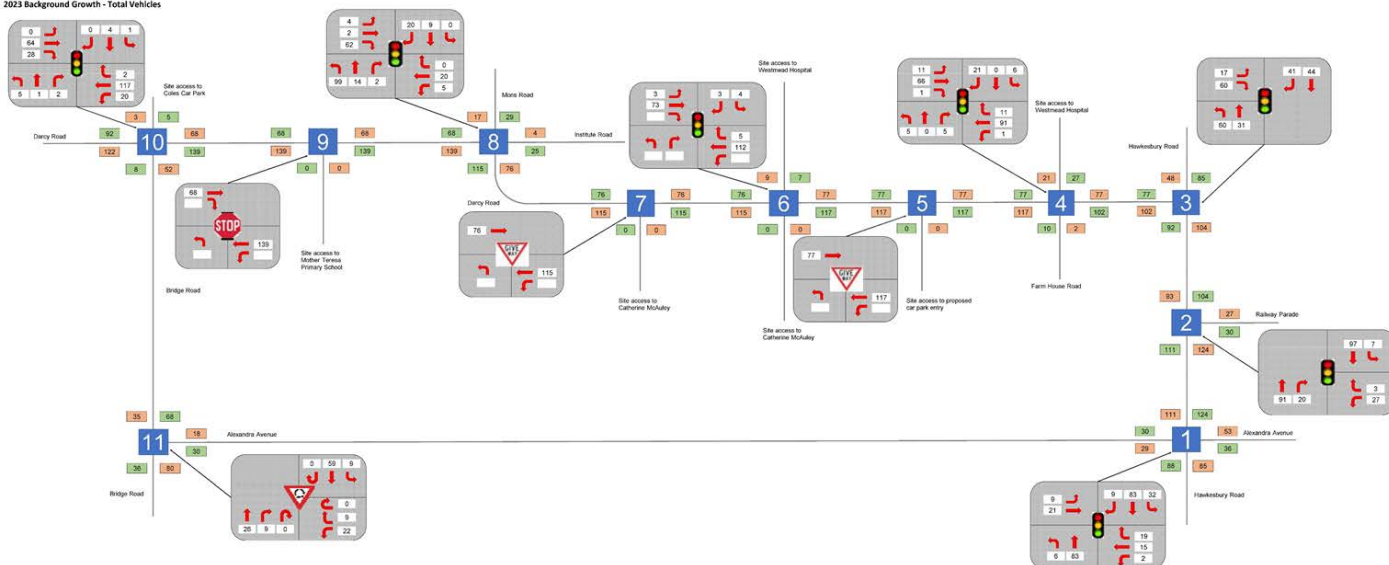


Figure 3.4: PM Peak Background Traffic Growths (2023)

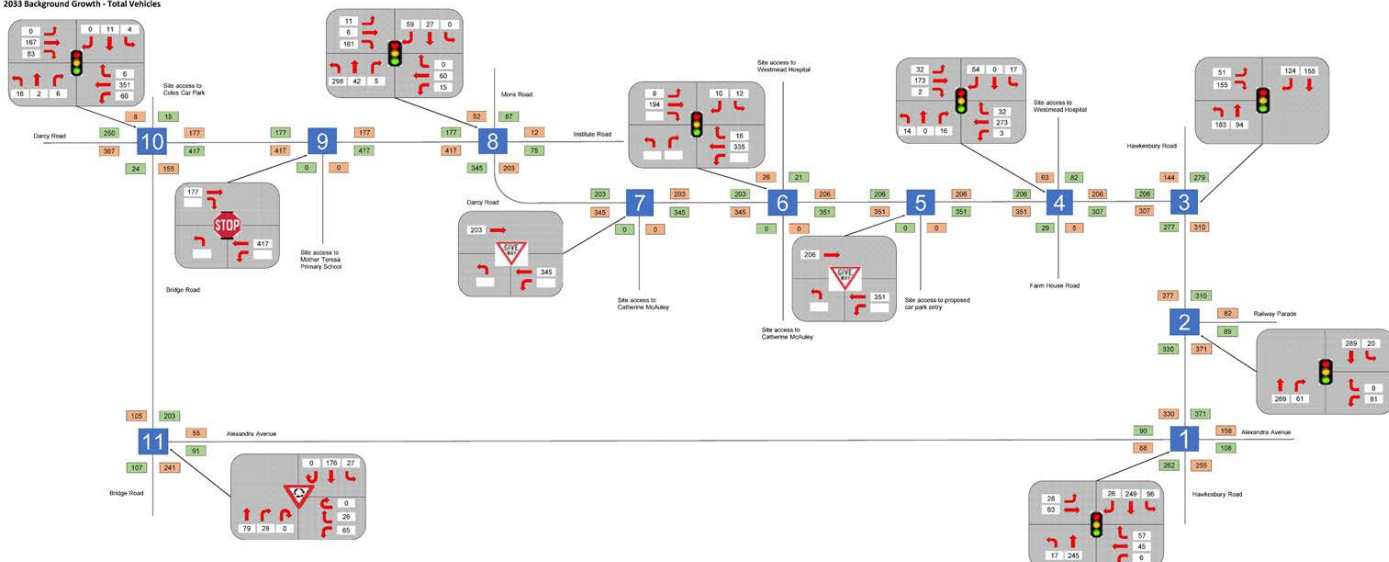


Figure 3.5: PM Peak Background Traffic Growths (2033)

3.3 Development Traffic

3.3.1 Proposed Development

The proposed development is for the following uses at the WCC site:

- A primary school with capacity for up to 1,680 students, to provide expanded facilities for the existing Mother Teresa Primary School on the site and to replace the existing Sacred Heart Primary School at Ralph Street
- An Out of School Hours (OOSH) facility with capacity for 22% of the primary student population
- A Catholic Early Learning Centre (CELC) with capacity for up to 200 children (fit-out within an existing building)
- A new Parish Church.

3.3.2 Key Assumptions

3.3.2.1 High School Car Park

The development excludes a proposed car park at the high school access that has been approved via a separate application. However, the layout of the car park and accesses were adopted in the proponent's future year SIDRA models and was adopted in the Bitzios' future year models.

3.3.2.2 OOSH Facility

The proponent applied for 30% OOSH facilities in their development proposal. However, the evidence provided in the traffic impact report does not demonstrate that a 30% OOSH facility can be achieved. The average OOSH facility within various relevant data sources presented in proponent's report is summarised in Table 3.1.

Table 3.1: OOSH Facility

Sources	OOSH %
The average of CEDP schools	22%
The average of Parramatta LGA	20.8%
The average of big schools in Parramatta LGA	17.8%

Therefore, for the purpose of this analysis a **22%** OOSH enrolment rate was adopted in this study which is consistent with the CEDP school average.

3.3.2.3 Student and Staff Population

The existing and future number of students and staffs are presented in Table 3.2.

Table 3.2: Student and Staff population

Land Use	Student Population			Staff Population		
	Base	2023	2033	Base	2023	2033
CELC	0	100	200	0	15	25
Primary School	420	660	1,680	24	40	100
High School	2,186	2,237	2,237	166	166	166
Total	2,606	2,997	4,117	190	221	291

3.3.3 Trip Generation

3.3.3.1 Existing Trip Generation Rate

The 2018 Intersection Turning Count surveys and Travel Mode Survey were used to calculate the existing trip generation rate. The existing trip generation rates were applied to calculate the future trips from the proposed extension.

The proponent carried out a questionnaire survey among the students and staffs of the schools to understand the travel mode. This key findings from the survey are:

- The car usage percentage of different types of student population is as follows
 - Primary School students 90%
 - High School Students 19.6%
 - Primary School Teachers 95%
 - High School Teachers 87%.

- Of students travelling to/from the subject site by car
 - 75% would arrive during the morning peak
 - 85% would depart during the afternoon peak.
- Of staff travelling to/from the subject site by car
 - 75% would arrive during the morning peak
 - 10% would depart during the afternoon peak.
- Car occupancy rate
 - For primary school students 2.12
 - For high school students 1.85.

The results from the travel mode survey was validated by using intersection turning count survey. The key findings include:

- The intersection turning count data shows that 84% of students arrive by car during the morning peak as compared with 75% from the questioner survey. Therefore, the intersection count data is 9% **higher**
- The intersection turning count data shows that 52% students leave during the site by car in the afternoon peak as compared with 85% from the questioner survey. This is 33% **lower** than the questioner survey
- The staff car usage (Catherine McAuley entrance) was also **underestimated** by 5% in the AM peak and massive 59% in the PM peak.

Based on the above, the AM peak student trip generation was underestimated by the Travel Mode Survey while the PM Peak was overestimated. The staff trip generation was underestimated in both the peak periods. Therefore, the travel mode survey is not reliable to use for the directional splits or to calculate the car occupancy. However, the car usage percentages were taken from this survey.

In this analysis, car occupancy rate is calculated from the intersection count survey and found to be different for AM and PM peak. For AM peak the occupancy rate is calculated as 1.37 students per car and for PM peak is calculated as 2.38 students per car. The staff occupancy rate is assumed as 1 staff per car.

3.3.4 Directional Splits

As mentioned in the previous sub-section, the direction splits were calculated using intersection turning count data. The resulting private vehicle directional splits for Primary, High School and Staff are summarised in Table 3.3.

These proportions were applied to calculate the directional splits of the proposed expansion.

Table 3.3: Private Vehicle Trip Directional Split

Component	AM Peak		PM Peak	
	In	Out	In	Out
Primary School	81%	75%	44%	52%
High School	81%	75%	44%	52%
Staff	80%	-	-	69%

3.3.5 Future Trip Generation

The future trip generation for the development is provided in Table 3.4. The assumptions changed for the future trip generation is as follows.

- 22% OOSH enrolment rate was assumed
- Trip generation rates adopted for the CELC and OOSH facilities are based on TfNSW Trip Generation Study for Child Care Centres (dated September 2015). The rate for AM peak traffic is 0.3 per licenced place and for PM peak the rate is 0.04 per licenced place.
- Primary school students (non OOSH) will have 10% modal shift. Therefore, car usage percentage for primary school students is assumed to be 80% as compared with 90% as per the questioner survey
- Staff parking will be provided for 50% of the staffs. Therefore, car usage percentage for staffs is assumed to be 50%.

Table 3.4: Future Trip Generation

Land Use	2023				2033			
	AM In	AM Out	PM In	PM Out	AM In	AM Out	PM In	PM Out
CELC	9	8	0	0	18	16	1	1
Primary School (OOSH)	13	12	1	1	33	30	1	2
Primary School (non OOSH)	244	225	76	89	621	573	193	227
High School	260	240	81	95	260	240	81	95
Staff	88	0	0	77	116	0	0	101
Total	614	485	158	262	1,048	860	277	426

3.3.6 The Access Locations and Trip Distribution

It is understood that a new car park would be constructed western side of Darcy Road between the Farm House Road and Dental Hospital Access signalised intersections. For the purpose of this assessment, it was assumed that:

- The CELC and primary school students will use the Mother Teresa access
- The High School students and Staffs will use the new car park access.

The distributions of the future year 2023 and 2033 AM and PM peak school traffic at these two access locations are shown in Figure 3.6.

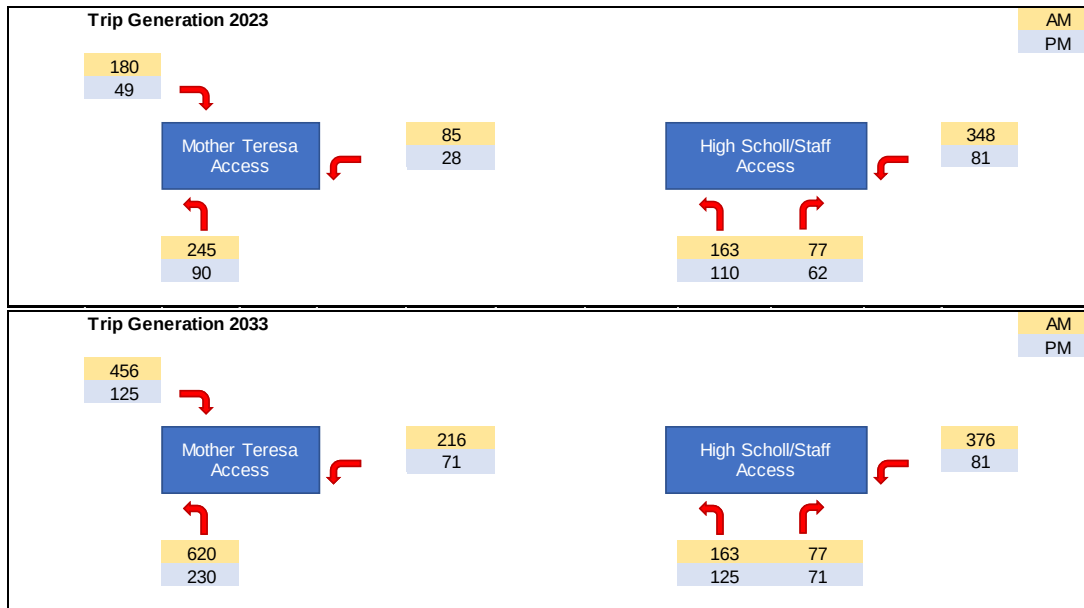


Figure 3.6: Trip Distribution at Access Locations

3.3.7 Trip Distribution

The key assumptions made while distributing the school trips include:

- In general, the trip distribution was based on the turning count survey data at the Mother Teresa Access / Darcy Road intersection
- The turning count data analysis shows that at the Mother Teresa Access / Darcy Road intersection, about 65% trips access from the west of Darcy Road and the remaining 35% access from the east
- Of the 65% access from the west, 40% arrive from Darcy Road (west) and the remaining 25% from Bridge Road
- Of the 35% access from the east, 10% arrive from Hawkesbury Road (north), 10% from Alexandra Avenue (east) and 15% from Hawkesbury Road (south) as shown in Figure 3.7.

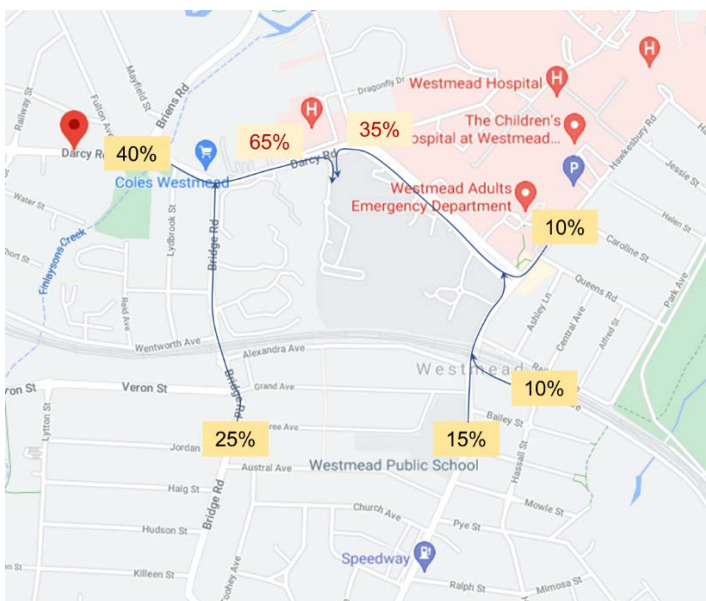


Figure 3.7: General Trip Distribution

The above distributions were adopted for both the Primary and High School trips and shown separately in Figure 3.8.



Figure 3.8: Primary School and High School Trip Distribution

The future year 2023 and 2033 development trips are included in Appendix C.

3.4 Future Year Do Minimum Traffic Volumes

The projected growths in background traffic were added to the 2018 base traffic to develop the 2023 and 2033 AM and PM peak Do Minimum traffic volumes. The resulting traffic volumes are included in Appendix D.

3.5 Future Year with Development Traffic Volumes

The projected growths in background traffic and the traffic from the development were added to the 2018 base traffic to develop the 2023 and 2033 AM and PM peak “With Development” traffic volumes. The resulting traffic volumes are included in Appendix E.

4. FUTURE YEAR DO MINIMUM MODELLING

4.1 Overview

The future year 2023 and 2033 Do Minimum models were developed by adding the background traffic to the Base 2018 demands. Some minor adjustments were made to the year 2018 signal settings to reflect changes in the traffic patterns. The 2023 and 2033 Do Minimum model traffic demands and road network assumptions are summarised in Table 4.1.

Table 4.1: Do Minimum Models

Scenario	Demand Traffic	Road Network
2023 Do Minimum	2018 Base Demand <i>plus</i> Background traffic Growths to 2023	The following upgrades were incorporated at the: ■ Darcy Road / Mons Road Intersection ■ Darcy Road / Hawkesbury Road Intersection
2033 Do Minimum	2018 Base Demand <i>plus</i> Background traffic Growths to 2033	

The Do Minimum Model results are included in **Appendix F** and are summarised below.

4.2 Intersection Upgrades Included in the Do Minimum Model

4.2.1 Darcy Road / Mons Road

The upgrades at the Darcy Road / Mons Road intersection were carried out in the first quarter of 2019. Among the key upgrades included a high-angle left slip lane for traffic from Darcy Road (west) to Mons Road as shown in Figure 4.1.

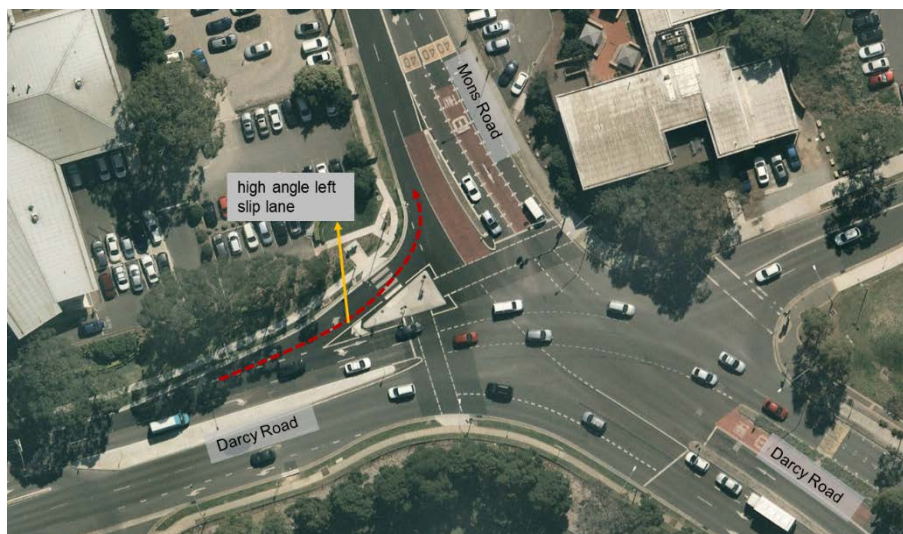


Figure 4.1: Upgraded Darcy Road / Mons Road Intersection Layout

4.2.2 Darcy Road / Hawkesbury Road

The Darcy Road / Hawkesbury Road intersection is currently being upgraded to accommodate PLR vehicles as shown in Figure 4.2. It is understood that PLR vehicles will have absolute priority at this intersection. However, currently it is not possible to simulate such sophisticated signal strategy in SIDRA. Therefore, for the purpose of this assessment, a simplified assumption of the traffic signal operation of was made. Two additional phases were included in the signal cycle with both servicing the PLR vehicles. The demand for the PLR traffic is considered to be low. Therefore, these phases were assumed to be “variable” in the signal cycle (i.e. not activated in every cycle). It was assumed that in every hour, eight PLR vehicles would travel through the intersection in each direction.

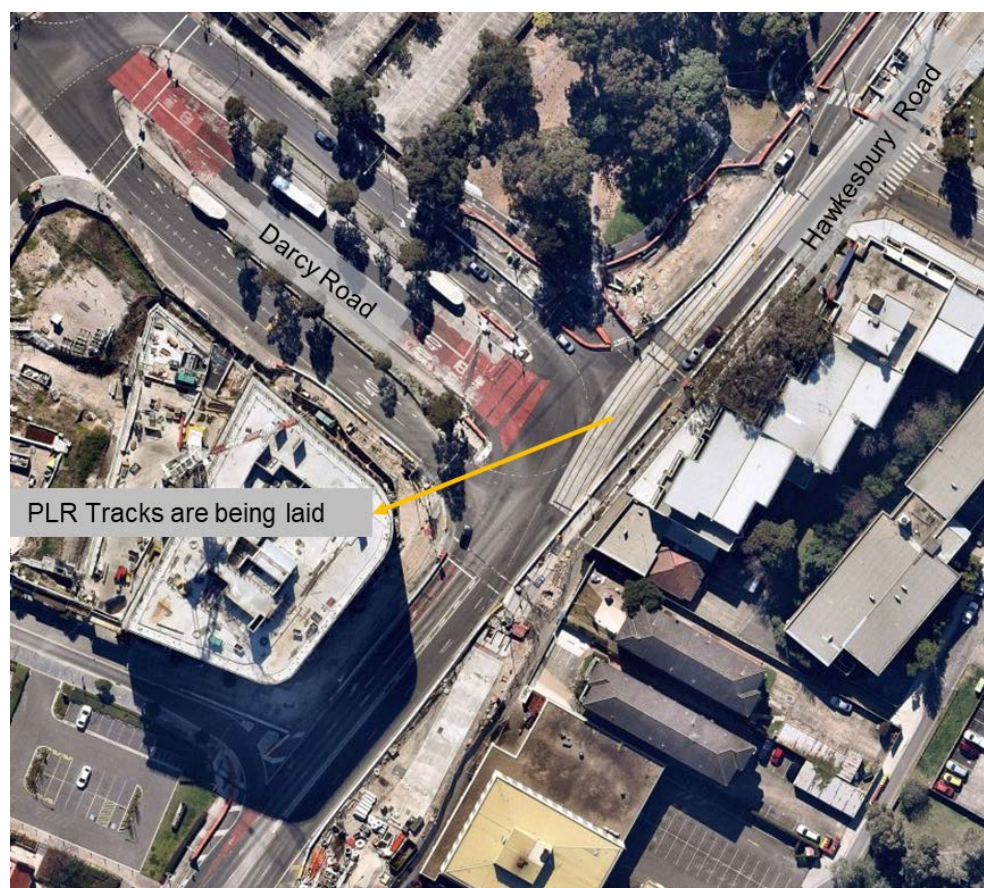


Figure 4.2: Darcy Road / Hawkesbury Road PLR Construction Work

4.3 Assessment Criteria

The results of each model scenario and each option have been compared using a range of typical criteria and metrics. The criteria that have been used included:

- Intersection Level of Service (LoS)
- Degree of Saturation
- 95th Percentile Queue.

4.3.1 Intersection Level of Service

Intersection Level of Service (LoS) based on average delay has been used as the primary metric for impact assessment in accordance with the TfNSW Guide to Traffic Generating Developments (GTTGD). LoS thresholds are summarised in Table 4.2.

Table 4.2: Intersection Level of Service Criteria

LOS Level	Delay Range	Typical Intersection Operations
A	≤14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity
F	70 and above	Unsatisfactory

The TfNSW GTTGD recommend that for roundabouts and sign-controlled intersections, the LoS value is determined by the critical movement with the highest delay whereas for signalised intersections, the LoS is based on the average delay measured in seconds per vehicle.

4.3.2 Degree of Saturation

The Degree of Saturation (DOS) in SIDRA is defined as the ratio of demand flow to capacity. DOS above 1.0 represent oversaturated conditions and DOS below 1.0 represent undersaturated conditions.

4.3.3 95th Percentile Queue

Generally, intersection approach 95th percentile queues have been compared between scenarios for selected key approaches.

4.4 2023 Do Minimum Assessment – Key Outputs

Table 4.3 and Table 4.4 compare the 2018 Base intersection performance with 2023 AM and PM peak Do Minimum Scenario. The letters inside the brackets represent the LoS. The key observations include:

- Generally, when compared with the 2018 Base Case, the intersections within the study area provide similar performance in 2023 Do Minimum Scenario
- The only exception is the three intersections on Hawkesbury Road. In the AM peak, the Alexandra Avenue intersection will provide LoS F, while in the PM peak, the Darcy Road intersection will provide LoS F
- The substantial increase in intersection delay is attributed to:
 - Capacity reduction at the Darcy Road intersection due to the introduction of PLR phase
 - Increase in the background traffic volumes of 13% to 16% between 2018 and 2023
- The PM peak reduction of delays at Mons Road intersection is due to increase capacity as a result of intersection upgrade in the first quarter of 2019.

Table 4.3: Intersection Performance – Do Minimum 2023 – AM Peak

Intersection	Control Type	2018 Base			2023 Do Minimum		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,333	35.3 (C)	0.82	2,660	85.5 (F)	1.09
Hawkesbury Road / Railway Parade		2,014	13.3 (A)	0.44	2,302	14.3 (A)	0.56
Hawkesbury Road / Darcy Road		1,899	32.8 (C)	0.61	2,196	36.8 (C)	0.57
Darcy Road / Farm House Road		1,499	20.4 (B)	0.54	1,726	24.8 (B)	0.62
Darcy Road / Parramatta Marist HS Access		1,357	11.4 (A)	0.17	1,560	13.0 (A)	0.26
Darcy Road / Westmead Dental Hospital Access		1,461	11.3 (A)	0.31	1,671	8.7 (A)	0.34
Darcy Road / Catherine McAuley Access		1,400	3.9 (A)	0.19	1,601	3.9 (A)	0.21
Darcy Road / Mons Road / Institute Road		1,892	41.7 (C)	0.67	2,128	54.8 (D)	1.02
Darcy Road / Mother Teresa PS Access		2,253	14.2 (A)	0.69	2,449	16.2 (B)	0.74
Darcy Road / Bridge Road		2,490	23.5 (B)	0.57	2,714	23.8 (B)	0.64
Bridge Road / Alexandra Avenue		1,430	15.5 (B)	0.77	1,562	20.8 (B)	0.87

Table 4.4: Intersection Performance – Do Minimum 2023 – PM Peak

Intersection	Control Type	2018 Base			2023 Do Minimum		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,115	38.4 (C)	0.82	2,394	41.0 (C)	0.87
Hawkesbury Road / Railway Parade		1,780	26.5 (B)	0.81	2,025	31.0 (C)	0.89
Hawkesbury Road / Darcy Road		1,755	34.1 (C)	0.83	2,024	92.3 (F)	1.11
Darcy Road / Farm House Road		1,395	28.0 (B)	0.48	1,612	29.3 (C)	0.59
Darcy Road / Parramatta Marist HS Access		1,232	18.8 (B)	0.19	1,426	21.9 (B)	0.30
Darcy Road / Westmead Dental Hospital Access		1,317	10.7 (A)	0.36	1,517	12.3 (A)	0.43
Darcy Road / Catherine McAuley Access		1,278	3.7 (A)	0.16	1,469	3.7 (A)	0.18
Darcy Road / Mons Road / Institute Road		1,828	45.2 (D)	0.80	2,066	38.4 (C)	0.94
Darcy Road / Mother Teresa PS Access		1,773	11.6 (A)	0.46	1,980	13.2 (A)	0.50
Darcy Road / Bridge Road		2,341	23.1 (B)	0.61	2,585	21.4 (B)	0.70
Bridge Road / Alexandra Avenue		1,415	14.3 (A)	0.61	1,549	16.8 (B)	0.68

4.5 2033 Do Minimum Assessment – Key Outputs

Table 4.5 and Table 4.6 compare the 2018 Base intersection performance with 2033 AM and PM peak Do Minimum Scenario. The key observations include:

- Generally, when compared with the 2018 Base Case, the intersections within the study area provide similar performance in 2033 Do Minimum Scenario
- Like in the 2023 scenario, the only exception is the three interactions on Hawkesbury Road. All three intersections will provide poor LoS E/F in the AM peak while in the PM peak the Darcy Road intersection will provide LoS F
- The substantial increase in intersection delay is attributed to:
 - Capacity reduction at the Darcy Road intersection due to introduction of PLR vehicles
 - Increase in the background traffic volumes 31% to 36% between 2018 and 2033
- Darcy Road / Mons Road / Institute Road intersection would operate overcapacity. This is due to substantial delays to traffic on the Mons Road approach. This can be reduced by further optimisation of the intersection signal settings.

Table 4.5: Intersection Performance – Do Minimum 2033 – AM Peak

Intersection	Control Type	2018 Base			2033 Do Minimum		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,333	35.3 (C)	0.82	3,232	169.6 (F)	1.24
Hawkesbury Road / Railway Parade		2,014	13.3 (A)	0.44	2,800	95.9 (F)	1.11
Hawkesbury Road / Darcy Road		1,899	32.8 (C)	0.61	2,762	69.5 (E)	1.01
Darcy Road / Farm House Road		1,499	20.4 (B)	0.54	2,175	29.8 (C)	0.88
Darcy Road / Parramatta Marist HS Access		1,357	11.4 (A)	0.17	1,966	15.7 (B)	0.31
Darcy Road / Westmead Dental Hospital Access		1,461	11.3 (A)	0.31	2,092	9.0 (A)	0.44
Darcy Road / Catherine McAuley Access		1,400	3.9 (A)	0.19	2,005	3.9 (A)	0.25
Darcy Road / Mons Road / Institute Road		1,892	41.7 (C)	0.67	2,600	65.4 (E)	1.01
Darcy Road / Mother Teresa PS Access		2,253	14.2 (A)	0.69	2,841	41.9 (C)	0.95
Darcy Road / Bridge Road		2,490	23.5 (B)	0.57	3,160	59.9 (E)	1.04
Bridge Road / Alexandra Avenue		1,430	15.5 (B)	0.77	1,828	105.3 (F)	1.09

Table 4.6: Intersection Performance – Do Minimum 2033 – PM Peak

Intersection	Control Type	2018 Base			2033 Do Minimum		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,115	38.4 (C)	0.82	2,947	48.7 (D)	0.89
Hawkesbury Road / Railway Parade		1,780	26.5 (B)	0.81	2,508	28.0 (B)	0.88
Hawkesbury Road / Darcy Road		1,755	34.1 (C)	0.83	2,533	173.5 (F)	1.28
Darcy Road / Farm House Road		1,395	28.0 (B)	0.48	2,020	29.4 (C)	0.72
Darcy Road / Parramatta Marist HS Access		1,232	18.8 (B)	0.19	1,789	27.8 (B)	0.25
Darcy Road / Westmead Dental Hospital Access		1,317	10.7 (A)	0.36	1,893	13.5 (A)	0.53
Darcy Road / Catherine McAuley Access		1,278	3.7 (A)	0.16	1,826	3.7 (A)	0.20
Darcy Road / Mons Road / Institute Road		1,828	45.2 (D)	0.80	2,513	104.7 (F)	1.49
Darcy Road / Mother Teresa PS Access		1,773	11.6 (A)	0.46	2,367	15.3 (B)	0.55
Darcy Road / Bridge Road		2,341	23.1 (B)	0.61	3,047	22.4 (B)	0.83
Bridge Road / Alexandra Avenue		1,415	14.3 (A)	0.61	1,816	25.8 (B)	0.82

5. DEVELOPMENT TRAFFIC ASSESSMENT

5.1 Overview

The future year 2023 and 2033 models with the development traffic were developed by adding the background traffic and development traffic to the Base 2018 demands. Some minor adjustments were made to the year 2018 signal settings to reflect changes in the traffic patterns. The 2023 and 2033 With Development model traffic demands and road network assumptions are summarised in Table 4.1.

Table 5.1: With Development Models

Scenario	Demand Traffic	Road Network
2023 With Development	2018 Base Demand <i>plus</i> Background traffic Growths to 2023 plus Development Traffic	The following upgrades were incorporated at the: ▪ Darcy Road / Mons Road Intersection ▪ Darcy Road / Hawkesbury Road Intersection
2033 With Development	2018 Base Demand <i>plus</i> Background traffic Growths to 2033 plus Development Traffic	

The Do Minimum Model results are included in **Appendix G** and summarised below.

5.2 2023 With Development Assessment – Key Outputs

Table 5.2 and Table 5.3 compare the 2023 Do Minimum intersection performance with 2023 AM and PM peak With Development scenario. The key observations include:

- Generally, when compared with the 2023 Do Minimum scenario, in the AM peak, the intersections within the study area provide similar performance in the 2023 With Development scenario
- The only exception is the Hawkesbury Road / Alexandra Avenue intersection. In the AM peak, delays at this intersection will increase substantially. This is due to a 9% increase in traffic volumes
- Some intersections, including the Darcy Road / Bridge Road signalised intersection, show some reduced delay in the AM peak. This is due to less traffic arriving at this intersection as a result of congestion at other upstream intersections. In the 2023 With Development scenario, this intersection will service 2% less traffic when compared with the Do Minimum scenario
- The intersections provide similar performance with the PM peak traffic.

Table 5.2: Intersection Performance – With Development 2023 – AM Peak

Intersection	Control Type	2023 Do Minimum			2023 With Development		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,660	85.5 (F)	1.09	2,897	237.8 (F)	1.43
Hawkesbury Road / Railway Parade		2,302	14.3 (A)	0.56	2,570	15.6 (B)	0.52
Hawkesbury Road / Darcy Road		2,196	36.8 (C)	0.57	2,488	35.6 (C)	0.58
Darcy Road / Farm House Road		1,726	24.8 (B)	0.62	2,026	25.1 (B)	0.61
Darcy Road / Parramatta Marist HS Access		1,560	13.0 (A)	0.26	1,861	10.3 (A)	0.48
Darcy Road / Westmead Dental Hospital Access		1,671	8.7 (A)	0.34	1,776	12.7 (A)	0.69
Darcy Road / Catherine McAuley Access		1,601	3.9 (A)	0.21	1,626	3.9 (A)	0.21
Darcy Road / Mons Road / Institute Road		2,128	54.8 (D)	1.02	2,187	51.9 (D)	0.98
Darcy Road / Mother Teresa PS Access		2,449	16.2 (B)	0.74	2,146	10.6 (A)	0.39
Darcy Road / Bridge Road		2,714	23.8 (B)	0.64	2,648	16.1 (B)	0.76
Bridge Road / Alexandra Avenue		1,562	20.8 (B)	0.87	1,626	65.3 (E)	1.02

Table 5.3: Intersection Performance – With Development 2023 – PM Peak

Intersection	Control Type	2023 Do Minimum			2023 With Development		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,394	41.0 (C)	0.87	2,464	40.6 (C)	0.85
Hawkesbury Road / Railway Parade		2,025	31.0 (C)	0.89	2,117	29.4 (C)	0.86
Hawkesbury Road / Darcy Road		2,024	92.3 (F)	1.11	2,135	101.3 (F)	1.15
Darcy Road / Farm House Road		1,612	29.3 (C)	0.59	1,729	30.4 (C)	0.65
Darcy Road / Parramatta Marist HS Access		1,426	21.9 (B)	0.30	1,544	14.4 (A)	0.27
Darcy Road / Westmead Dental Hospital Access		1,517	12.3 (A)	0.43	1,663	16.3 (B)	0.56
Darcy Road / Catherine McAuley Access		1,469	3.7 (A)	0.18	1,532	3.7 (A)	0.18
Darcy Road / Mons Road / Institute Road		2,066	38.4 (C)	0.94	2,128	38.1 (C)	0.94
Darcy Road / Mother Teresa PS Access		1,980	13.2 (A)	0.50	1,853	12.6 (A)	0.29
Darcy Road / Bridge Road		2,585	21.4 (B)	0.70	2,514	20.7 (B)	0.63
Bridge Road / Alexandra Avenue		1,549	16.8 (B)	0.68	1,522	16.0 (B)	0.67

5.3 2033 With Development Assessment – Key Outputs

Table 5.4 and Table 5.5 compare the 2033 Do Minimum Scenario with the 2033 AM and PM peak With Development scenario. The key observations include:

- Generally, when compared with the 2033 Do Minimum Scenario, in the AM peak, most of the key intersections within the study area provide substantial delays with the With Development scenario
- In the AM peak, all three intersections on Hawkesbury Road would operate at LoS F with the With Development scenario
- Most notably, the Darcy Road / Bridge Road signalised intersection would operate at LoS F with substantial delays. Traffic on all three key approaches would experience substantial delays
- The right turning traffic from Darcy Road (west) to Mother Teresa Primary School access (south) will experience long delays. The capacity of this right turn movement is significantly lower than the future right turn demand
- In general, the road network would not service the future AM peak traffic demands
- In the PM peak, most of the key intersections would provide traffic performance similar to the Do Minimum scenario.

Table 5.4: Intersection Performance – With Development 2033 – AM Peak

Intersection	Control Type	2033 Do Minimum			2033 With Development		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		3,232	169.6 (F)	1.24	3,670	255.7 (F)	1.36
Hawkesbury Road / Railway Parade		2,800	95.9 (F)	1.11	3,254	72.1 (F)	1.04
Hawkesbury Road / Darcy Road		2,762	69.5 (E)	1.01	3,241	183.7 (F)	1.24
Darcy Road / Farm House Road		2,175	29.8 (C)	0.88	2,645	30.0 (C)	0.91
Darcy Road / Parramatta Marist HS Access		1,966	15.7 (B)	0.31	2,436	11.5 (A)	0.56
Darcy Road / Westmead Dental Hospital Access		2,092	9.0 (A)	0.44	2,341	14.6 (B)	0.91
Darcy Road / Catherine McAuley Access		2,005	3.9 (A)	0.25	2,172	3.9 (A)	0.24
Darcy Road / Mons Road / Institute Road		2,600	65.4 (E)	1.01	2,802	55.1 (D)	0.96
Darcy Road / Mother Teresa PS Access		2,841	41.9 (C)	0.95	3,319	389.5 (F)	1.41
Darcy Road / Bridge Road		3,160	59.9 (E)	1.04	3,743	251.7 (F)	1.46
Bridge Road / Alexandra Avenue		1,828	105.3 (F)	1.09	2,234	201.0 (F)	1.20

Table 5.5: Intersection Performance – With Development 2033 – PM Peak

Intersection	Control Type	2033 Do Minimum			2033 With Development		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		2,947	48.7 (D)	0.89	3,080	92.9 (F)	1.07
Hawkesbury Road / Railway Parade		2,508	28.0 (B)	0.88	2,659	23.9 (B)	0.82
Hawkesbury Road / Darcy Road		2,533	173.5 (F)	1.28	2,699	197.0 (F)	1.33
Darcy Road / Farm House Road		2,020	29.4 (C)	0.72	2,188	30.9 (C)	0.72
Darcy Road / Parramatta Marist HS Access		1,789	27.8 (B)	0.25	1,958	19.2 (B)	0.32
Darcy Road / Westmead Dental Hospital Access		1,893	13.5 (A)	0.53	2,107	17.2 (B)	0.75
Darcy Road / Catherine McAuley Access		1,826	3.7 (A)	0.20	1,946	3.7 (A)	0.20
Darcy Road / Mons Road / Institute Road		2,513	104.7 (F)	1.49	2,632	101.4 (F)	1.49
Darcy Road / Mother Teresa PS Access		2,367	15.3 (B)	0.55	2,517	18.8 (B)	0.58
Darcy Road / Bridge Road		3,047	22.4 (B)	0.83	3,211	61.2 (E)	1.89
Bridge Road / Alexandra Avenue		1,816	25.8 (B)	0.82	1,908	34.1 (C)	0.89

6. ASSESSMENT OF UPGRADE MEASURES

6.1 Overview

As shown in the 2033 assessment, the road network would not service the future AM peak traffic demands with substation delays at the key intersections. The following intersections have been identified as the pinch points:

- Darcy Road / Mother Teresa Primary School Access
- Darcy Road / Bridge Road / Coles Access.

The proponent of this development has identified the need to upgrade the Darcy Road / Mother Teresa Primary School Access intersection. It was suggested that a left turn slip road was introduced for the left turning traffic from Darcy Road (E) to Mother Teresa Primary School Access.

The 2023 and 2033 With Development and With Upgrade model traffic demands and road network assumptions are summarised in Table 6.1.

Table 6.1: With Development and With Upgrade Models

Scenario	Demand Traffic	Road Network
2023 With Development + Upgrade	2018 Base Demand plus Background traffic Growths to 2023 plus Development Traffic	The following upgrades were incorporated: ▪ At the Darcy Road / Mons Road Intersection
2033 With Development + Upgrade	2018 Base Demand plus Background traffic Growths to 2033 plus Development Traffic	▪ At the Darcy Road / Hawkesbury Road Intersection ▪ Plus, the upgrades discussed below in Section 6.2.

The Do Minimum Model results are included in **Appendix H** and are summarised below.

6.2 Proposed Upgrade Measures

The following upgrades have been introduced in the With Development and With Upgrade Model:

- **Traffic Signals at Mother Teresa Primary School Access:** A preliminary assessment of the proposed left turn slip lane at the Mother Teresa Primary School Access suggests that the proposed upgrade will improve the intersection performance. However, in order to service the future traffic demands more improvements are required. For the purpose of this assessment, traffic signals were assumed at this intersection
- **An Additional Traffic Lane:** This is for the left turning traffic from the High School approach to Darcy Road at the Westmead Dental Hospital signalised intersection as identified by the proponent.

In addition to the above, the route taken by high school students/staff travel from Darcy Road (west) to the High School was updated to a more realistic route.

6.2.1 Mother Teresa Primary School Access

A layout of the proposed signalised intersection is shown in

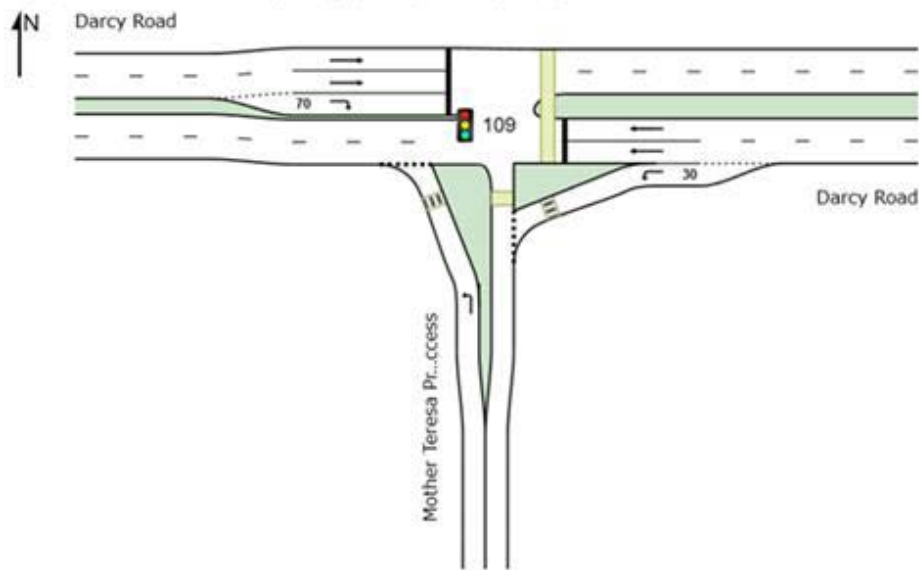


Figure 6.1. It is proposed that traffic from the school access exit the site via the left turn movement to Darcy Road. A right turn movement out of the school access was not considered.

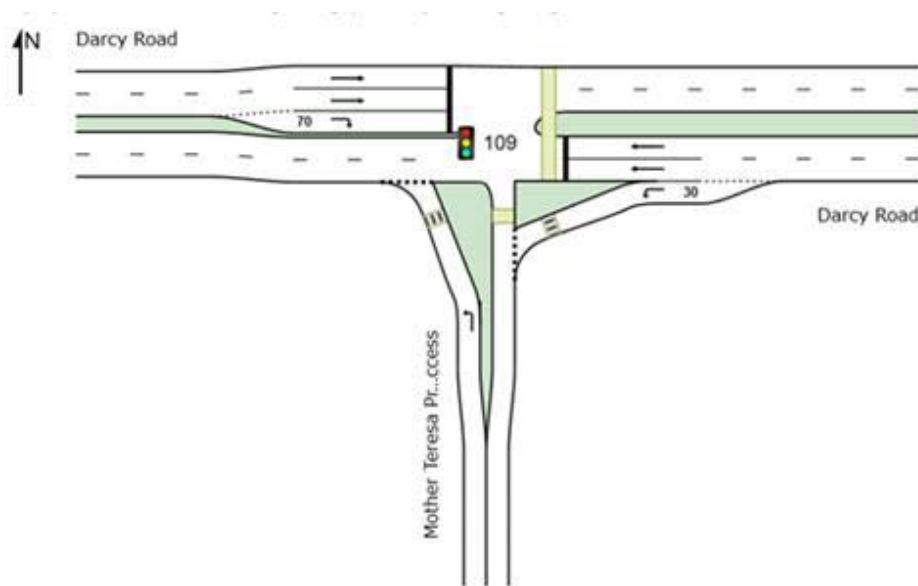


Figure 6.1: Darcy Road / Mother Teresa Primary School Access Intersection Signals

6.2.2 Westmead Dental Hospital

A layout of the proposed additional traffic lane is shown in Figure 6.2. The proposed measure will improve the capacity of this approach.

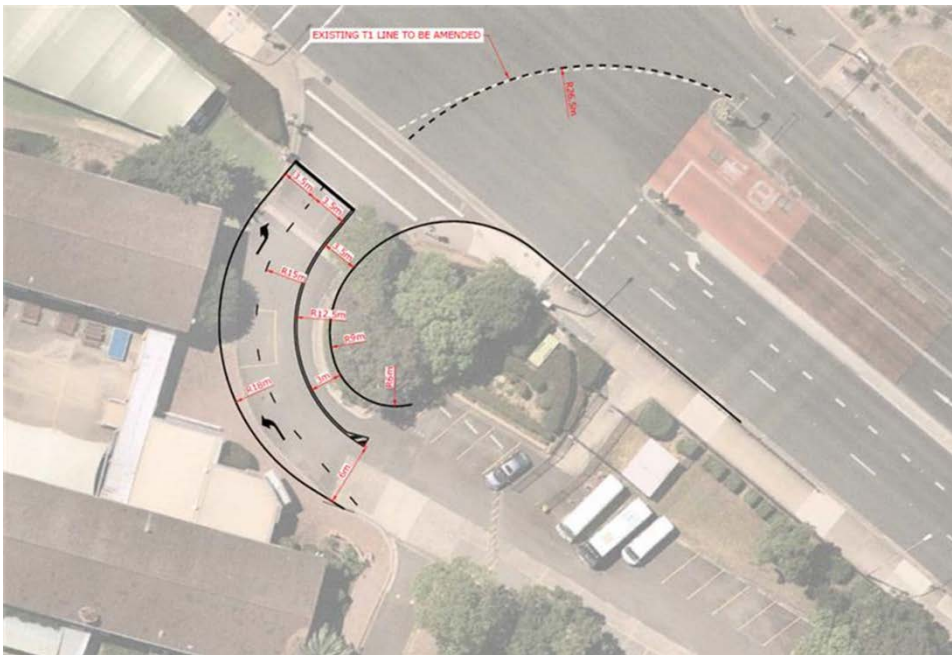


Figure 6.2: Upgraded Darcy Road / Westmead Dental Hospital Access Intersection

6.2.3 Alternative Route to High School

In the development traffic assessment, it was assumed that High School student and staff accessing the school access from west do so by travelling along Bridge Road, Alexandra Avenue (west), Hawkesbury Road and finally turn left into the school via Darcy Road as shown in Figure 6.3 by a red dotted line. However, the shortest route is via Darcy Road. The shortest route was not considered in the traffic distribution as vehicles from Darcy Road are not allowed to turn right into the High School Access. The preliminary assessment suggests that the right turn traffic from Darcy Road to Bridge Road would experience substantial delays of over eight minutes. Therefore, it was assumed that to avoid this delay traffic would travel through Darcy Road, turn right into Farm House Road, make a “U” turn inside the University, turn left to Darcy Road and eventually turn left into High School as shown with a green dotted line in Figure 6.3.



Figure 6.3: Assumed Route for Traffic Accessing the High School from West

6.3 2033 With Development and With Upgrades Assessment

As shown in the previous sections, the network would operate satisfactorily in the 2033 AM and PM peak conditions. The assessment also suggests that the proposed development would not have any substantial impacts on the 2033 PM peak network. This is because the school finishing hour does not coincide with the typical commuter peak hour. Therefore, the 2033 AM peak is considered to be critical for assessing the traffic impact from the development. For this reason, only results from the 2033 AM peak are discussed in this section.

Table 6.2 compares the 2033 Do Minimum Scenario with the 2033 AM peak With Development With Upgrade scenario. The key observations include:

- Generally, the proposed re-distribution will improve the traffic flows on Hawkesbury Road as it reduces the number of northbound traffic on this road
- Traffic performance of the Mother Teresa Primary School access intersection will improve substantially. However, a detailed analysis shows that the left turn traffic from the school would continue to experience long delays. In the schematic layout this approach was assumed to be one lane with the left turning vehicles give way to the westbound traffic on Darcy Road. The introduction of an additional short lane to provide two left turning lanes included in the signals is expected to improve the performance of this approach

- Although The Darcy Road / Bridge Road intersection would continue to provide LoS F with no substantial improvement is delays are predicted when compared with the **Without** Upgrade scenario
- The proposed additional lane will improve the performance of the High School approach at the Darcy Road / Westmead Dental Hospital intersection.

Table 6.2: Intersection Performance – With Development With Upgrade 2033 – AM Peak

Intersection	Control Type	2033 Do Minimum			2033 With Development With Upgrade		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		3,232	169.6 (F)	1.24	3,520	228.0 (F)	1.34
Hawkesbury Road / Railway Parade		2,800	95.9 (F)	1.11	3,104	77.0 (F)	1.06
Hawkesbury Road / Darcy Road		2,762	69.5 (E)	1.01	3,091	146.3 (F)	1.17
Darcy Road / Farm House Road		2,175	29.8 (C)	0.88	2,795	45.2 (D)	1.22
Darcy Road / Parramatta Marist HS Access		1,966	15.7 (B)	0.31	2,586	10.5 (A)	0.50
Darcy Road / Westmead Dental Hospital Access		2,092	9.0 (A)	0.44	2,491	13.1 (A)	0.47
Darcy Road / Catherine McAuley Access		2,005	3.9 (A)	0.25	2,472	3.9 (A)	0.30
Darcy Road / Mons Road / Institute Road		2,600	65.4 (E)	1.01	2,952	81.4 (F)	1.07
Darcy Road / Mother Teresa PS Access		2,841	41.9 (C)	0.95	3,469	54 (D)	1.10
Darcy Road / Bridge Road		3,160	59.9 (E)	1.04	3,743	264.1 (F)	1.40
Bridge Road / Alexandra Avenue		1,828	105.3 (F)	1.09	2,084	187.6 (F)	1.18

7. SENSITIVITY ANALYSIS

7.1 Overview

The traffic modelling analysis shows that the road network would not support the traffic from the proposed full development. The network upgrade measures proposed will improve the performance of the Mother Teresa and High School access intersections on Darcy Road. However, during the critical 2033 AM peak, the Darcy Road / Bridge Road intersection would continue to operate poorly with long delays and queues on all three key approaches. As part of this assessment a sensitivity analysis was undertaken to understand what level of development the road network would support.

A total of two scenarios have been assessed:

- **70% Development:** The proposed development is reduced by 30% with no changes to the background traffic growths
- **50% Development:** The proposed development is reduced by half with no changes to the background traffic growths.

The SIDRA modelling results are included in **Appendix I** and are summarised below.

7.2 70% Development

The With Development and With Upgrade SIDRA model was updated to model the development at 70% level. The SIDRA intersection performance is compared with the 2033 100% Development and With Upgrade Scenario. The results show that while intersection performance will improve slightly, in the critical 2033 AM Peak the Darcy Road / Bridge Road intersection would continue to provide poor performance as shown in Table 7.1. Traffic at this intersection would continue to experience long delays and queues on all three key approaches.

Table 7.1: Intersection Performance – With 70% Development With Upgrade 2033 – AM Peak

Intersection	Control Type	2033 With Development With Upgrade			2033 With 70% Development and With Upgrade		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		3,520	228.0 (F)	1.34	3,475	210.8 (F)	1.30
Hawkesbury Road / Railway Parade		3,104	77.0 (F)	1.06	3,059	44.5 (D)	0.98
Hawkesbury Road / Darcy Road		3,091	146.3 (F)	1.17	3,046	99.6 (F)	1.11
Darcy Road / Farm House Road		2,795	45.2 (D)	1.22	2,722	38.7 (C)	1.10
Darcy Road / Parramatta Marist HS Access		2,586	10.5 (A)	0.50	2,512	10.1 (A)	0.46
Darcy Road / Westmead Dental Hospital Access		2,491	13.1 (A)	0.47	2,457	12.2 (A)	0.46
Darcy Road / Catherine McAuley Access		2,472	3.9 (A)	0.30	2,288	3.9 (A)	0.26
Darcy Road / Mons Road / Institute Road		2,952	81.4 (F)	1.07	2,919	101.3 (F)	1.12
Darcy Road / Mother Teresa PS Access		3,469	54 (D)	1.10	3,357	66.3 (E)	1.04
Darcy Road / Bridge Road		3,743	264.1 (F)	1.40	3,648	212.1 (F)	1.49
Bridge Road / Alexandra Avenue		2,084	187.6 (F)	1.18	2,038	177.7 (F)	1.17

7.3 50% Development

The With Development and With Upgrade SIDRA model was updated to model the development at half of its proposed size. The SIDRA intersection performance is compared in Table 7.2. When compared with the 70% development level, the performance of the critical Darcy Road / Bridge Road intersection would improve. However, traffic at this intersection would continue to experience long delays and queues on all three key approaches.

Table 7.2: Intersection Performance – With 50% Development With Upgrade 2033 – AM Peak

Intersection	Control Type	2033 With Development With Upgrade			2033 With 70% Development and With Upgrade		
		Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS	Traffic Vol (veh/hr)	Delay in Sec (LoS)	DoS
Hawkesbury Road / Alexandra Avenue		3,520	228.0 (F)	1.34	3,415	193.0 (F)	1.27
Hawkesbury Road / Railway Parade		3,104	77.0 (F)	1.06	3,007	108.5 (F)	1.12
Hawkesbury Road / Darcy Road		3,091	146.3 (F)	1.17	2,992	94.9 (F)	1.09
Darcy Road / Farm House Road		2,795	45.2 (D)	1.22	2,664	37.7 (C)	1.07
Darcy Road / Parramatta Marist HS Access		2,586	10.5 (A)	0.50	2,455	10.1 (A)	0.46
Darcy Road / Westmead Dental Hospital Access		2,491	13.1 (A)	0.47	2,410	12.0 (A)	0.42
Darcy Road / Catherine McAuley Access		2,472	3.9 (A)	0.30	2,242	3.9 (A)	0.26
Darcy Road / Mons Road / Institute Road		2,952	81.4 (F)	1.07	2,871	100.3 (F)	1.12
Darcy Road / Mother Teresa PS Access		3,469	54 (D)	1.10	3,118	38.0 (C)	0.97
Darcy Road / Bridge Road		3,743	264.1 (F)	1.40	3,452	167.0 (F)	1.34
Bridge Road / Alexandra Avenue		2,084	187.6 (F)	1.18	2,038	186.2 (F)	1.18

7.4 Discussions

The sensitivity analysis suggests that to minimise traffic impacts from the proposed development, additional capacity is required at the Darcy Road / Bridge Road intersection. The level of development that will be supported by the surrounding road network is dependent on two key factors:

- Darcy Road / Bridge Road Intersection Upgrade
- Background Traffic Growth.

The following section discusses the impact of these key factors on the possible level of development.

7.4.1 Darcy Road / Bridge Road Intersection Upgrade

This intersection is constrained by buildings adjacent to the western and northern sides. The south-eastern side of the intersection has some private space with no building lines close to it. Subject to further investigations, this space can be utilised to provide a high angle left slip lane for the westbound to southbound traffic. A schematic layout of the proposed upgrade is shown in Figure 7.1.

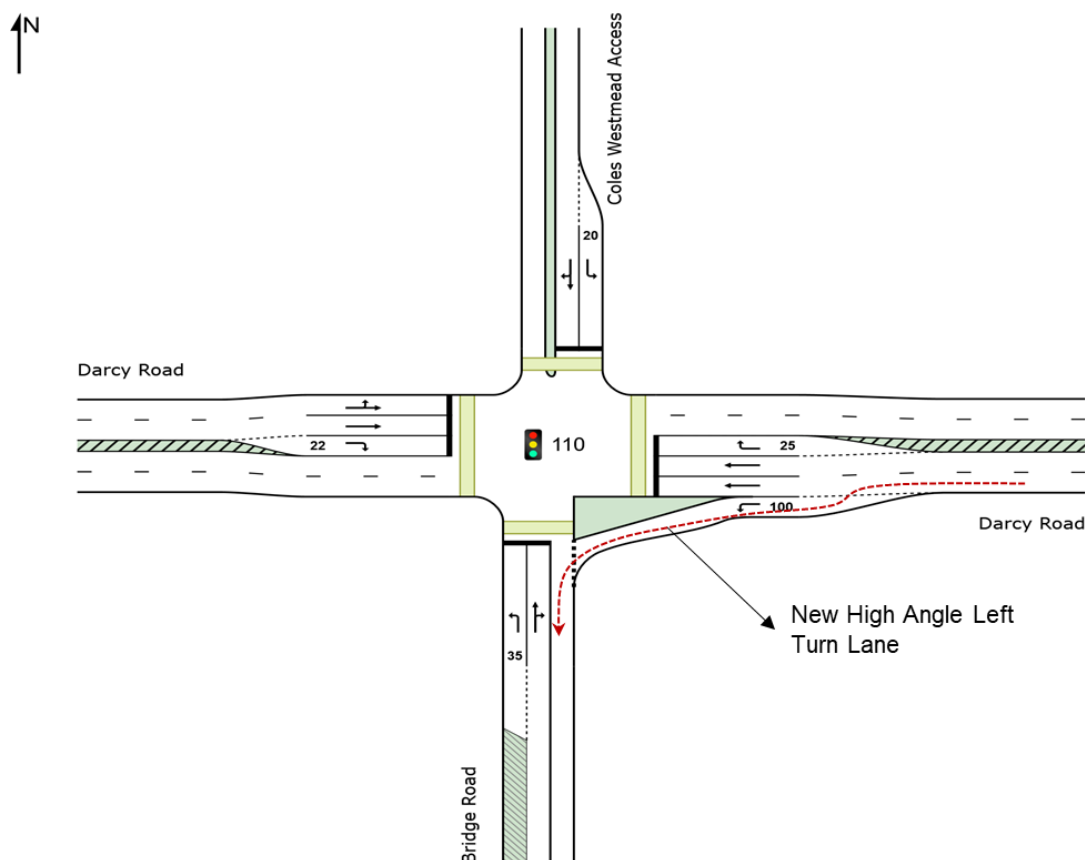


Figure 7.1: Proposed High Angle Left Turn Lane at the Darcy Road / Bridge Road Intersection

7.4.2 Background Traffic Growth

The background traffic growths estimated were based on the 2026 and 2036 STFM model outputs. The STFM is a strategic model that has been based on geographically broad forecasts of population and employment growth that may not be sensitive at the local scale. The STFM is not capacity constrained. That is, where traffic demand exceeds network supply, the model will assign all of its traffic demand to the available routes regardless of if all of the available routes have a volume to capacity ratio greater than 1.0. Peak spreading or demand suppression based on excessive congestion as is seen in real life scenario are not explicitly calculated in the STFM. Based on similar experiences in the greater Sydney network elsewhere, future year traffic demands can be shown to exceed network capacity by at least 20 percent. In practical terms, this traffic 'demand' would never be realised on the network as 'supply' volumes that then are input into more localised modelling and would be dampened by growth suppression, modal shift and/or peak spreading. In recognition of these limitations of the STFM, in recent projects, TfNSW has been running 'parking penalty' scenarios to mimic these suppression effects in the strategic model outputs that then inform more localised modelling inputs.

In light of the above two factors, we strongly suggest that in order to ascertain the actual development potential, further modelling assessments are undertaken by investigating intersection upgrade potentials at the Darcy Road / Bridge Road and applying adjustments to the background traffic growths so that a more realistic background growth is adopted.

8. CONCLUSIONS

The 2018 Base SIDRA model has been re-calibrated and re-validated to TfNSW Modelling Guidelines. The updated base model is deemed to be fit for purpose for undertaking traffic assessment of the proposed expansion of the Westmead Catholic Community Education Precinct.

The background traffic growths have been re-estimated for the 2023 and 2033 traffic assessment. The STFM link plots have been utilised for the estimation.

The development trip generation and distribution have been re-estimated by addressing issues identified during the peer review.

The background traffic growths and the traffic from the proposed development were added to the 2018 base SIDRA modes to develop the 2023 and 2033 AM and PM peak models. The key outcomes from the modelling assessment include:

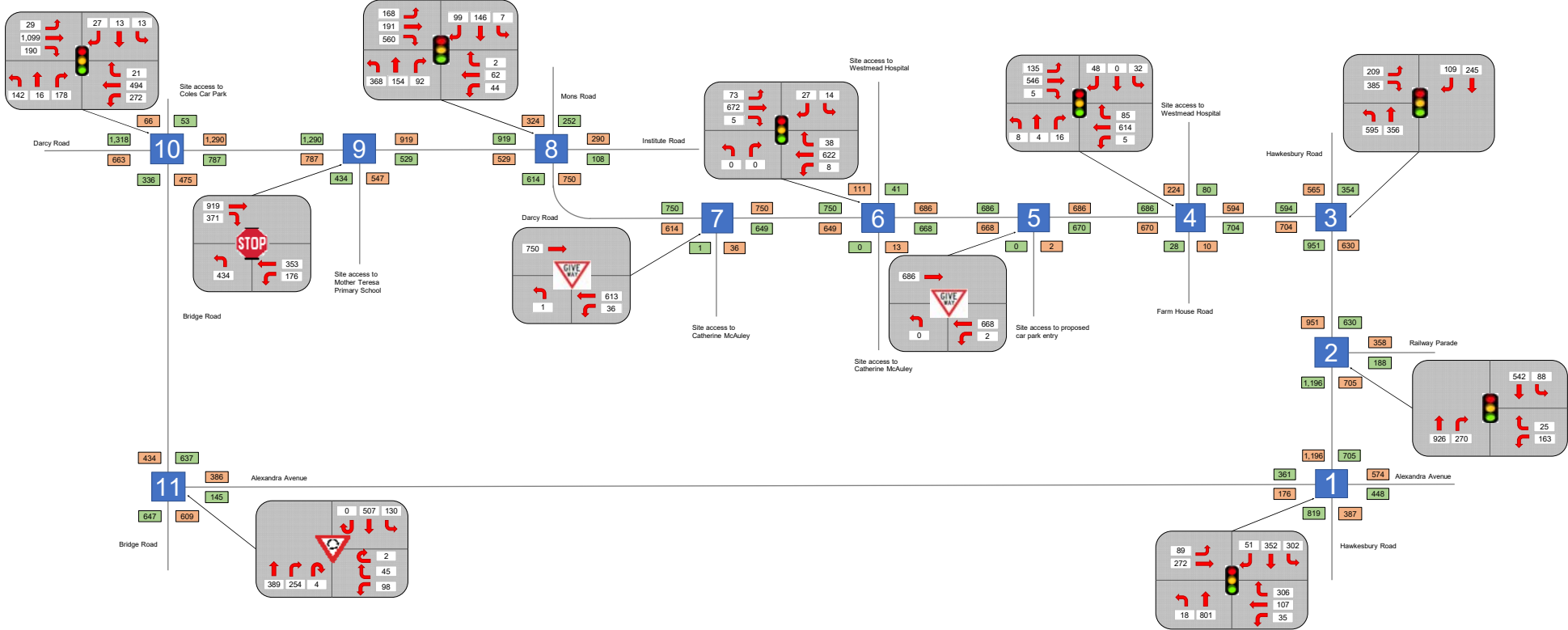
- When compared with the 2018 Base Case, all intersections within the study area would provide similar performance in 2023 and 2033 Do Minimum Scenario. The only exception is the three signalised intersections on Hawkesbury Road. In the critical 2033 AM peak these intersections would provide LoS E/F. This is attributed to the combined impacts of growths in background traffic volumes (31% to 36% between 2018 and 2033) and reduced capacity at the Darcy Road / Hawkesbury Road due to introduction of PLR vehicles
- When traffic from the proposed development were added to the Do Minimum SIDRA model, traffic performance at the Hawkesbury Road intersections would exacerbate. In addition, the Darcy Road / Mother Teresa Primary School and Darcy Road / Bridge Road intersections would provide poor LoS
- Network improvement measures identified by the proponent at the Mother Teresa Primary School access intersection would not satisfactorily improve the intersection performance. For the purpose of the modelling assessment, traffic signals were assumed at this intersection.
- SIDRA modelling assessment for the With Development and With Upgrade Scenario suggests that while traffic signals at the Mother Teresa Primary School access intersection would improve the intersection performance, the Darcy Road / Bridge Road intersection would continue to provide poor traffic performance in the critical 2033 AM peak scenario
- A sensitivity analysis was undertaken to understand what level of development the road network would support. The proposed development was reduced by 30% and subsequently by 50%. The modelling results show that the Darcy Road / Bridge Road intersection would operate at very high level of delay even with the 50% reduction of the development
- The Darcy Road / Bridge Road intersection is constrained by the presence of adjacent buildings. Significant upgrades to this intersection may not be possible. The only exception is the provision of a high angle left turn lane for the westbound and southbound traffic. The intersection upgrade along with acceptable adjustments to the background traffic growths is required to ascertain the acceptable level of development.

Landscape pages should be avoided if possible

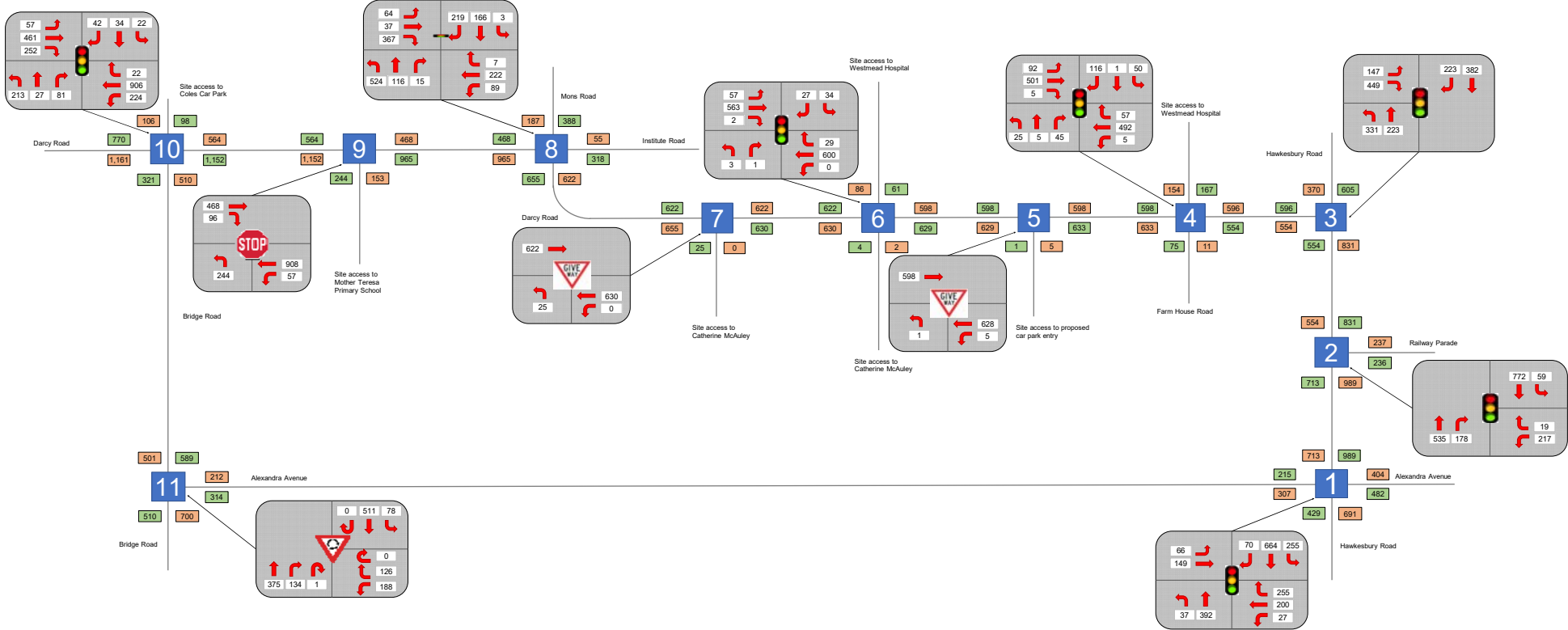
Appendix A: 2018 AM and PM Peak Stick Diagrams



P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2018 Base - Total Vehicles



P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2018 Base - Total Vehicles



Appendix B: Signal Time Validation



P4803 2 Darcy Road Westmead EIS Peer Review

Signal Time Comparison

AM Peak

Intersection (TCS)	Cycle / Phase	AM Peak (7:45 - 8:45)				
		IDM (s)			SIDRA (s)	Within 10%?
		Avg.	10%	-10%		
Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)	CT*	148	163	133	140	✓
	A	54	59	49	49	✓
	B	15	17	14	-	✗
	C	19	21	17	38	✗
	D	29	32	26	23	✗
	E	31	34	28	30	✓
Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630)	CT*	140	163	133	140	✓
	A	86	95	77	62	✗
	D	35	39	32	45	✗
	E	19	21	17	33	✗
Hawkesbury Road / Darcy Road (TCS 1631)	CT*	145	163	133	140	✓
	A	49	54	44	45	✓
	B	28	31	25	28	✓
	C	32	35	29	37	✗
	D	17	19	15	14	✗
	E	19	21	17	16	✗
Darcy Road / Institute Road / Mons Road (TCS 2393)	CT*	154	163	133	140	✓
	A	48	53	43	59	✗
	B	21	23	19	36	✗
	C	14	15	13	-	✗
	D	16	18	14	12	✗
	E	37	41	33	21	✗
	F	18	20	16	12	✗
Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281)	CT*	145	163	133	140	✓
	A	82	90	74	80	✓
	D	17	19	15	18	✓
	E	24	26	22	22	✓
	G	22	24	20	20	✓
Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282)	CT*	139	163	133	140	✓
	A	94	103	85	92	✓
	D	31	34	28	32	✓
	E	14	15	13	16	✗

P4803 2 Darcy Road Westmead EIS Peer Review

Signal Time Comparison

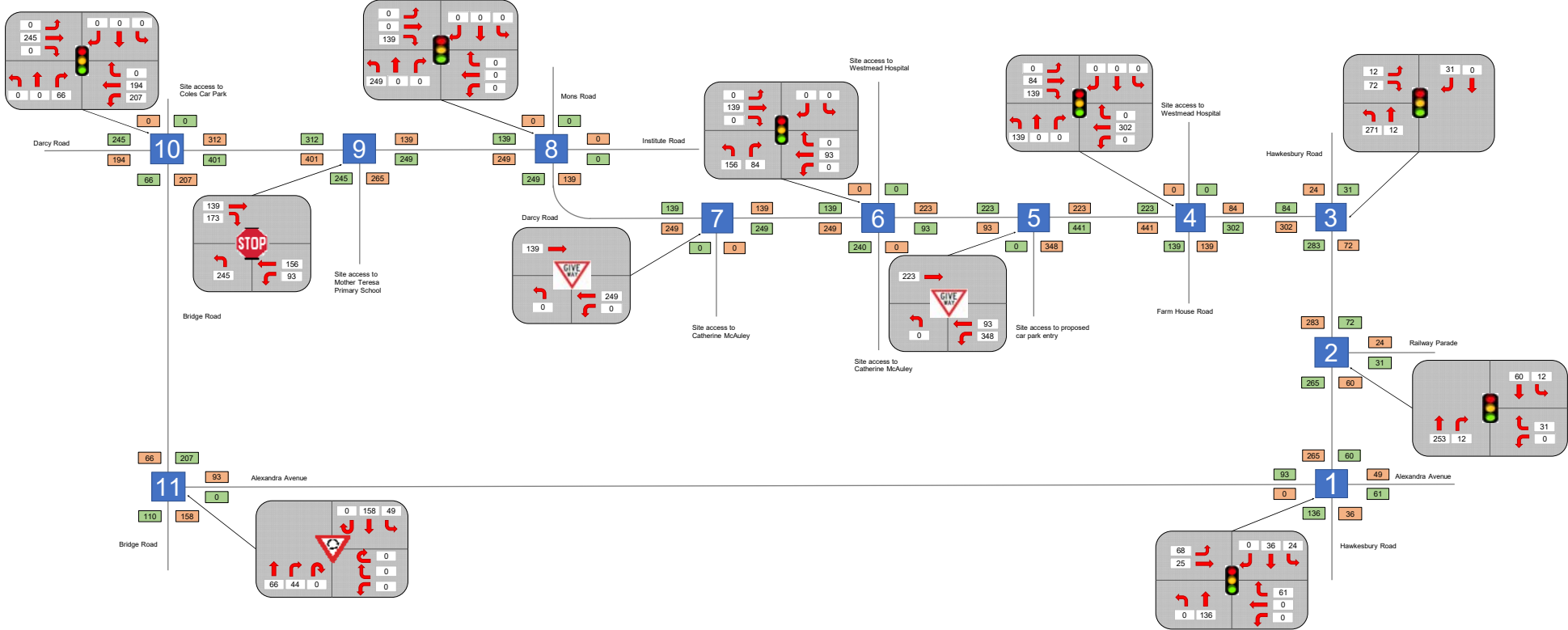
PM Peak

Intersection (TCS)	Cycle / Phase	PM Peak (3:00 - 4:00)				
		IDM (s)			SIDRA (s)	Within 10%?
		Avg.	10%	-10%		
Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)	CT*	157	173	141	140	✗
	A	50	55	45	43	✗
	B	29	32	26	-	✗
	C	19	21	17	41	✗
	D	26	29	23	23	✓
	E	33	36	30	33	✓
Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630)	CT*	132	173	141	140	✗
	A	77	85	69	82	✓
	D	31	34	28	32	✓
	E	24	26	22	26	✓
Hawkesbury Road / Darcy Road (TCS 1631)	CT*	142	173	141	140	✗
	A	34	37	31	27	✗
	B	26	29	23	34	✗
	C	43	47	39	45	✓
	D	17	19	15	15	✓
	E	22	24	20	19	✗
Darcy Road / Institute Road / Mons Road (TCS 2393)	CT*	164	173	141	140	✗
	A	45	50	41	30	✗
	B	17	19	15	19	✓
	C	15	17	14	-	✗
	D	19	21	17	20	✓
	E	33	36	30	59	✗
	F	20	22	18	12	✗
	G	15	17	14	-	✗
Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281)	CT*	136	173	141	140	✗
	A	76	84	68	82	✓
	D	18	20	16	19	✓
	E	24	26	22	22	✓
	G	18	20	16	17	✓
Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282)	CT*	144	173	141	140	✗
	A	108	119	97	98	✓
	D	23	25	21	30	✗
	E	13	14	12	12	✓

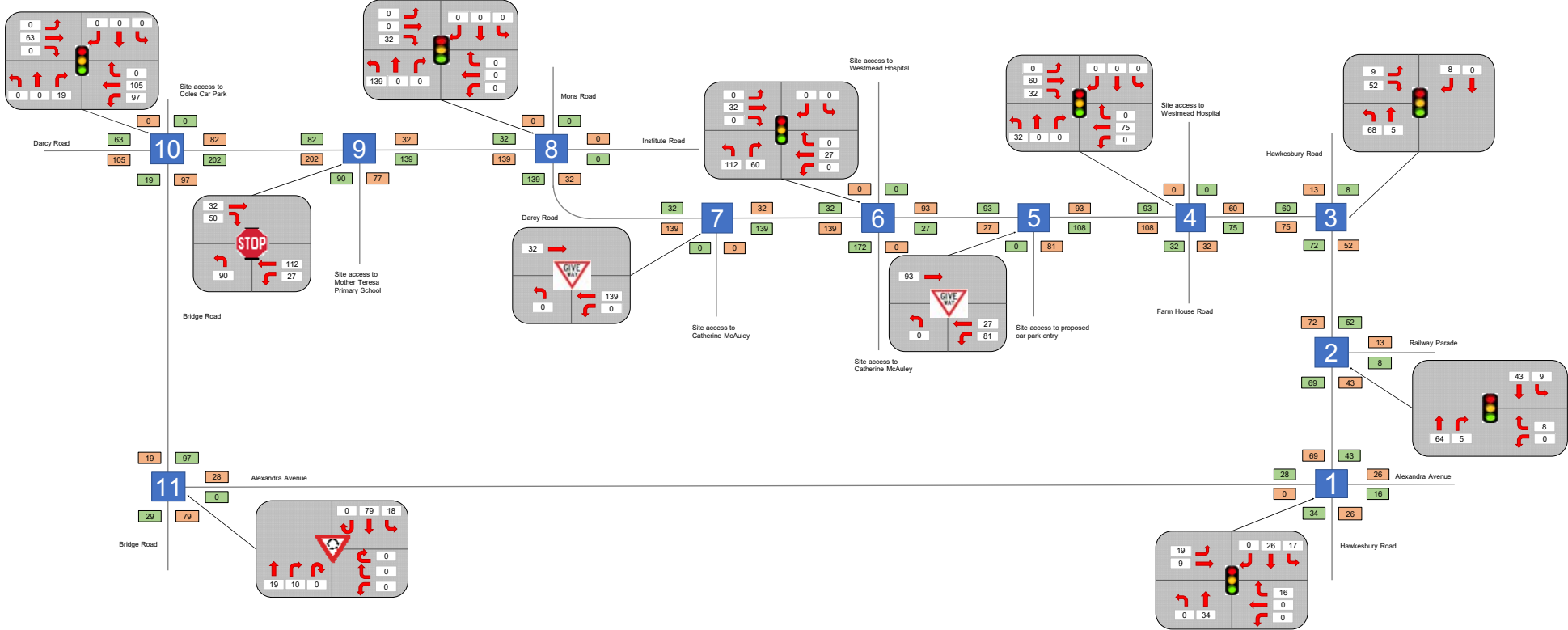
Appendix C: Future Year 2023 and 2033 Development Traffic Volumes



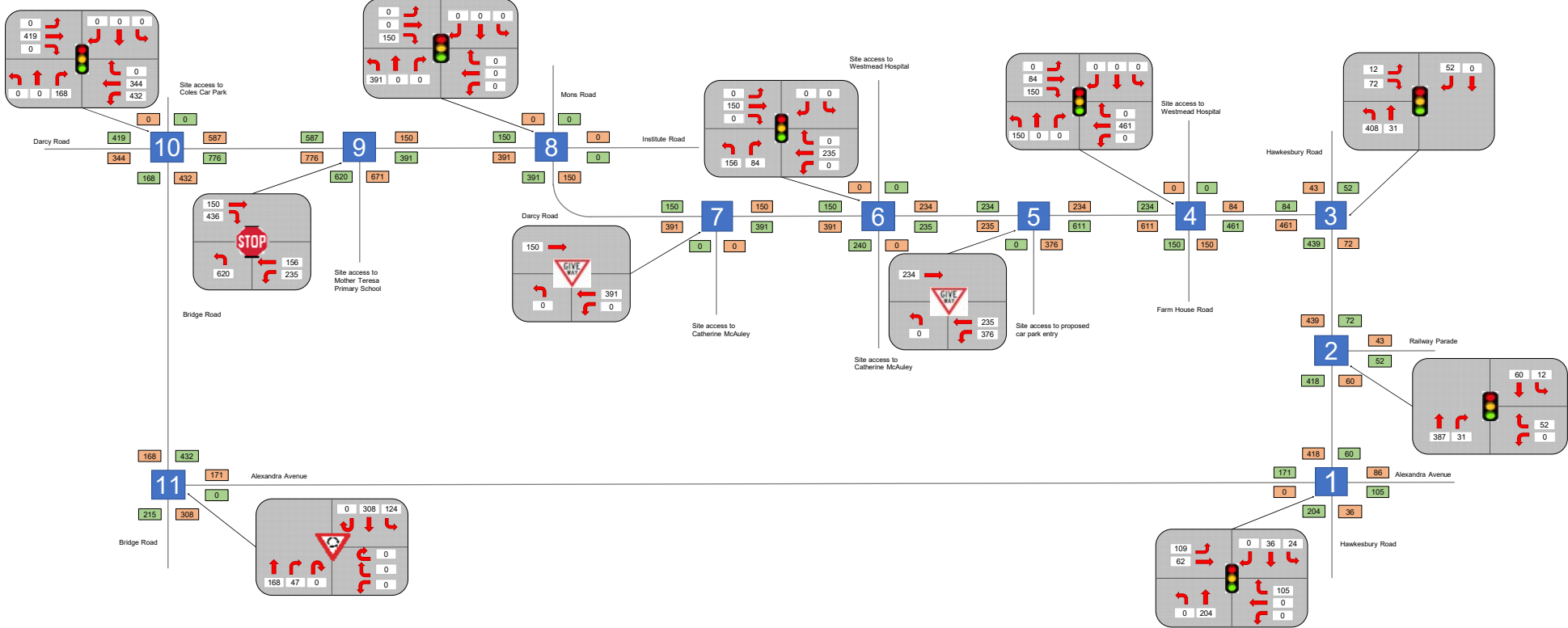
P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2023 Development only - Total Vehicles



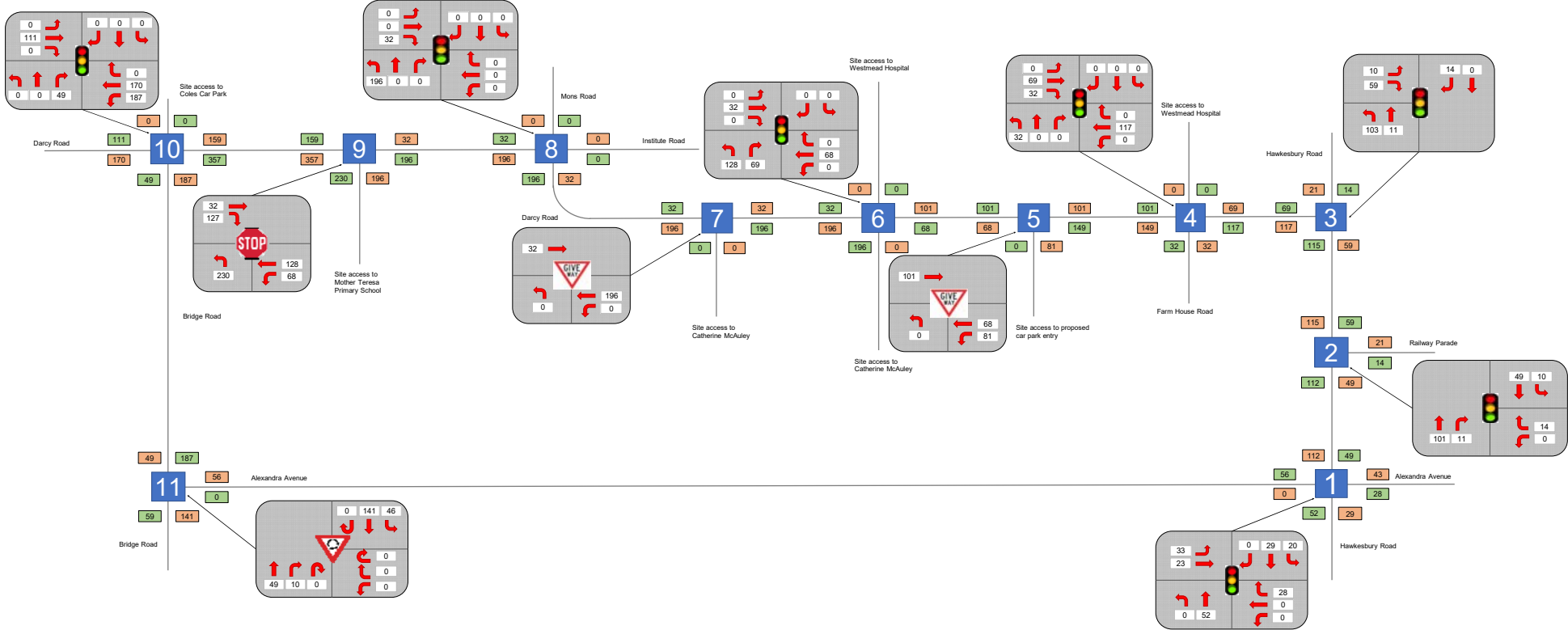
P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2023 Development only - Total Vehicles



P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2033 Development only - Total Vehicles



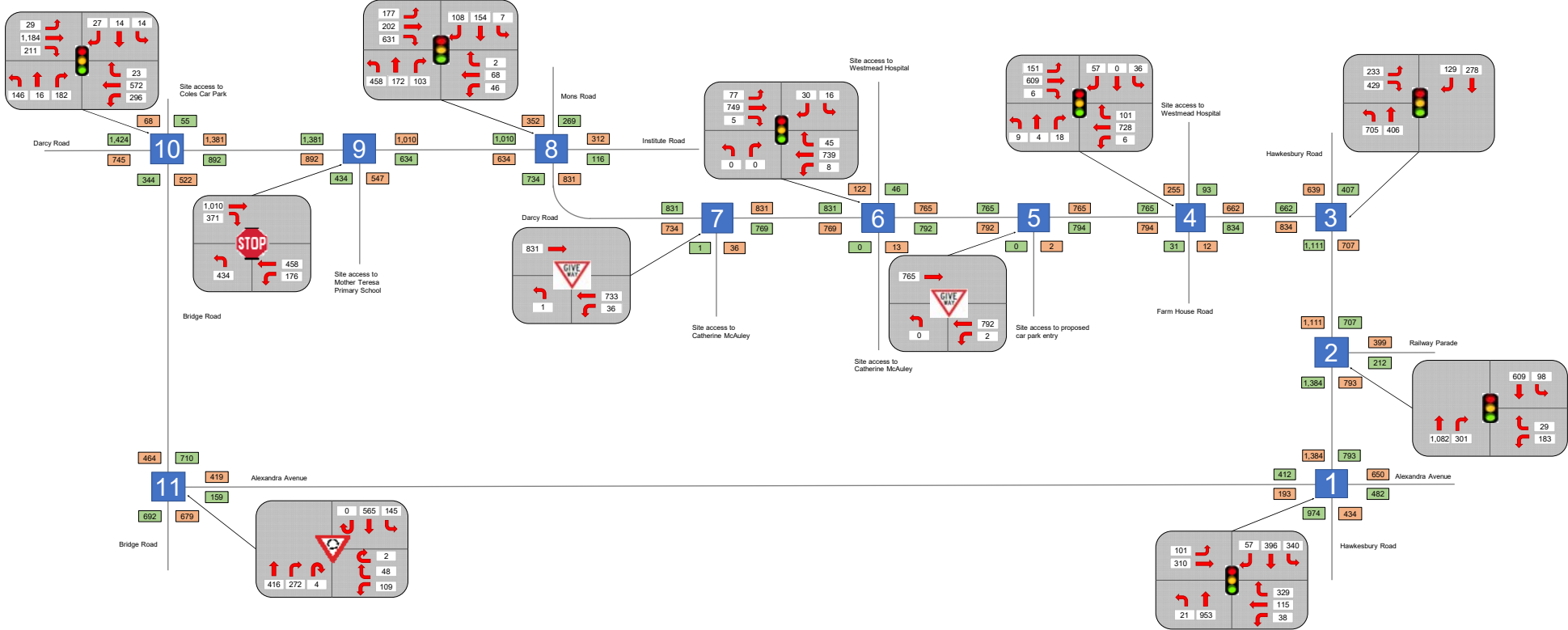
P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2033 Development only - Total Vehicles



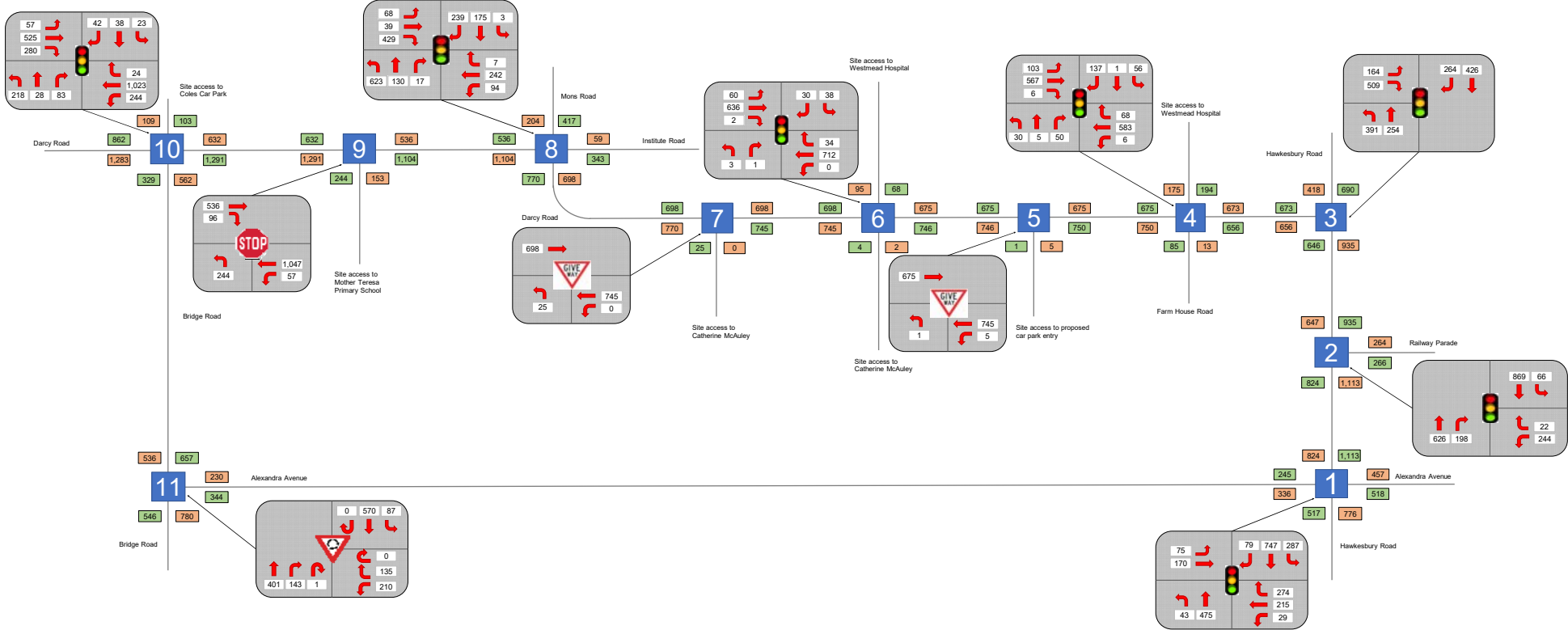
Appendix D: Future Year 2023 and 2033 Do Minimum Traffic Volumes



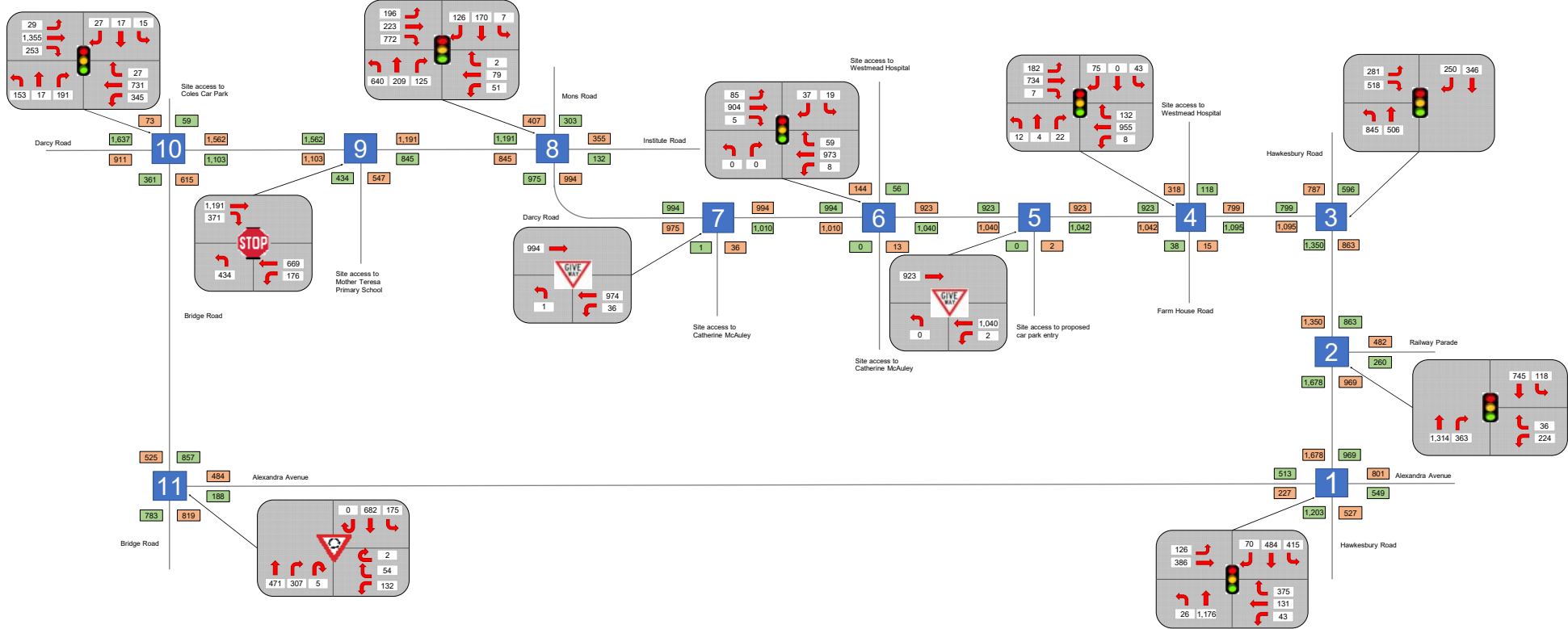
P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2023 Base - Total Vehicles



P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2023 Base - Total Vehicles

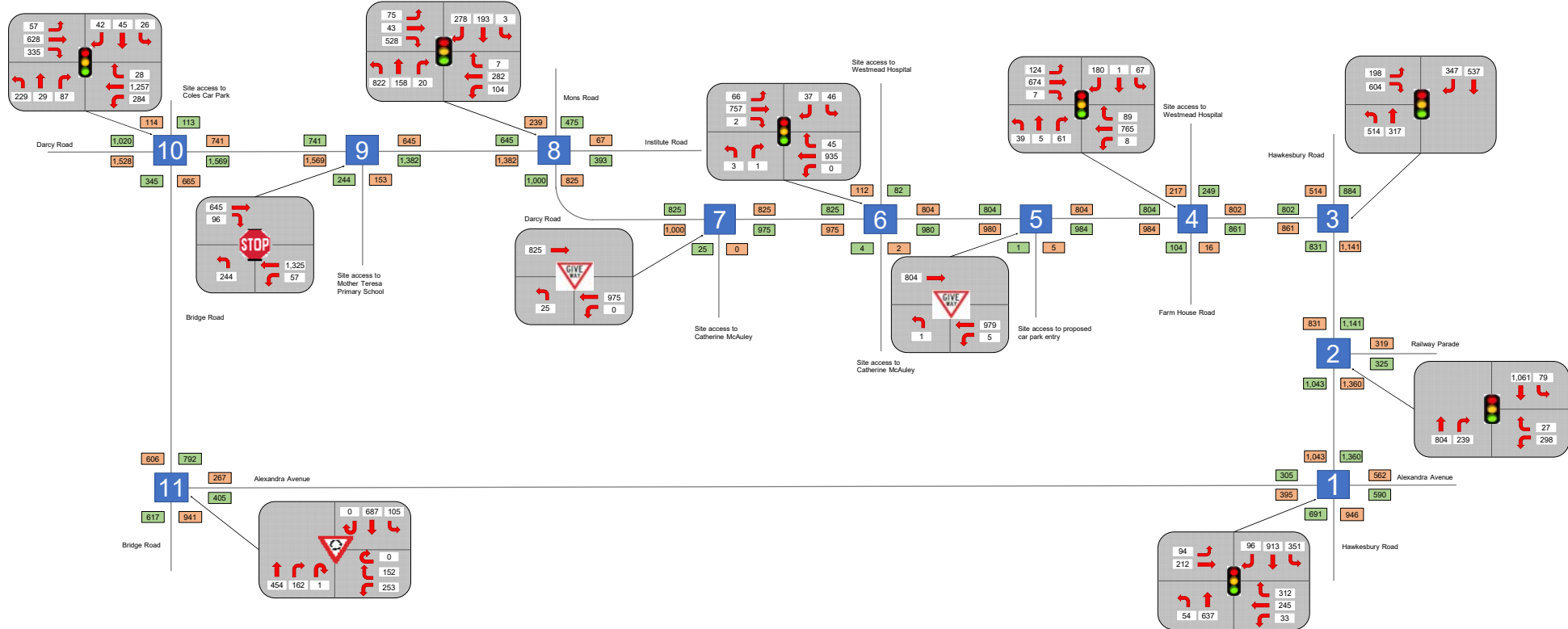


P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2033 Base - Total Vehicles



15:00-16:00 PM Peak

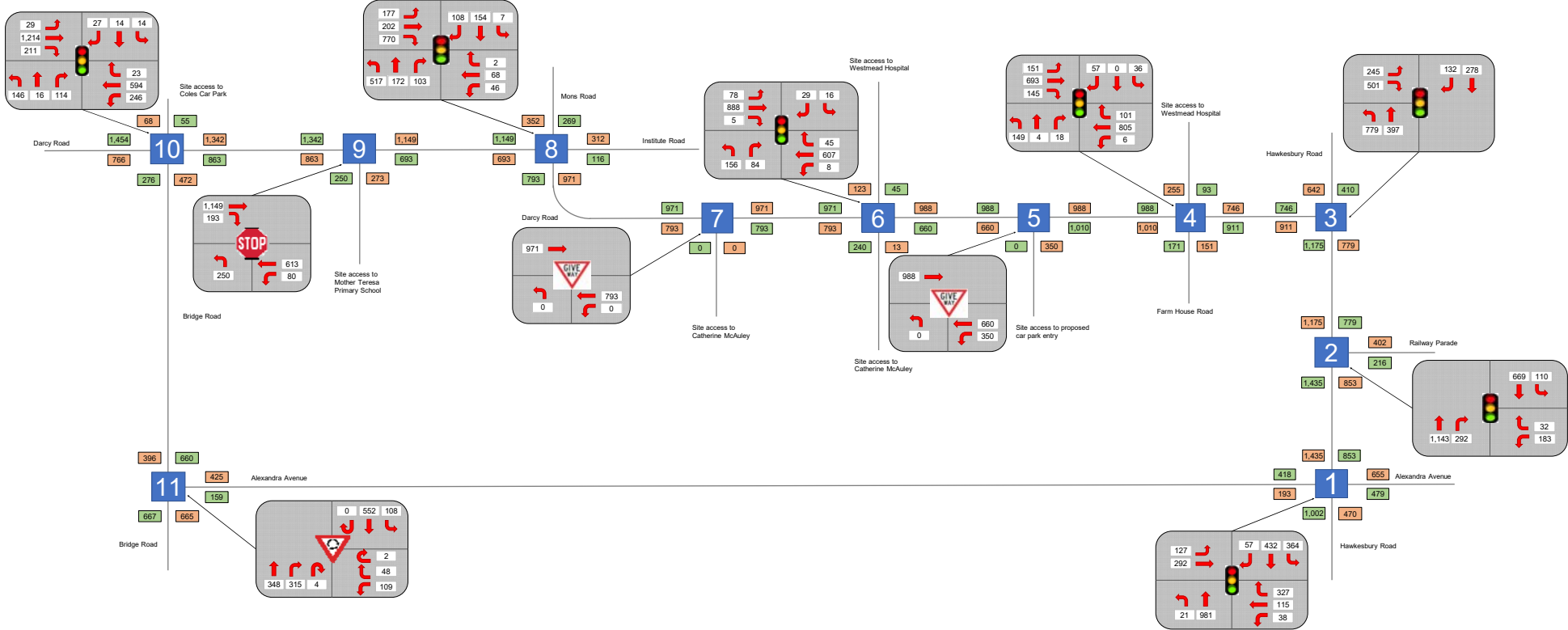
15:00-16:00 PM Peak



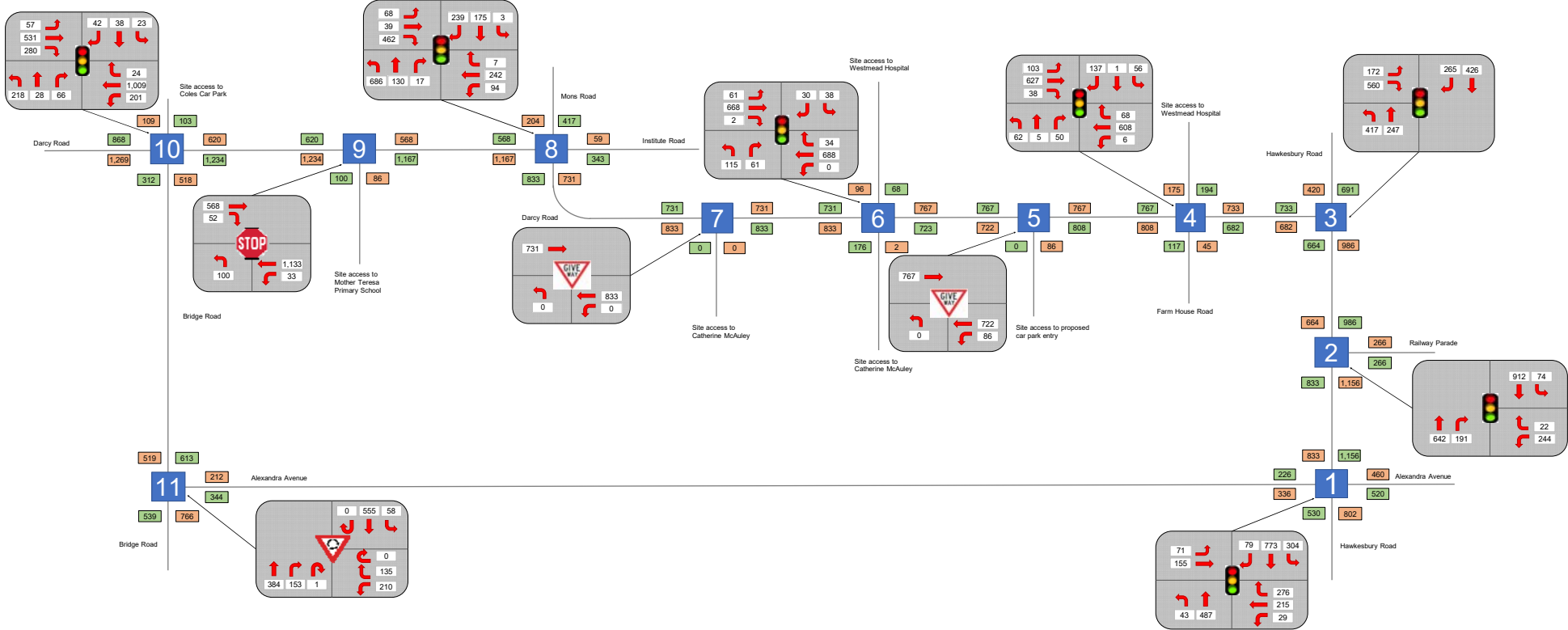
Appendix E: Future Year 2023 and 2033 'With Development' Traffic Volumes



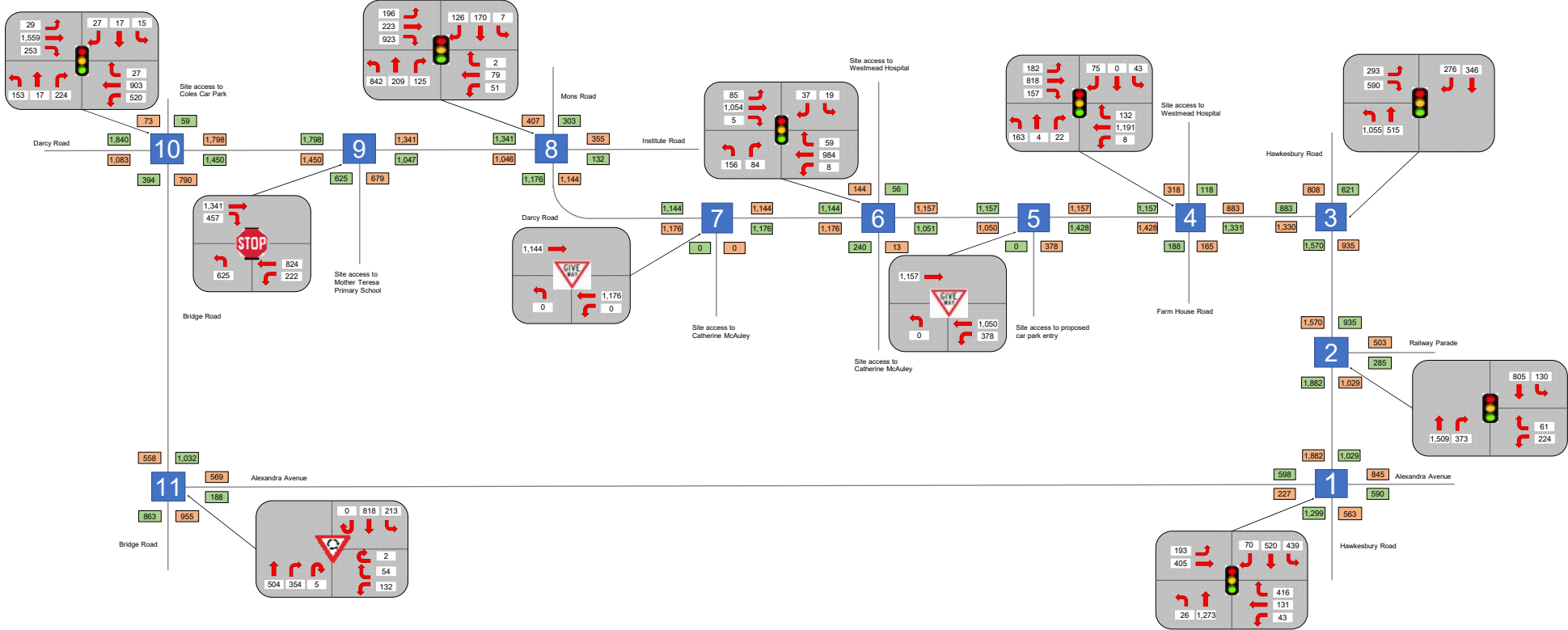
P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2023 with Development - Total Vehicles



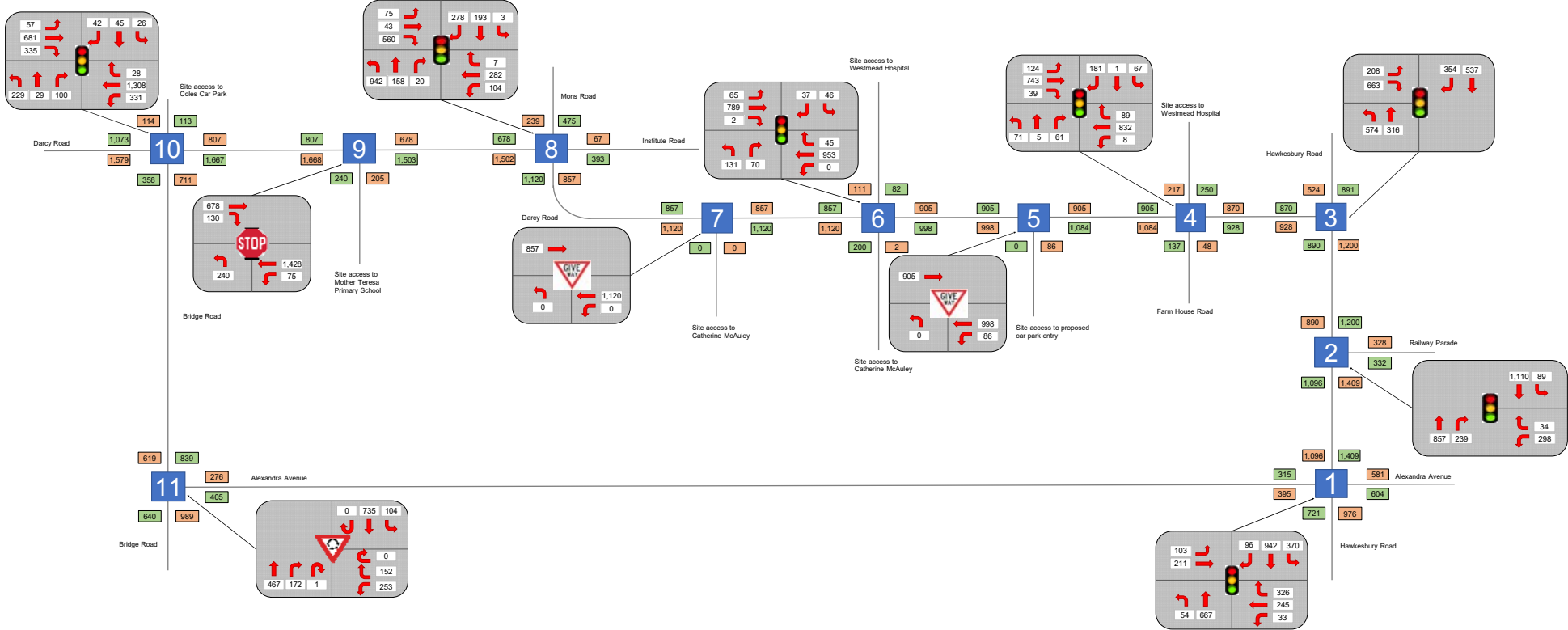
P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2023 with Development - Total Vehicles



P4803 2 Darcy Road Westmead EIS Peer Review
07:45-08:45 AM Peak
2033 with Development - Total Vehicles



P4803 2 Darcy Road Westmead EIS Peer Review
15:00-16:00 PM Peak
2033 with Development - Total Vehicles



Appendix F: Future Year 2023 and 2033 Do Minimum SIDRA Modelling Results



CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	21	4.8	21	4.8	1.073	113.0	LOS F	35.7	252.3	1.00	1.35	1.61	5.7
2	T1	953	0.7	953	0.7	* 1.073	104.7	LOS F	65.9	464.0	1.00	1.34	1.57	5.9
Approach		974	0.8	974	0.8	1.073	104.9	LOS F	65.9	464.0	1.00	1.34	1.57	5.9
East: Alexandra Avenue														
4	L2	38	0.0	38	0.0	1.088	155.1	LOS F	12.7	93.1	1.00	1.36	1.81	6.9
5	T1	115	0.0	115	0.0	* 1.088	150.6	LOS F	12.7	93.1	1.00	1.36	1.81	3.6
6	R2	329	17.6	329	17.6	1.088	153.9	LOS F	29.2	234.9	1.00	1.26	1.79	3.6
Approach		482	12.0	482	12.0	1.088	153.2	LOS F	29.2	234.9	1.00	1.29	1.80	3.9
North: Hawkesbury Road														
7	L2	340	17.9	340	17.9	* 0.503	11.3	LOS A	9.3	68.8	0.30	0.51	0.30	29.2
8	T1	396	2.3	396	2.3	0.503	29.5	LOS C	12.4	88.1	0.70	0.72	0.70	18.4
9	R2	57	0.0	57	0.0	0.503	51.2	LOS D	12.4	88.1	1.00	0.89	1.00	4.8
Approach		793	8.8	793	8.8	0.503	23.2	LOS B	12.4	88.1	0.55	0.64	0.55	20.2
West: Alexandra Avenue														
10	L2	101	0.0	101	0.0	0.140	34.7	LOS C	4.4	31.1	0.69	0.72	0.69	28.6
11	T1	310	0.3	310	0.3	* 0.980	94.7	LOS F	26.2	183.9	1.00	1.20	1.49	18.9
Approach		411	0.2	411	0.2	0.980	80.0	LOS F	26.2	183.9	0.92	1.08	1.29	20.4
All Vehicles		2660	5.2	2660	5.2	1.088	85.5	LOS F	65.9	464.0	0.85	1.08	1.26	9.7
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1082	5.8	1037	5.9	0.559	4.9	LOS A	12.0	88.1	0.32	0.33	0.32	23.7
3	R2	301	0.3	288	0.3	0.559	8.9	LOS A	7.5	53.7	0.38	0.52	0.38	42.1
Approach		1383	4.6	1325 ^N ₁	4.7	0.559	5.8	LOS A	12.0	88.1	0.33	0.37	0.33	34.2
East: Railway Parade														
4	L2	183	1.1	183	1.1	0.335	22.2	LOS B	6.7	47.3	0.64	0.73	0.64	31.3
6	R2	29	0.0	29	0.0	0.192	67.9	LOS E	1.9	13.1	0.95	0.73	0.95	17.7
Approach		212	0.9	212	0.9	0.335	28.4	LOS B	6.7	47.3	0.68	0.73	0.68	28.3
North: Hawkesbury Road														
7	L2	98	0.0	98	0.0	0.148	40.9	LOS C	5.8	50.8	0.66	0.66	0.66	26.7
8	T1	609	14.1	609	14.1	0.397	23.7	LOS B	12.3	92.1	0.56	0.48	0.56	15.1
Approach		707	12.2	707	12.2	0.397	26.1	LOS B	12.3	92.1	0.57	0.50	0.57	18.3
All Vehicles		2302	6.6	2244 ^N ₁	6.8	0.559	14.3	LOS A	12.3	92.1	0.44	0.45	0.44	26.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

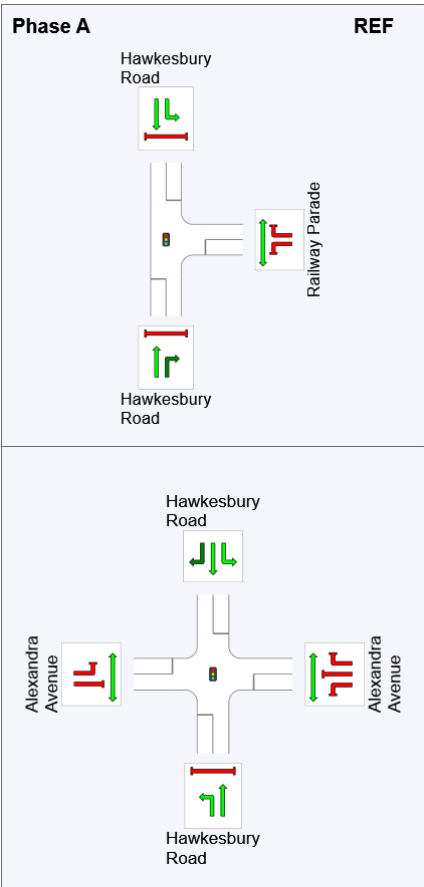
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

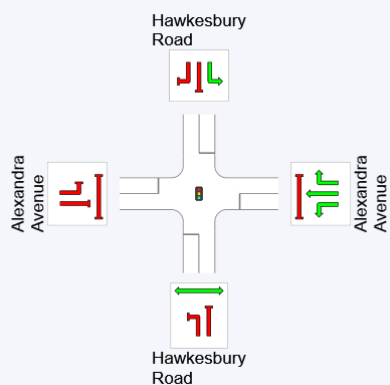
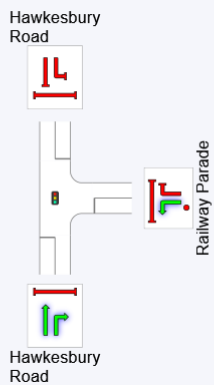
Phase	A	E	D	C
Phase Change Time (sec)	0	50	78	104
Green Time (sec)	44	19	17	30
Phase Time (sec)	53	28	23	36
Phase Split	38%	20%	16%	26%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

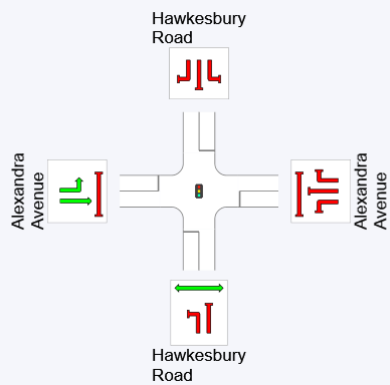
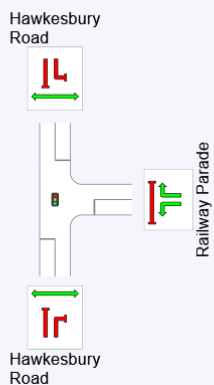
Output Phase Sequence (CCG)

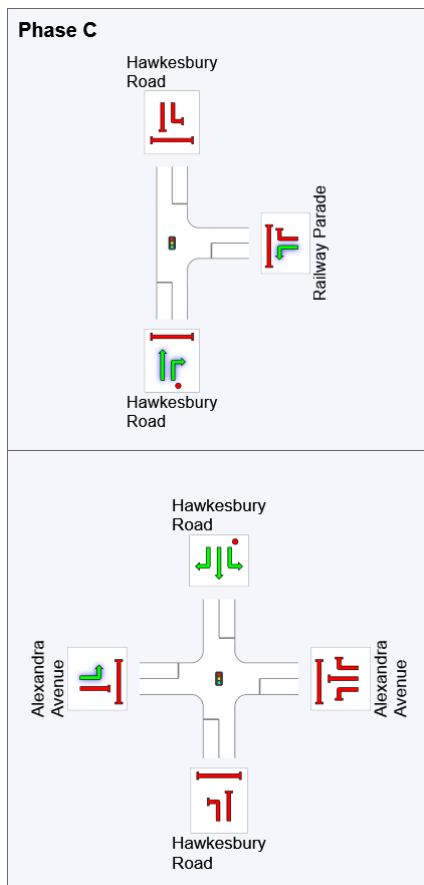


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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SITE LAYOUT

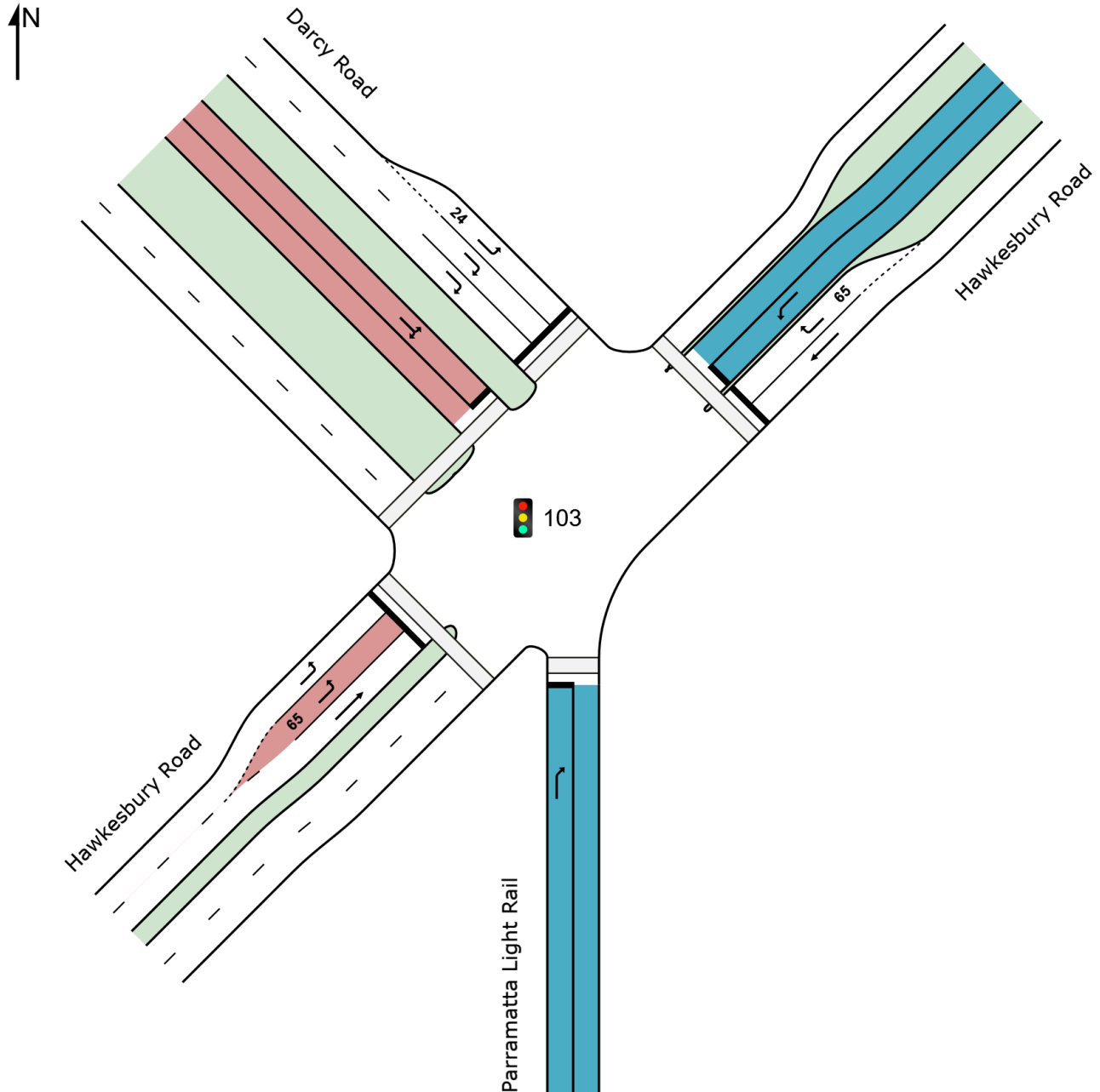
 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 Do Minimum AM Peak)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
Approach		8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	77.8	LOS F	0.6	15.4	0.97	0.69	0.97	10.7
25	T1	278	4.3	278	4.3	0.489	43.0	LOS D	15.5	112.4	0.87	0.75	0.87	12.2
26	R2	129	3.9	129	3.9	* 0.545	64.0	LOS E	8.4	60.4	0.97	0.80	0.97	9.0
Approach		415	6.0	415	6.0	0.545	50.2	LOS D	15.5	112.4	0.91	0.76	0.91	11.0
NorthWest: Darcy Road														
27	L2	233	4.7	233	4.7	0.545	24.1	LOS B	6.9	49.4	0.66	0.71	0.66	21.1
29	R2	429	15.9	429	15.9	* 0.569	54.8	LOS D	14.4	108.3	0.90	0.79	0.91	6.2
Approach		662	11.9	662	11.9	0.569	44.0	LOS D	14.4	108.3	0.82	0.76	0.82	10.5
SouthWest: Hawkesbury Road														
30	L2	705	8.2	682	8.3	0.500	14.2	LOS A	19.6	143.0	0.48	0.71	0.48	21.1
31	T1	406	1.5	392	1.5	* 0.564	48.9	LOS D	24.1	170.7	0.97	0.85	0.97	15.9
Approach		1111	5.8	1074 ^N ₁	5.8	0.564	26.9	LOS B	24.1	170.7	0.66	0.76	0.66	17.8
All Vehicles		2196	8.0	2159 ^N ₁	8.2	0.569	36.8	LOS C	24.1	170.7	0.76	0.76	0.76	13.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^N₁ Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.2	LOS D	0.1	0.1	0.92	0.92	55.9	30.9	0.55

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	61.8	LOS F	0.8	0.8	0.96	0.96	134.9	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

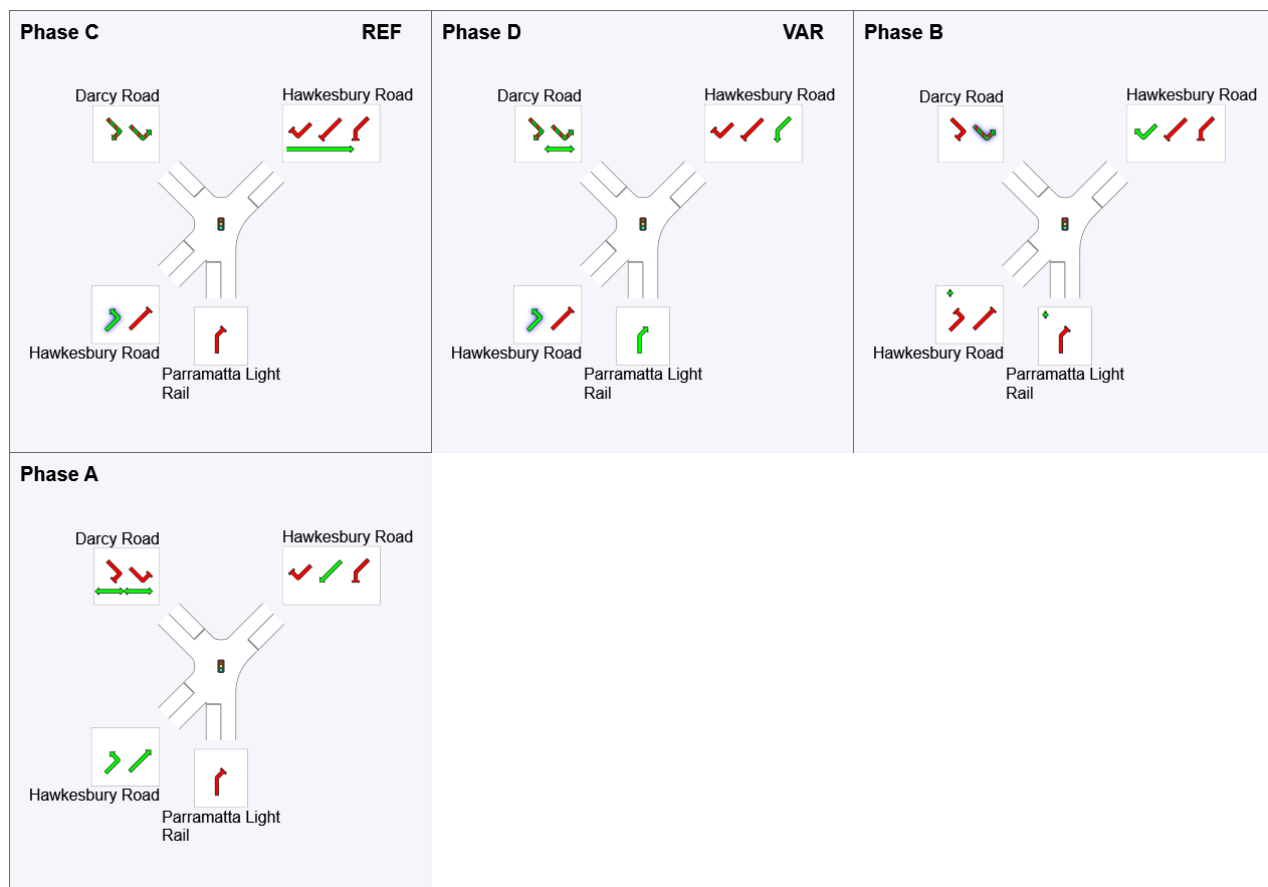
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	40	57	87
Green Time (sec)	34	9	21	42
Phase Time (sec)	42	18	30	50
Phase Split	30%	13%	21%	36%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

**Site: 104 [Darcy Road / Farm House Road / Westmead Hospital
Access (TCS 3281) (Site Folder: 2023 Do Minimum AM Peak)]**

■ ■ Network: N101 [AM Peak
(Network Folder: 2023 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	6	0.0	6	0.0	0.350	24.2	LOS B	13.4	98.0	0.63	0.55	0.63	22.1
22	T1	728	8.7	711	8.7	0.350	20.6	LOS B	13.5	98.5	0.62	0.54	0.62	12.4
23	R2	101	1.0	99	1.0	* 0.624	71.2	LOS F	6.7	47.0	0.99	0.79	1.01	8.8
Approach		835	7.7	816 ^{N1}	7.7	0.624	26.7	LOS B	13.5	98.5	0.67	0.57	0.67	11.1
NorthEast: Westmead Hospital Access														
24	L2	36	0.0	36	0.0	0.123	46.6	LOS D	2.0	14.3	0.86	0.64	0.86	8.2
25	T1	1	0.0	1	0.0	* 0.123	46.6	LOS D	2.0	14.3	0.86	0.64	0.86	12.6
26	R2	57	8.8	57	8.8	0.601	70.9	LOS F	3.9	29.7	1.00	0.82	1.06	6.7
Approach		94	5.3	94	5.3	0.601	61.4	LOS E	3.9	29.7	0.94	0.75	0.98	7.3
NorthWest: Darcy Road														
27	L2	151	0.7	151	0.7	* 0.423	19.6	LOS B	11.3	82.4	0.48	0.56	0.48	13.9
28	T1	609	13.8	609	13.8	0.423	15.5	LOS B	11.3	82.4	0.48	0.47	0.48	11.5
29	R2	6	16.7	6	16.7	0.042	72.5	LOS F	0.4	3.3	1.00	0.66	1.00	9.7
Approach		766	11.2	766	11.2	0.423	16.8	LOS B	11.3	82.4	0.48	0.49	0.48	12.5
SouthWest: Farm House Road														
30	L2	9	11.1	9	11.1	0.052	53.7	LOS D	0.7	5.5	0.88	0.68	0.88	9.8
31	T1	4	0.0	4	0.0	0.052	56.7	LOS E	0.7	5.5	0.88	0.68	0.88	12.0
32	R2	18	0.0	18	0.0	0.136	71.0	LOS F	1.2	8.3	0.97	0.70	0.97	8.1
Approach		31	3.2	31	3.2	0.136	64.1	LOS E	1.2	8.3	0.93	0.69	0.93	9.2
All Vehicles		1726	9.0	1707 ^{N1}	9.1	0.624	24.8	LOS B	13.5	98.5	0.60	0.55	0.61	11.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

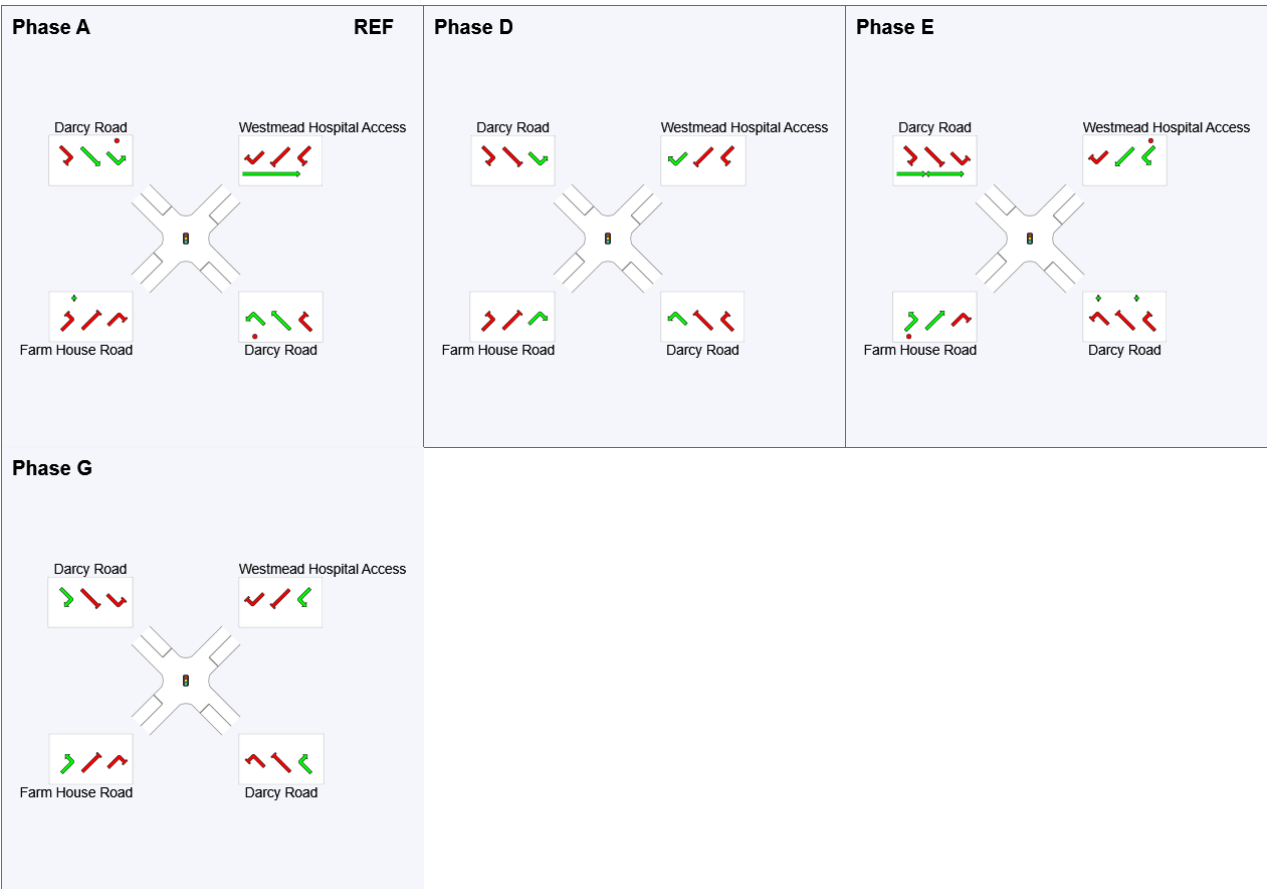
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	2	0.0	2	0.0	0.199	9.0	LOS A	0.0	0.3	0.01	0.00	0.01	31.1
22	T1	792	8.5	775	8.5	0.199	0.0	LOS A	0.0	0.3	0.01	0.00	0.01	39.6
Approach		794	8.4	777 ^{N1}	8.5	0.199	0.1	NA	0.0	0.3	0.01	0.00	0.01	39.6
NorthWest: Darcy Road														
28	T1	765	11.2	765	11.2	0.256	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		765	11.2	765	11.2	0.256	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.004	13.0	LOS A	0.0	0.1	0.80	0.65	0.80	7.3
Approach		1	0.0	1	0.0	0.004	13.0	LOS A	0.0	0.1	0.80	0.65	0.80	7.3
All Vehicles		1560	9.8	1543 ^{N1}	9.9	0.256	0.1	NA	0.0	0.3	0.00	0.00	0.00	39.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	8	0.0	0.306	16.9	LOS B	11.2	82.0	0.51	0.45	0.51	18.1
22	T1	739	9.1	733	9.1	0.306	7.0	LOS A	11.2	82.0	0.27	0.24	0.27	23.6
23	R2	45	0.0	45	0.0	* 0.336	76.9	LOS F	3.1	21.9	1.00	0.74	1.00	8.0
Approach		792	8.5	785 ^{N1}	8.5	0.336	11.1	LOS A	11.2	82.0	0.31	0.27	0.31	19.0
NorthEast: Westmead Dental Hospital Access														
24	L2	16	0.0	16	0.0	0.018	0.5	LOS A	0.1	0.6	0.12	0.09	0.12	19.6
26	R2	30	0.0	30	0.0	* 0.111	52.2	LOS D	1.7	12.1	0.87	0.65	0.87	6.8
Approach		46	0.0	46	0.0	0.111	34.2	LOS C	1.7	12.1	0.61	0.46	0.61	8.8
NorthWest: Darcy Road														
27	L2	77	0.0	77	0.0	* 0.344	8.8	LOS A	4.8	35.3	0.20	0.25	0.20	21.8
28	T1	749	11.5	749	11.5	0.344	4.1	LOS A	4.8	35.3	0.16	0.17	0.16	27.4
29	R2	5	0.0	5	0.0	0.038	73.6	LOS F	0.3	2.4	1.00	0.65	1.00	6.9
Approach		831	10.3	831	10.3	0.344	5.0	LOS A	4.8	35.3	0.17	0.18	0.17	25.4
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
32	R2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
Approach		2	0.0	2	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
All Vehicles		1671	9.2	1664 ^{N1}	9.2	0.344	8.7	LOS A	11.2	82.0	0.25	0.23	0.25	20.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	97.8	40.2	0.41

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

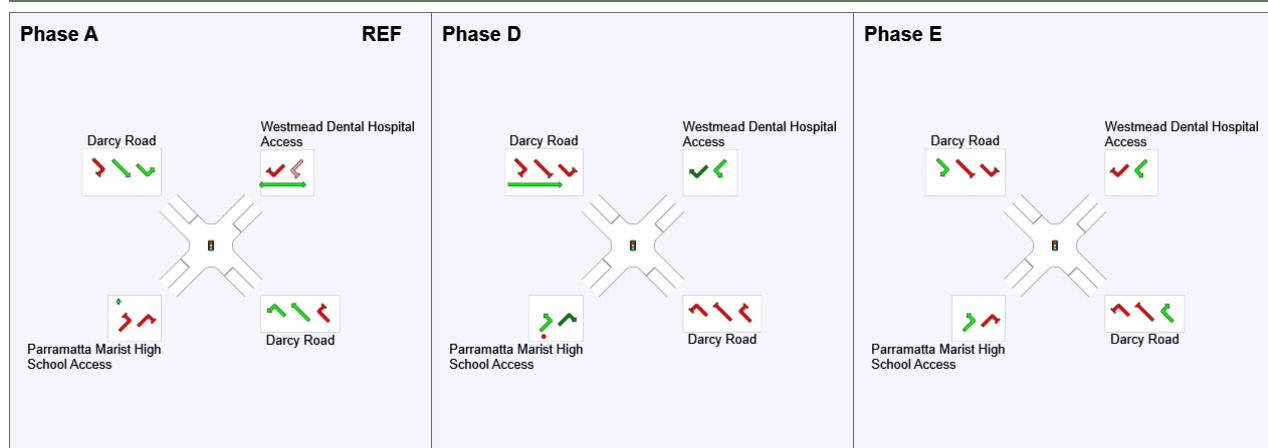
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 Do
Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	36	0.0	36	0.0	0.155	3.9	LOS A	0.2	1.7	0.06	0.08	0.06	26.1
22	T1	733	9.3	733	9.3	0.155	0.0	LOS A	11.1	81.5	0.02	0.02	0.02	39.1
Approach		769	8.8	769	8.8	0.155	0.2	NA	11.1	81.5	0.02	0.02	0.02	37.4
NorthWest: Darcy Road														
28	T1	831	10.1	831	10.1	0.211	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		831	10.1	831	10.1	0.211	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.001	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
Approach		1	0.0	1	0.0	0.001	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
All Vehicles		1601	9.5	1601	9.5	0.211	0.1	NA	11.1	81.5	0.01	0.01	0.01	38.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SITE LAYOUT

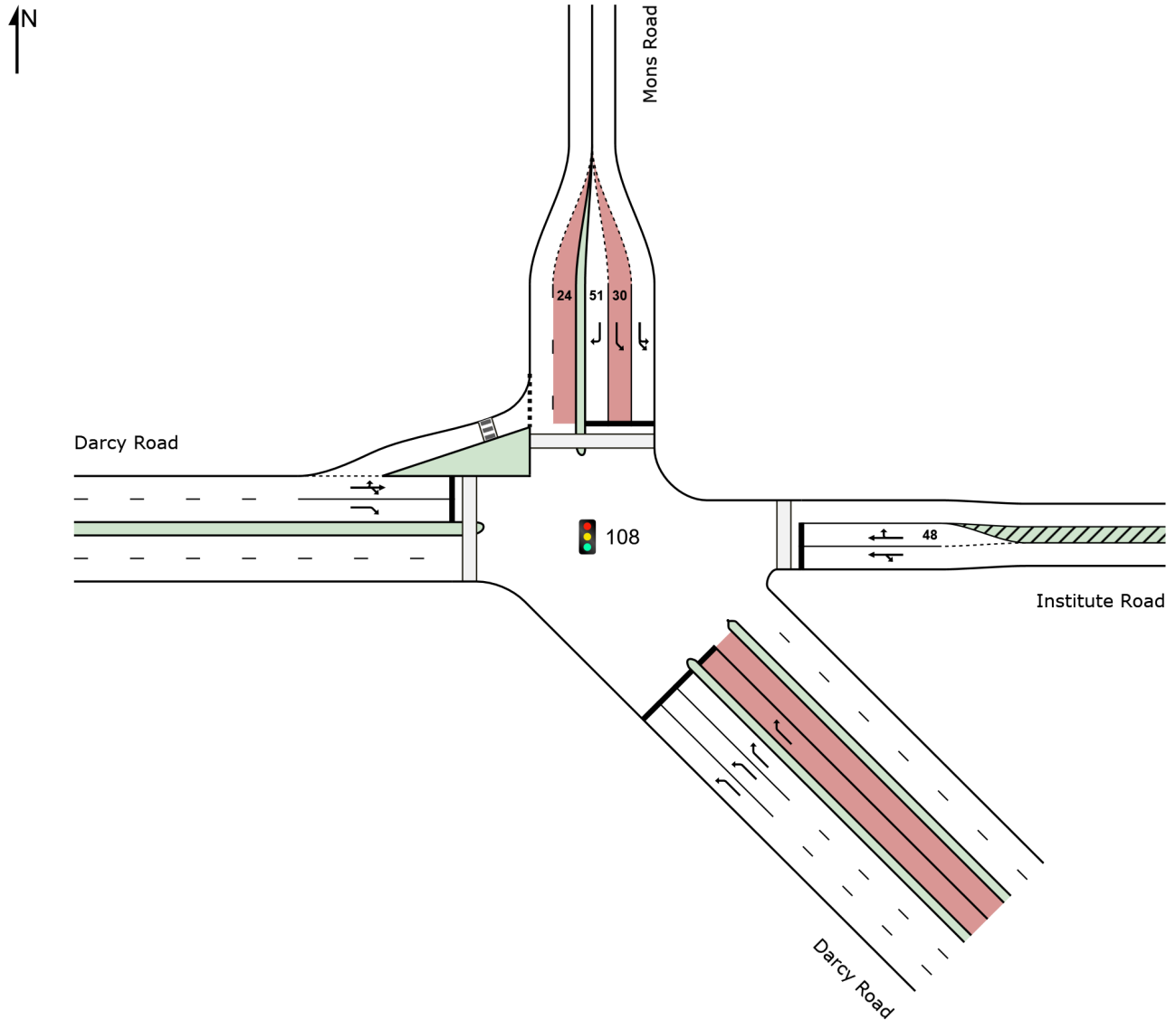
 **Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]**
(Site Folder: 2023 Do Minimum AM Peak)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 Do Minimum AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2023 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	458	1.7	458	1.7	0.253	25.5	LOS B	9.7	68.7	0.65	0.70	0.65	7.5
23a	R1	275	22.5	275	22.5	* 1.024	113.6	LOS F	11.6	89.8	1.00	1.17	1.47	12.2
Approach		733	9.5	733	9.5	1.024	58.5	LOS E	11.6	89.8	0.78	0.87	0.96	11.0
East: Institute Road														
4b	L3	46	2.2	46	2.2	0.457	74.8	LOS F	3.7	26.4	1.00	0.76	1.00	13.0
5	T1	68	2.9	68	2.9	* 0.457	70.2	LOS E	4.3	30.6	1.00	0.76	1.00	13.4
6	R2	2	0.0	2	0.0	0.457	74.3	LOS F	4.3	30.6	1.00	0.76	1.00	21.2
Approach		116	2.6	116	2.6	0.457	72.1	LOS F	4.3	30.6	1.00	0.76	1.00	13.4
North: Mons Road														
7	L2	7	0.0	7	0.0	0.155	23.4	LOS B	4.4	38.9	0.57	0.59	0.57	31.4
7a	L1	154	48.7	154	48.7	0.155	21.7	LOS B	4.4	38.9	0.57	0.58	0.57	26.9
9	R2	108	12.0	108	12.0	0.210	42.6	LOS D	5.5	42.2	0.79	0.73	0.79	20.4
Approach		269	32.7	269	32.7	0.210	30.2	LOS C	5.5	42.2	0.66	0.64	0.66	24.1
West: Darcy Road														
10	L2	177	9.6	177	9.6	0.880	55.9	LOS D	12.6	91.4	1.00	1.01	1.11	19.4
11	T1	202	0.5	202	0.5	* 0.880	52.7	LOS D	12.6	91.4	1.00	1.01	1.11	17.2
12a	R1	631	1.3	631	1.3	0.880	58.2	LOS E	12.9	91.4	1.00	0.98	1.11	4.3
Approach		1010	2.6	1010	2.6	0.880	56.7	LOS E	12.9	91.4	1.00	0.99	1.11	10.9
All Vehicles		2128	8.8	2128	8.8	1.024	54.8	LOS D	12.9	91.4	0.88	0.89	1.00	12.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39

All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 Do
Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

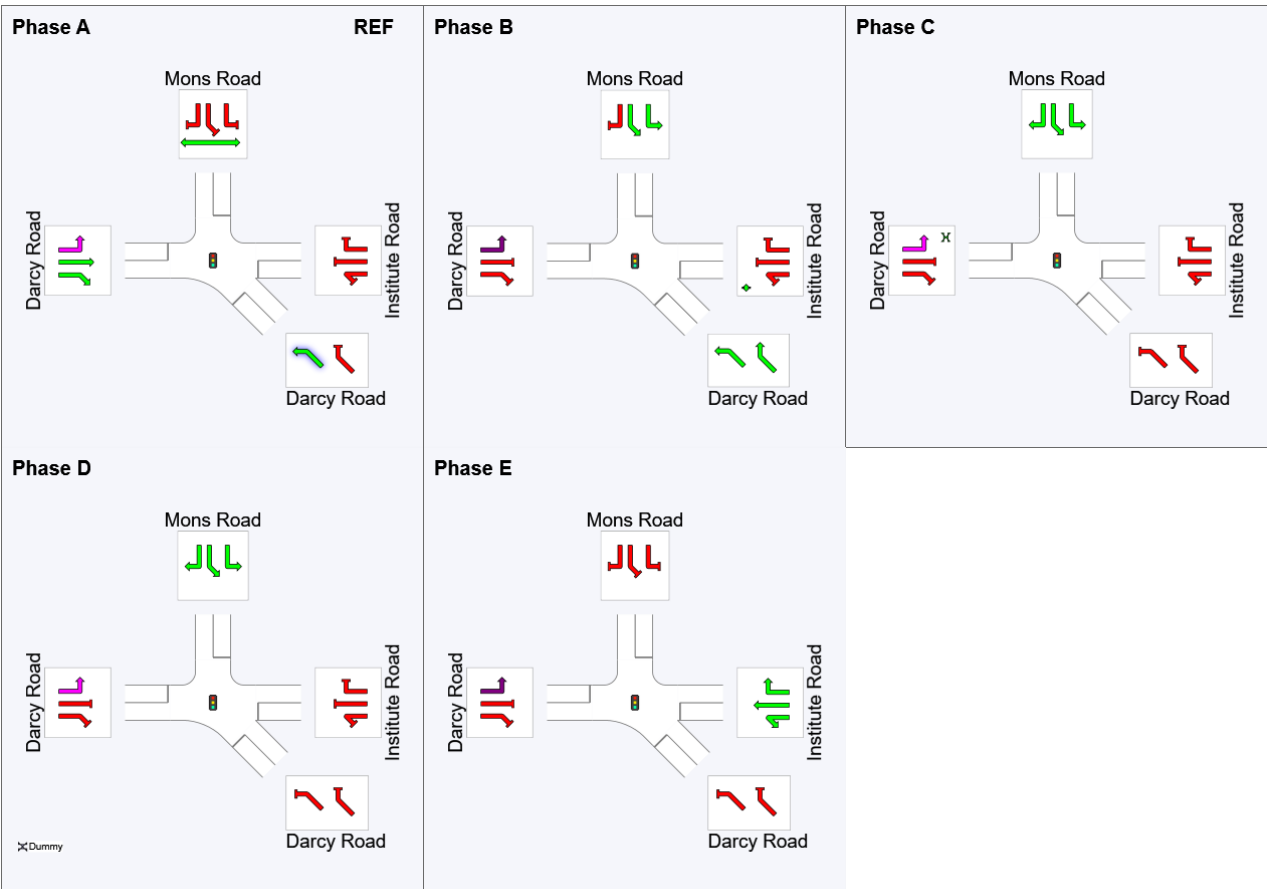
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	48	73	110	124
Green Time (sec)	42	19	31	8	10
Phase Time (sec)	48	25	37	14	16
Phase Split	34%	18%	26%	10%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 Do Minimum AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Mother Teresa Primary School Access														
1	L2	434	1.2	434	1.2	0.629	6.1	LOS A	4.7	33.0	0.47	1.06	0.66	9.6
Approach		434	1.2	434	1.2	0.629	6.1	LOS A	4.7	33.0	0.47	1.06	0.66	9.6
East: Darcy Road														
4	L2	176	1.7	176	1.7	0.096	7.2	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	458	4.1	458	4.1	0.121	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		634	3.5	634	3.5	0.121	2.0	NA	0.0	0.0	0.00	0.21	0.00	30.1
West: Darcy Road														
11	T1	1010	3.1	1010	3.1	0.264	2.1	LOS A	22.1	158.7	0.00	0.36	0.00	37.0
12	R2	371	1.3	371	1.3	0.738	16.2	LOS B	4.0	28.3	0.64	1.15	1.42	24.9
Approach		1381	2.6	1381	2.6	0.738	5.9	LOS A	22.1	158.7	0.17	0.57	0.38	32.7
All Vehicles		2449	2.6	2449	2.6	0.738	4.9	NA	22.1	158.7	0.18	0.56	0.33	19.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 Do Minimum AM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	67	64.3	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
East: Darcy Road											
P2	Full	40	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2023 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E2*

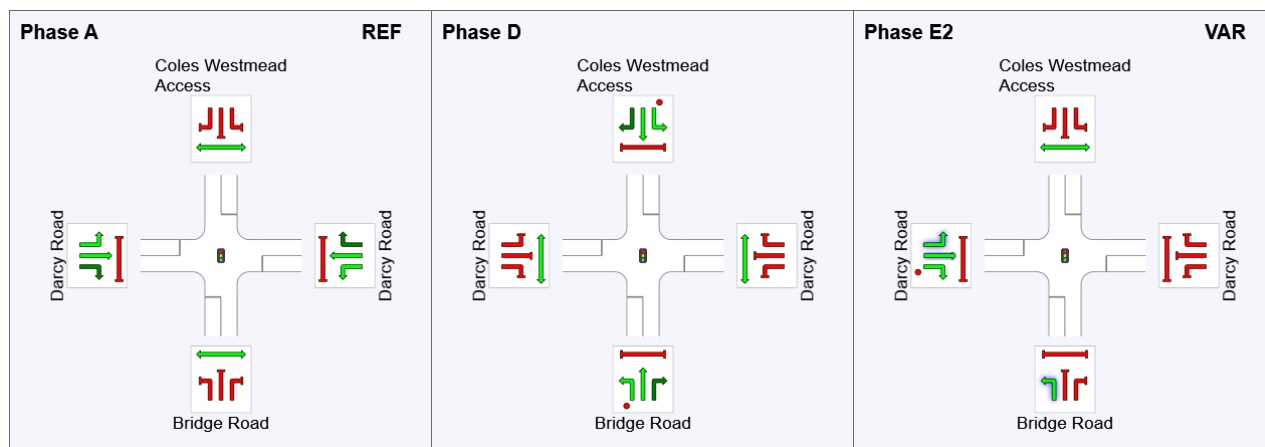
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E2
Phase Change Time (sec)	121	44	90
Green Time (sec)	56	39	25
Phase Time (sec)	63	45	32
Phase Split	45%	32%	23%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	416	0.2	416	0.2	0.557	3.9	LOS A	5.9	41.2	0.35	0.50	0.35	24.9
3	R2	272	0.4	272	0.4	0.557	7.0	LOS A	5.9	41.2	0.35	0.50	0.35	24.9
3u	U	4	0.0	4	0.0	0.557	8.4	LOS A	5.9	41.2	0.35	0.50	0.35	27.9
Approach		692	0.3	692	0.3	0.557	5.2	LOS A	5.9	41.2	0.35	0.50	0.35	25.0
East: Alexandra Avenue														
4	L2	109	0.9	107	0.9	0.278	9.1	LOS A	1.5	10.4	0.62	0.79	0.62	40.5
6	R2	48	2.1	47	2.1	0.278	11.7	LOS A	1.5	10.4	0.62	0.79	0.62	41.2
6u	U	2	0.0	2	0.0	0.278	12.9	LOS A	1.5	10.4	0.62	0.79	0.62	41.2
Approach		159	1.3	156 ^{N1}	1.3	0.278	9.9	LOS A	1.5	10.4	0.62	0.79	0.62	40.7
North: Bridge Road														
7	L2	145	0.7	145	0.7	0.873	17.0	LOS B	15.5	108.8	0.90	1.07	1.35	33.3
8	T1	565	0.2	565	0.2	0.873	16.5	LOS B	15.5	108.8	0.90	1.07	1.35	33.8
9u	U	1	0.0	1	0.0	0.873	20.8	LOS B	15.5	108.8	0.90	1.07	1.35	33.3
Approach		711	0.3	711	0.3	0.873	16.6	LOS B	15.5	108.8	0.90	1.07	1.35	33.7
All Vehicles		1562	0.4	1559 ^{N1}	0.4	0.873	10.9	LOS A	15.5	108.8	0.63	0.79	0.83	33.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2023 Do Minimum)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND	FLOWS	ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	43	0.0	43	0.0	0.583	55.1	LOS D	16.1	114.1	0.94	0.80	0.94	10.9
2	T1	475	1.9	475	1.9	0.583	50.5	LOS D	16.1	114.1	0.94	0.80	0.94	11.0
Approach		518	1.7	518	1.7	0.583	50.8	LOS D	16.1	114.1	0.94	0.80	0.94	11.0
East: Alexandra Avenue														
4	L2	29	0.0	29	0.0	0.872	74.9	LOS F	12.7	92.1	1.00	1.00	1.22	13.0
5	T1	215	0.0	215	0.0	* 0.872	70.5	LOS E	12.7	92.1	1.00	1.00	1.22	7.3
6	R2	274	24.5	274	24.5	0.872	77.3	LOS F	17.3	146.4	1.00	0.98	1.26	6.9
Approach		518	12.9	518	12.9	0.872	74.3	LOS F	17.3	146.4	1.00	0.99	1.24	7.4
North: Hawkesbury Road														
7	L2	287	23.3	284	23.3	* 0.633	12.8	LOS A	11.9	88.1	0.40	0.52	0.40	28.0
8	T1	747	1.3	740	1.3	0.633	17.9	LOS B	12.5	88.1	0.65	0.64	0.65	24.4
9	R2	79	0.0	78	0.0	0.633	27.8	LOS B	12.5	88.1	0.80	0.72	0.80	8.6
Approach		1113	6.9	1103 ^N ₁	6.9	0.633	17.3	LOS B	12.5	88.1	0.60	0.61	0.60	24.2
West: Alexandra Avenue														
10	L2	75	0.0	75	0.0	0.103	31.7	LOS C	3.1	21.8	0.65	0.70	0.65	29.7
11	T1	170	0.6	170	0.6	* 0.721	66.7	LOS E	11.7	82.1	1.00	0.86	1.07	23.2
Approach		245	0.4	245	0.4	0.721	56.0	LOS D	11.7	82.1	0.89	0.81	0.94	24.6
All Vehicles		2394	6.4	2384 ^N ₁	6.5	0.872	41.0	LOS C	17.3	146.4	0.79	0.76	0.85	15.9
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	626	11.8	626	11.8	0.360	4.7	LOS A	7.8	56.7	0.29	0.27	0.29	24.3
3	R2	198	0.0	198	0.0	0.360	15.8	LOS B	7.8	56.7	0.74	0.72	0.74	36.8
Approach		824	9.0	824	9.0	0.360	7.3	LOS A	7.8	56.7	0.39	0.38	0.39	32.2
East: Railway Parade														
4	L2	244	0.4	244	0.4	0.461	18.5	LOS B	8.4	58.8	0.62	0.74	0.62	33.4
6	R2	22	0.0	22	0.0	0.111	66.2	LOS E	1.4	9.6	0.94	0.71	0.94	18.0
Approach		266	0.4	266	0.4	0.461	22.4	LOS B	8.4	58.8	0.65	0.73	0.65	31.2
North: Hawkesbury Road														
7	L2	66	0.0	64	0.0	0.140	49.9	LOS D	5.2	47.3	0.84	0.71	0.84	24.3
8	T1	869	9.0	841	9.0	* 0.886	55.5	LOS D	28.0	204.5	0.99	0.94	1.10	7.7
Approach		935	8.3	904 ^{N1}	8.4	0.886	55.2	LOS D	28.0	204.5	0.98	0.93	1.08	9.4
All Vehicles		2025	7.6	1994 ^N ₁	7.7	0.886	31.0	LOS C	28.0	204.5	0.69	0.67	0.74	17.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

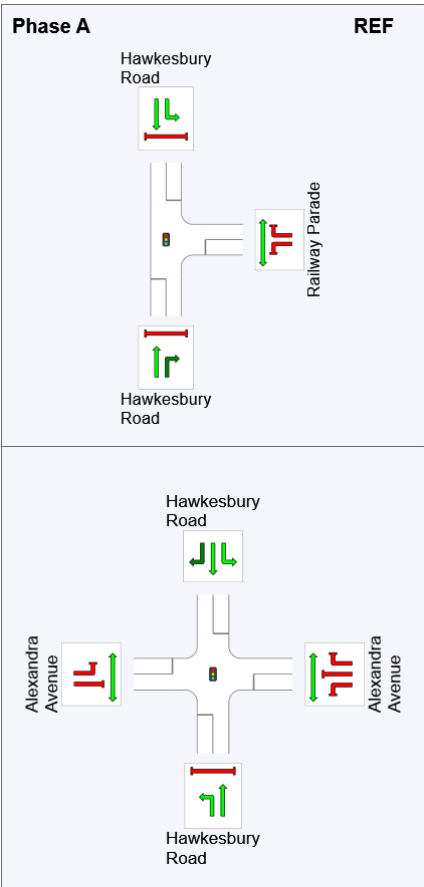
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

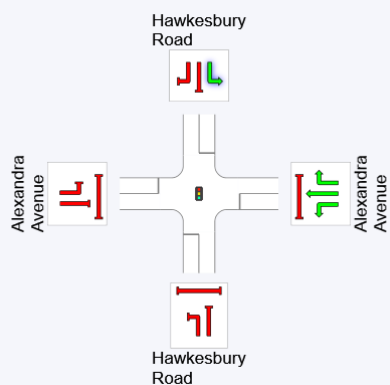
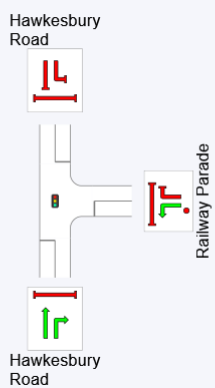
Phase	A	E	D	C
Phase Change Time (sec)	0	40	74	100
Green Time (sec)	34	25	17	34
Phase Time (sec)	43	34	23	40
Phase Split	31%	24%	16%	29%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

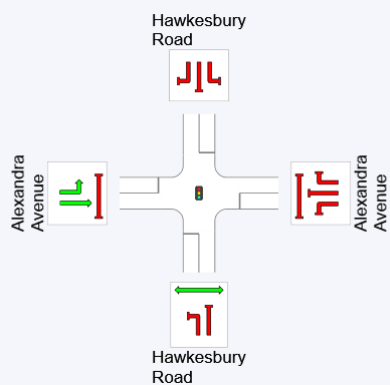
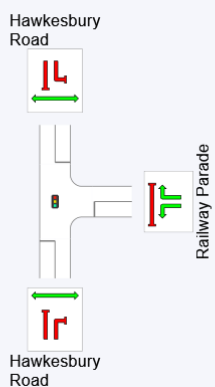
Output Phase Sequence (CCG)

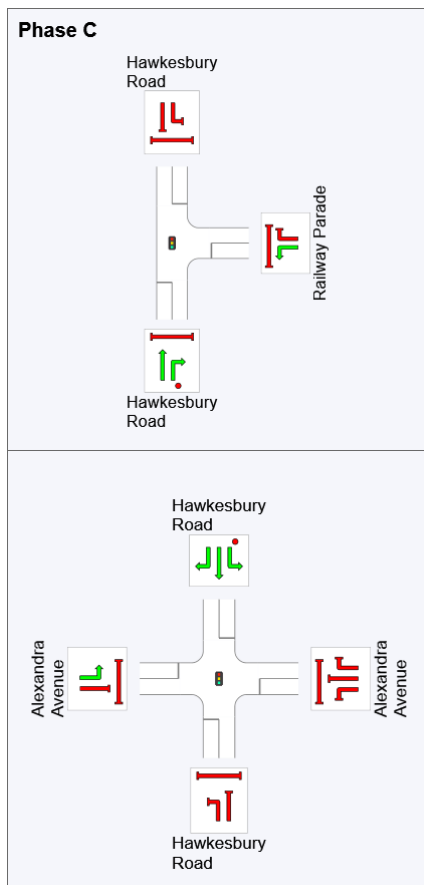


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 Do Minimum PM Peak)] Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

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

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	29.6	LOS C	0.1	0.1	0.92	0.92	55.3	30.9	0.56
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road											

P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42
All Pedestrians	580	60.9	LOS F	0.8	0.8	0.96	0.96	124.8	76.7	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

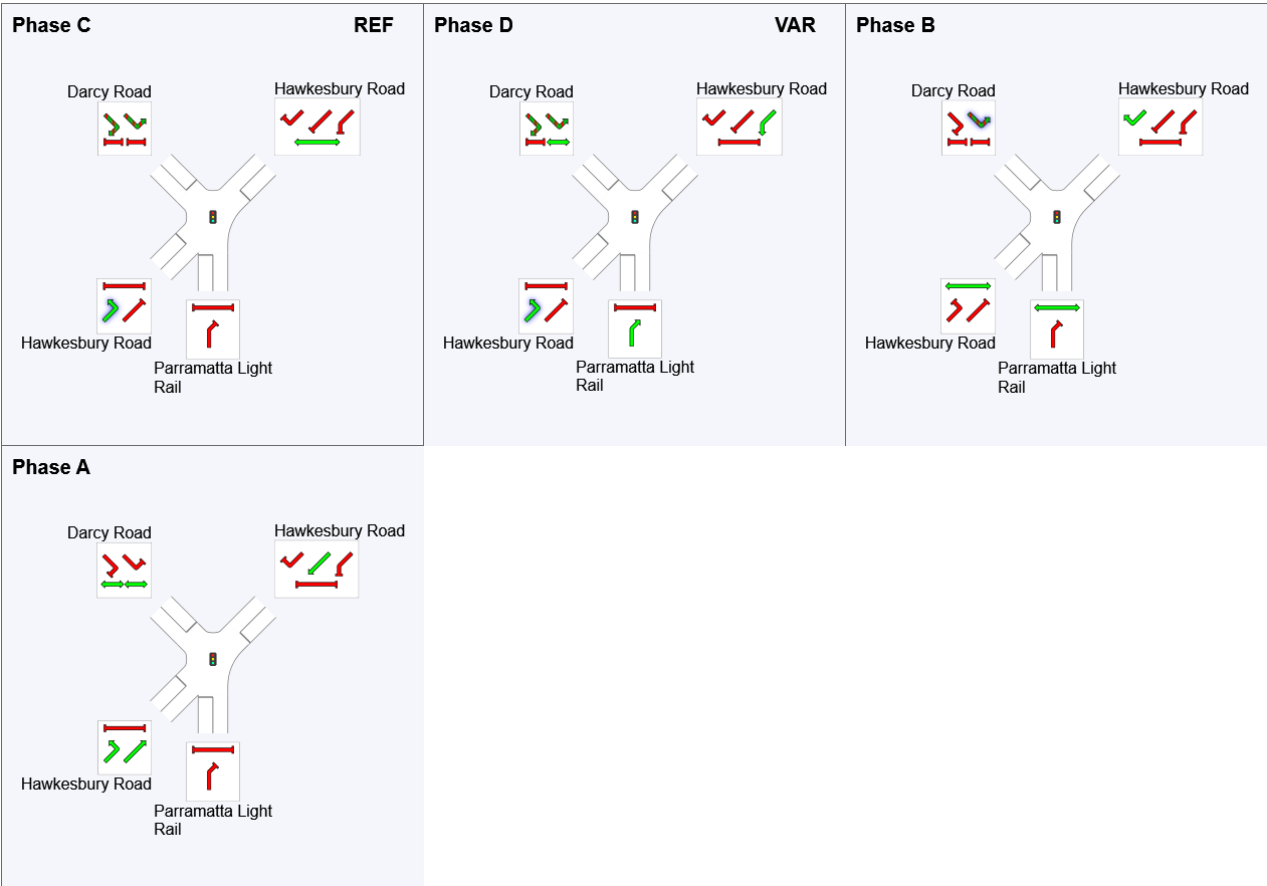
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	46	62	92
Green Time (sec)	40	8	21	37
Phase Time (sec)	48	17	30	45
Phase Split	34%	12%	21%	32%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 Do Minimum PM Peak)] Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											
P6	Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road											

P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

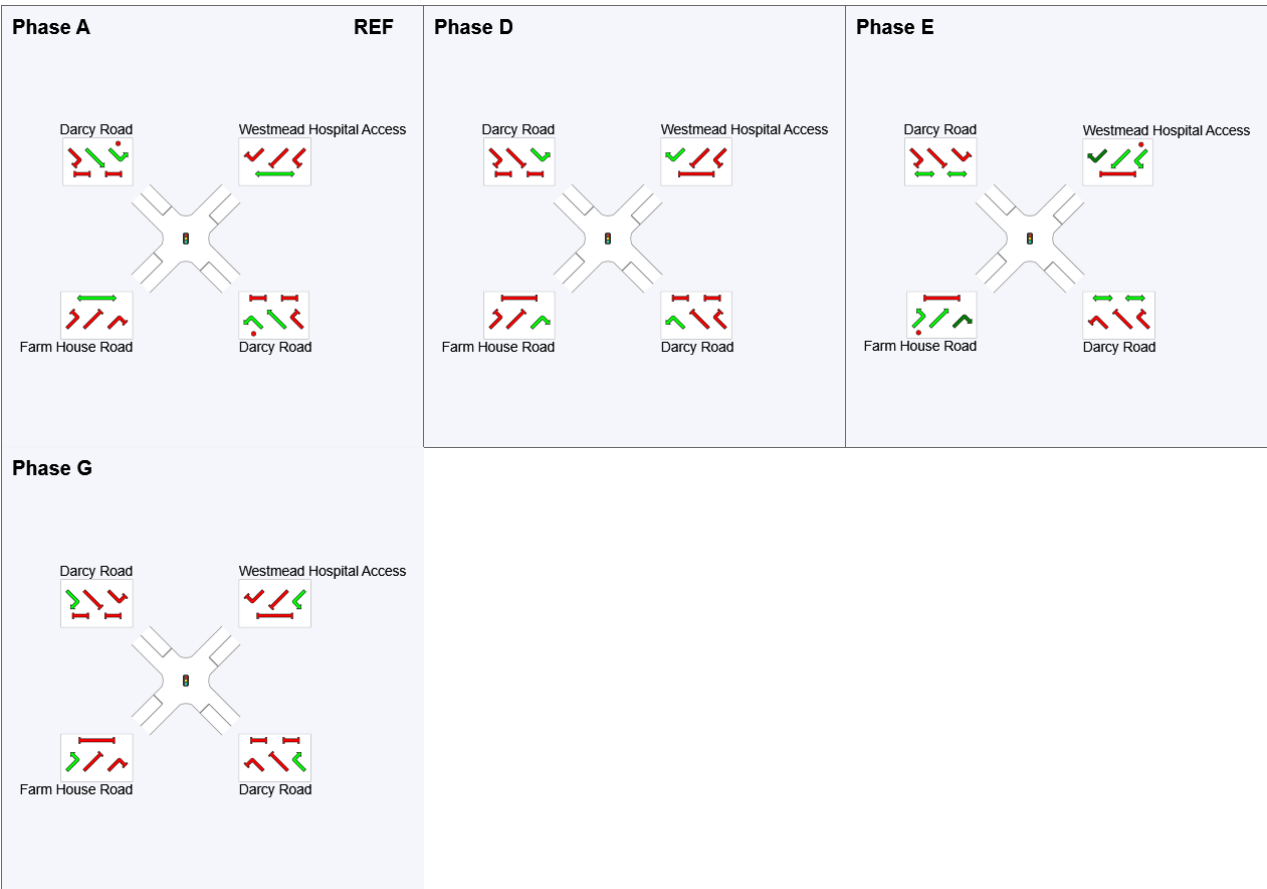
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	5	0.0	5	0.0	0.194	11.2	LOS A	0.1	1.0	0.04	0.01	0.04	30.2
22	T1	745	9.7	745	9.7	0.194	0.1	LOS A	0.1	1.0	0.02	0.00	0.02	38.7
Approach		750	9.6	750	9.6	0.194	0.2	NA	0.1	1.0	0.02	0.00	0.02	38.6
NorthWest: Darcy Road														
28	T1	675	10.1	675	10.1	0.296	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		675	10.1	675	10.1	0.296	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.006	21.9	LOS B	0.0	0.1	0.87	0.77	0.87	5.1
Approach		1	0.0	1	0.0	0.006	21.9	LOS B	0.0	0.1	0.87	0.77	0.87	5.1
All Vehicles		1426	9.8	1426	9.8	0.296	0.1	NA	0.1	1.0	0.01	0.00	0.01	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.275	14.0	LOS A	9.5	69.4	0.45	0.39	0.45	19.6
22	T1	712	10.0	712	10.0	0.275	10.0	LOS A	9.5	69.4	0.40	0.35	0.40	20.0
23	R2	34	0.0	34	0.0	* 0.427	80.4	LOS F	2.5	17.2	1.00	0.72	1.00	8.7
Approach		747	9.5	747	9.5	0.427	13.2	LOS A	9.5	69.4	0.43	0.37	0.43	17.7
NorthEast: Westmead Dental Hospital Access														
24	L2	38	0.0	38	0.0	0.044	4.1	LOS A	0.2	1.7	0.14	0.50	0.14	30.3
26	R2	30	0.0	30	0.0	* 0.119	57.4	LOS E	1.8	12.3	0.89	0.71	0.89	7.6
Approach		68	0.0	68	0.0	0.119	27.7	LOS B	1.8	12.3	0.47	0.59	0.47	13.0
NorthWest: Darcy Road														
27	L2	60	0.0	60	0.0	0.179	12.1	LOS A	6.7	49.0	0.33	0.34	0.33	28.1
28	T1	636	10.7	636	10.7	0.179	9.1	LOS A	8.3	61.2	0.37	0.34	0.37	20.1
29	R2	2	50.0	2	50.0	0.023	76.6	LOS F	0.1	1.4	1.00	0.61	1.00	6.7
Approach		698	9.9	698	9.9	0.179	9.6	LOS A	8.3	61.2	0.37	0.35	0.37	20.9
SouthWest: Parramatta Marist High School Access														
30	L2	3	0.0	3	0.0	0.012	43.8	LOS D	0.2	1.5	0.82	0.54	0.82	5.6
32	R2	1	0.0	1	0.0	0.012	43.8	LOS D	0.2	1.5	0.82	0.54	0.82	5.6
Approach		4	0.0	4	0.0	0.012	43.8	LOS D	0.2	1.5	0.82	0.54	0.82	5.6
All Vehicles		1517	9.2	1517	9.2	0.427	12.3	LOS A	9.5	69.4	0.41	0.37	0.41	18.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32
All Pedestrians		154	64.3	LOS F	0.3	0.3	0.96	0.96	98.9	41.4	0.42

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

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA
Models.sip9

PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

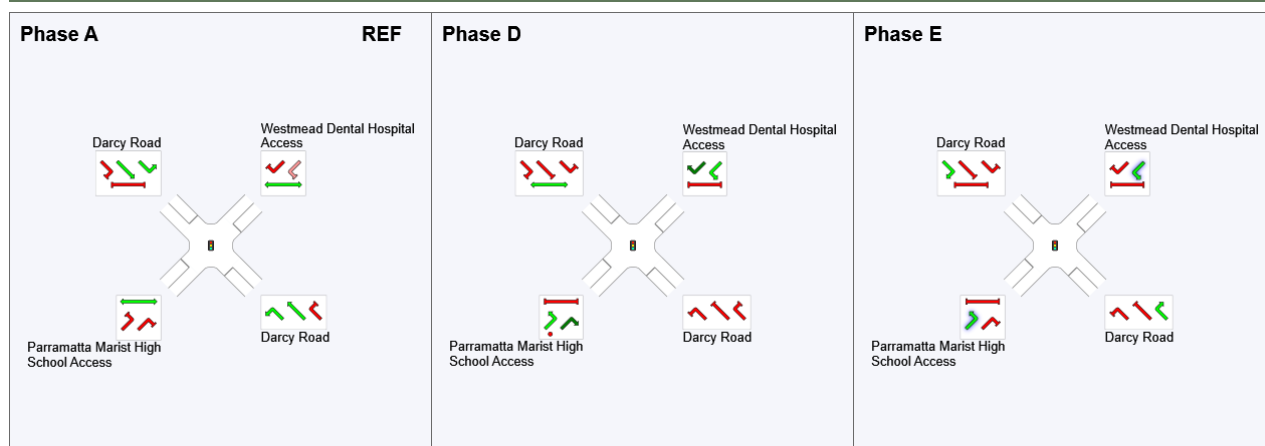
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2023 Do
Minimum)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.134	3.7	LOS A	0.6	4.6	0.00	0.00	0.00	26.8
22	T1	745	9.8	745	9.8	0.134	0.0	LOS A	1.6	12.0	0.00	0.00	0.00	39.9
Approach		746	9.8	746	9.8	0.134	0.0	NA	1.6	12.0	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	698	9.7	698	9.7	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		698	9.7	698	9.7	0.176	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	25	0.0	25	0.0	0.050	1.3	LOS A	0.1	0.7	0.37	0.23	0.37	18.6
Approach		25	0.0	25	0.0	0.050	1.3	LOS A	0.1	0.7	0.37	0.23	0.37	18.6
All Vehicles		1469	9.6	1469	9.6	0.176	0.0	NA	1.6	12.0	0.01	0.00	0.01	38.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 Do Minimum PM Peak)]

 Network: N101 [PM Peak
(Network Folder: 2023 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	623	2.6	623	2.6	0.352	27.6	LOS B	12.5	89.8	0.70	0.73	0.70	7.0
23a	R1	147	40.8	147	40.8	* 0.463	61.5	LOS E	7.5	63.2	0.98	0.78	0.98	18.0
Approach		770	9.9	770	9.9	0.463	34.1	LOS C	12.5	89.8	0.76	0.74	0.76	11.8
East: Institute Road														
4b	L3	94	0.0	94	0.0	0.935	81.7	LOS F	12.6	88.0	1.00	1.02	1.31	12.4
5	T1	242	0.4	242	0.4	* 0.935	70.5	LOS F	13.1	92.2	1.00	0.97	1.22	13.3
6	R2	7	0.0	7	0.0	0.935	71.4	LOS F	13.1	92.2	1.00	0.94	1.18	21.5
Approach		343	0.3	343	0.3	0.935	73.6	LOS F	13.1	92.2	1.00	0.98	1.24	13.3
North: Mons Road														
7	L2	3	0.0	3	0.0	0.173	10.7	LOS A	2.0	16.2	0.22	0.39	0.22	36.0
7a	L1	175	33.1	175	33.1	0.173	9.1	LOS A	2.0	16.2	0.22	0.39	0.22	33.2
9	R2	239	3.3	239	3.3	0.473	36.9	LOS C	11.2	80.5	0.73	0.74	0.73	21.8
Approach		417	15.8	417	15.8	0.473	25.0	LOS B	11.2	80.5	0.51	0.59	0.51	25.6
West: Darcy Road														
10	L2	68	1.5	68	1.5	0.524	28.8	LOS C	10.5	74.7	0.67	0.67	0.67	26.3
11	T1	39	0.0	39	0.0	* 0.524	25.6	LOS B	10.5	74.7	0.67	0.67	0.67	23.9
12a	R1	429	2.3	429	2.3	0.524	33.6	LOS C	12.8	91.4	0.73	0.70	0.73	6.9
Approach		536	2.1	536	2.1	0.524	32.4	LOS C	12.8	91.4	0.72	0.69	0.72	12.7
All Vehicles		2066	7.5	2066	7.5	0.935	38.4	LOS C	13.1	92.2	0.74	0.74	0.78	15.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39

All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2023 Do Minimum PM Peak)

Network: N101 [PM Peak
(Network Folder: 2023 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

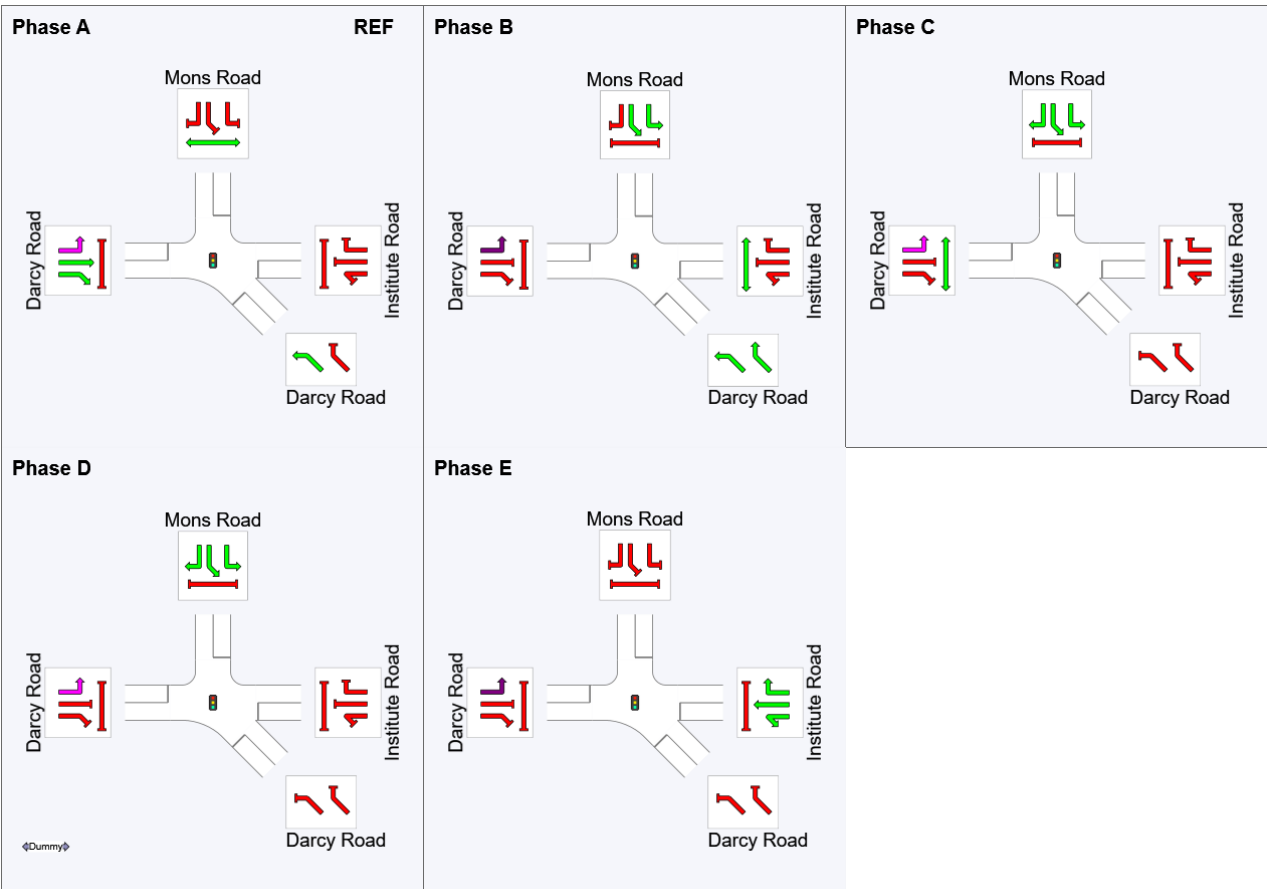
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	73	100	133	8
Green Time (sec)	39	21	27	9	14
Phase Time (sec)	45	27	33	15	20
Phase Split	32%	19%	24%	11%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 Do Minimum PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]**

1500 - 1600
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Mother Teresa Primary School Access														
1	L2	244	4.1	244	4.1	0.500	8.5	LOS A	2.4	17.5	0.61	1.27	0.88	9.5
Approach		244	4.1	244	4.1	0.500	8.5	LOS A	2.4	17.5	0.61	1.27	0.88	9.5
East: Darcy Road														
4	L2	57	8.8	57	8.8	0.033	7.3	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	1047	1.8	1047	1.8	0.272	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1104	2.2	1104	2.2	0.272	0.4	NA	0.0	0.0	0.00	0.04	0.00	37.6
West: Darcy Road														
11	T1	536	3.0	536	3.0	0.166	2.1	LOS A	0.8	5.6	0.00	0.36	0.00	37.1
12	R2	96	4.2	96	4.2	0.281	13.2	LOS A	0.7	4.8	0.70	0.94	0.77	26.8
Approach		632	3.2	632	3.2	0.281	3.8	LOS A	0.8	5.6	0.11	0.45	0.12	35.0
All Vehicles		1980	2.7	1980	2.7	0.500	2.5	NA	2.4	17.5	0.11	0.32	0.15	20.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
1	L2	218	1.4	218	1.4	* 0.418	41.4	LOS C	11.1	78.9	0.83	0.78	0.83	25.6
2	T1	28	0.0	28	0.0	* 0.695	75.4	LOS F	7.8	57.8	1.00	0.84	1.09	15.7
3	R2	83	9.6	83	9.6	0.695	75.0	LOS F	7.8	57.8	1.00	0.84	1.09	15.3
Approach		329	3.3	329	3.3	0.695	52.7	LOS D	11.1	78.9	0.89	0.80	0.92	21.6
East: Darcy Road														
4	L2	244	5.3	244	5.3	* 0.321	19.8	LOS B	17.0	121.8	0.44	0.51	0.44	27.9
5	T1	1023	1.7	1023	1.7	0.321	15.5	LOS B	17.8	126.3	0.45	0.44	0.45	33.5
6	R2	24	0.0	24	0.0	0.046	12.7	LOS A	0.3	2.4	0.38	0.60	0.38	29.1
Approach		1291	2.3	1291	2.3	0.321	16.2	LOS B	17.8	126.3	0.45	0.46	0.45	32.5
North: Coles Westmead Access														
7	L2	23	0.0	23	0.0	0.060	42.9	LOS D	1.2	8.3	0.83	0.60	0.83	4.3
8	T1	38	0.0	38	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	3.1
9	R2	42	0.0	42	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	8.8
Approach		103	0.0	103	0.0	0.522	61.7	LOS E	5.4	37.8	0.96	0.74	0.96	6.0
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.245	15.7	LOS B	10.2	72.3	0.45	0.44	0.45	23.9
11	T1	525	1.7	525	1.7	0.245	10.7	LOS A	10.2	72.3	0.44	0.41	0.44	26.0
12	R2	280	2.1	280	2.1	0.586	14.7	LOS B	6.6	47.2	0.56	0.73	0.56	22.8
Approach		862	1.7	862	1.7	0.586	12.3	LOS A	10.2	72.3	0.48	0.51	0.48	24.7
All Vehicles		2585	2.2	2585	2.2	0.695	21.4	LOS B	17.8	126.3	0.53	0.53	0.54	26.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36

West: Darcy Road											
P4 Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40	
All Pedestrians	299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2023 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2023 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

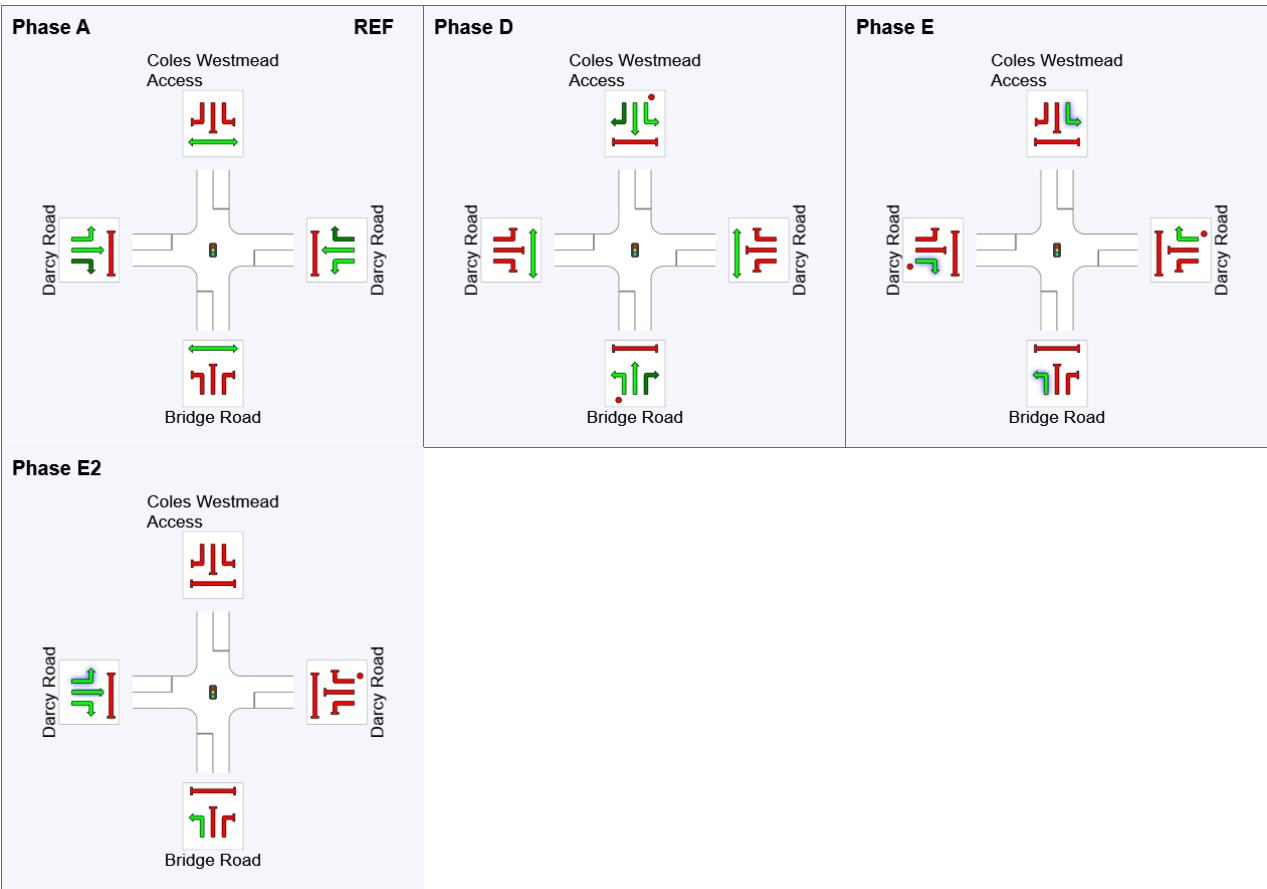
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, E2
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	401	2.7	401	2.7	0.551	5.0	LOS A	5.1	36.2	0.58	0.58	0.58	23.6
3	R2	143	0.7	143	0.7	0.551	8.1	LOS A	5.1	36.2	0.58	0.58	0.58	23.6
3u	U	1	100.0	1	100.0	0.551	10.8	LOS A	5.1	36.2	0.58	0.58	0.58	24.5
Approach		545	2.4	545	2.4	0.551	5.8	LOS A	5.1	36.2	0.58	0.58	0.58	23.6
East: Alexandra Avenue														
4	L2	210	0.5	210	0.5	0.589	13.0	LOS A	4.6	32.0	0.73	0.96	0.92	38.1
6	R2	135	0.0	135	0.0	0.589	15.5	LOS B	4.6	32.0	0.73	0.96	0.92	38.5
6u	U	1	0.0	1	0.0	0.589	16.8	LOS B	4.6	32.0	0.73	0.96	0.92	38.5
Approach		346	0.3	346	0.3	0.589	14.0	LOS A	4.6	32.0	0.73	0.96	0.92	38.2
North: Bridge Road														
7	L2	87	0.0	87	0.0	0.680	6.3	LOS A	6.6	47.7	0.65	0.60	0.65	41.6
8	T1	570	3.3	570	3.3	0.680	6.0	LOS A	6.6	47.7	0.65	0.60	0.65	41.1
9u	U	1	0.0	1	0.0	0.680	10.1	LOS A	6.6	47.7	0.65	0.60	0.65	41.6
Approach		658	2.9	658	2.9	0.680	6.1	LOS A	6.6	47.7	0.65	0.60	0.65	41.1
All Vehicles		1549	2.1	1549	2.1	0.680	7.7	LOS A	6.6	47.7	0.64	0.67	0.68	38.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2023 Do Minimum)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	26	3.8	26	3.8	1.210	207.4	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
2	T1	1176	0.6	1176	0.6	* 1.210	202.7	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
Approach		1202	0.7	1202	0.7	1.210	202.8	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
East: Alexandra Avenue														
4	L2	43	0.0	43	0.0	1.221	259.0	LOS F	13.7	102.0	1.00	1.69	2.33	4.3
5	T1	131	0.0	131	0.0	* 1.221	254.5	LOS F	13.7	102.0	1.00	1.69	2.33	2.2
6	R2	375	15.5	375	15.5	1.221	260.9	LOS F	34.4	272.3	1.00	1.60	2.35	2.2
Approach		549	10.6	549	10.6	1.221	259.2	LOS F	34.4	272.3	1.00	1.63	2.35	2.3
North: Hawkesbury Road														
7	L2	415	14.7	414	14.7	0.925	34.3	LOS C	12.1	88.1	0.82	0.89	0.93	16.9
8	T1	484	1.9	483	1.9	0.925	32.6	LOS C	12.1	88.1	0.89	0.92	1.00	17.3
9	R2	70	0.0	70	0.0	1.235	286.2	LOS F	10.8	75.7	1.00	1.34	2.64	0.8
Approach		969	7.2	967 ^{N1}	7.2	1.235	51.7	LOS D	12.1	88.1	0.87	0.94	1.09	11.7
West: Alexandra Avenue														
10	L2	126	0.0	122	0.0	0.700	72.2	LOS F	8.9	62.4	1.00	0.85	1.09	19.6
11	T1	386	0.3	375	0.3	* 1.221	268.2	LOS F	56.3	395.2	1.00	1.91	2.42	8.5
Approach		512	0.2	497 ^{N1}	0.2	1.221	220.0	LOS F	56.3	395.2	1.00	1.65	2.10	9.7
All Vehicles		3232	4.2	3215 ^{N1}	4.3	1.235	169.6	LOS F	88.8	625.8	0.96	1.51	1.87	5.4
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1314	4.8	1311	4.8	1.105	141.7	LOS F	12.3	88.1	1.00	1.57	1.82	1.6
3	R2	363	0.3	362	0.3	1.105	145.9	LOS F	12.3	88.1	1.00	1.49	1.86	10.6
Approach		1677	3.8	1673 ^{N1}	3.8	1.105	142.6	LOS F	12.3	88.1	1.00	1.55	1.83	4.0
East: Railway Parade														
4	L2	224	0.9	224	0.9	0.740	46.3	LOS D	13.2	93.0	0.95	0.87	1.02	22.2
6	R2	36	0.0	36	0.0	0.342	70.7	LOS F	2.4	16.9	0.97	0.75	0.97	17.2
Approach		260	0.8	260	0.8	0.740	49.7	LOS D	13.2	93.0	0.95	0.85	1.01	21.4
North: Hawkesbury Road														
7	L2	118	0.0	118	0.0	0.100	21.2	LOS B	4.2	35.6	0.42	0.57	0.42	34.5
8	T1	745	11.5	743	11.6	0.334	18.7	LOS B	11.4	83.9	0.50	0.45	0.50	17.5
Approach		863	10.0	861 ^{N1}	10.0	0.334	19.1	LOS B	11.4	83.9	0.49	0.47	0.49	22.0
All Vehicles		2800	5.4	2794 ^{N1}	5.4	1.105	95.9	LOS F	13.2	93.0	0.84	1.15	1.34	6.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

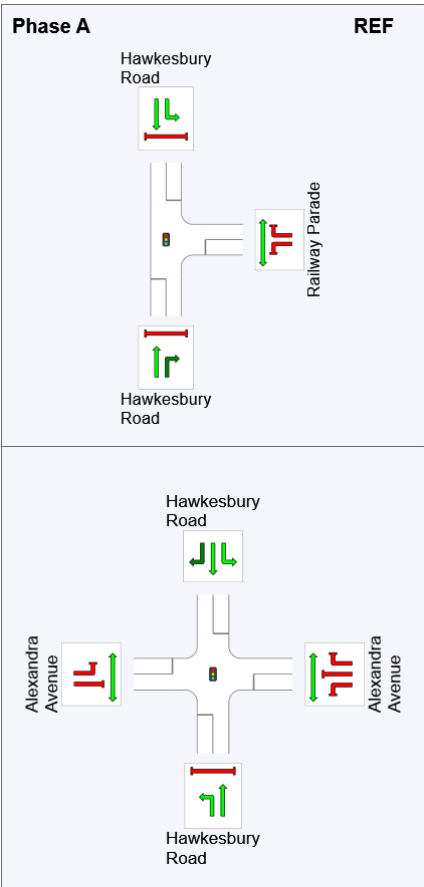
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C*
Output Phase Sequence: A, E, D
(* Variable Phase)

Phase Timing Summary (CCG)

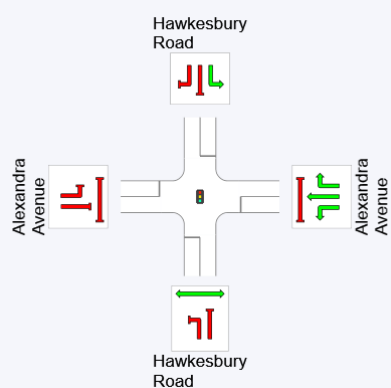
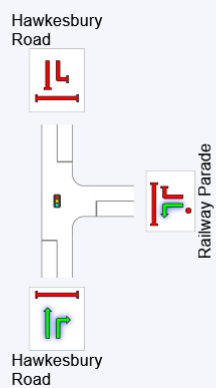
Phase	A	E	D
Phase Change Time (sec)	0	77	114
Green Time (sec)	71	28	17
Phase Time (sec)	80	37	23
Phase Split	57%	26%	16%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

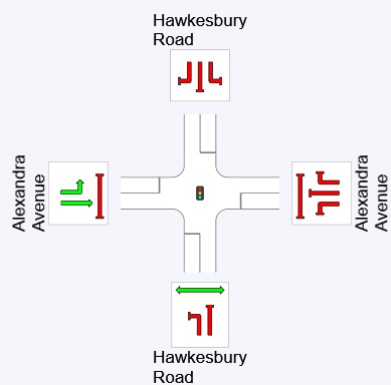
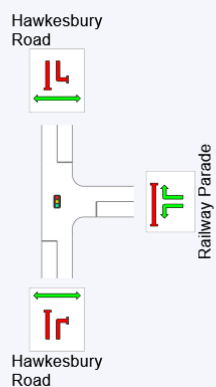
Output Phase Sequence (CCG)



Phase E



Phase D



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

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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.251	84.0	LOS F	0.6	16.3	1.00	0.69	1.00	10.1
25	T1	346	3.5	346	3.5	0.900	64.7	LOS E	24.9	179.8	0.93	1.01	1.20	9.1
26	R2	250	2.0	250	2.0	* 1.009	126.1	LOS F	26.0	185.3	1.00	1.29	1.69	5.1
Approach		604	4.1	604	4.1	1.009	90.3	LOS F	26.0	185.3	0.96	1.12	1.40	6.9
NorthWest: Darcy Road														
27	L2	281	3.9	280	3.9	0.818	13.2	LOS A	5.2	36.8	0.40	0.61	0.41	26.9
29	R2	518	13.1	516	13.2	0.910	60.5	LOS E	19.8	146.9	0.94	0.93	1.14	5.7
Approach		799	9.9	795 ^{N1}	9.9	0.910	43.9	LOS D	19.8	146.9	0.75	0.82	0.88	10.5
SouthWest: Hawkesbury Road														
30	L2	845	6.9	810	6.9	* 0.998	92.2	LOS F	28.9	208.9	0.98	1.12	1.39	5.4
31	T1	506	1.2	485	1.2	0.731	47.4	LOS D	27.7	195.9	0.90	0.81	0.90	16.2
Approach		1351	4.7	1294 ^{N1}	4.7	0.998	75.4	LOS F	28.9	208.9	0.95	1.00	1.21	8.5
All Vehicles		2762	6.4	2701 ^{N1}	6.5	1.009	69.5	LOS E	28.9	208.9	0.90	0.98	1.15	8.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	32.5	LOS D	0.1	0.1	0.92	0.92	58.2	30.9	0.53

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	62.0	LOS F	0.8	0.8	0.96	0.96	135.1	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

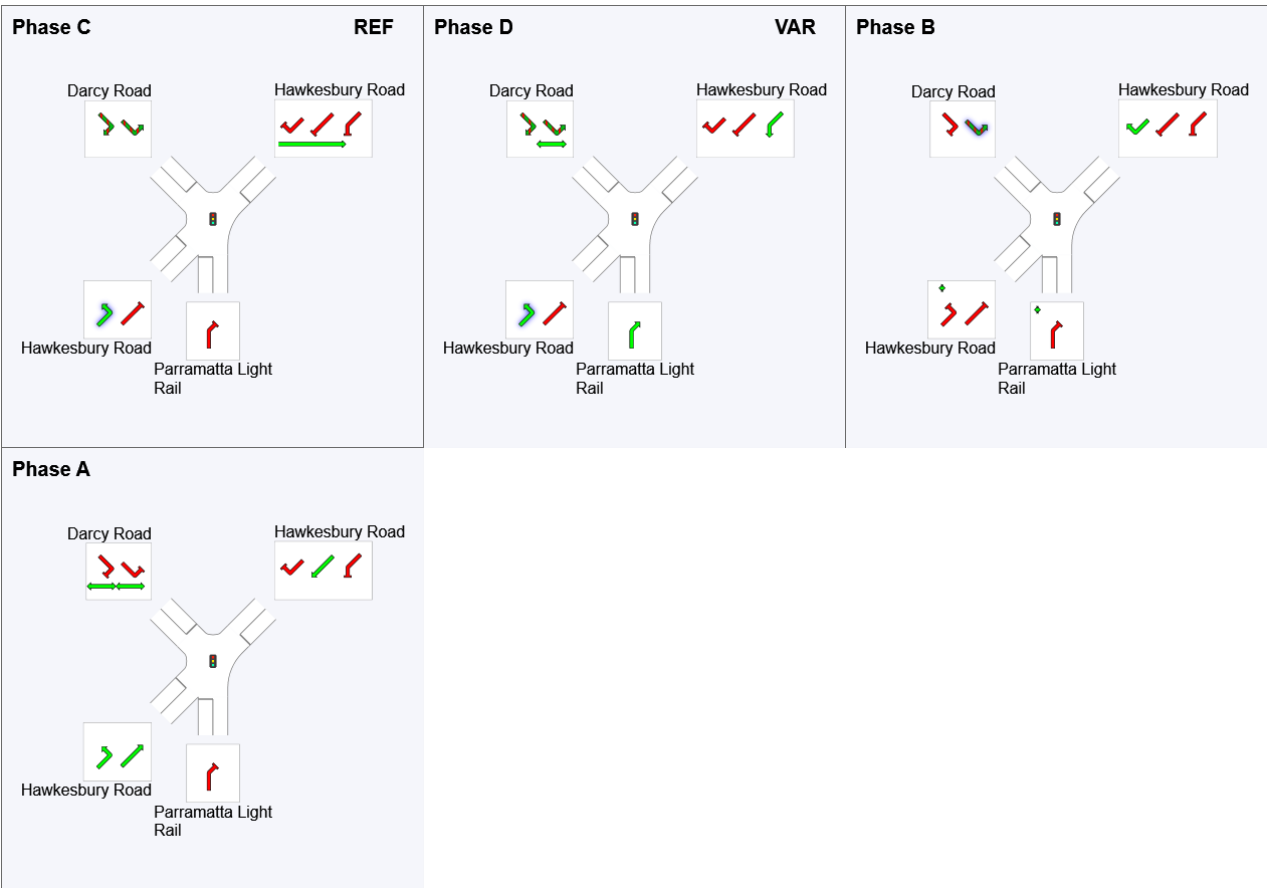
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	33	47	89
Green Time (sec)	27	6	33	40
Phase Time (sec)	35	15	42	48
Phase Split	25%	11%	30%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

**Site: 104 [Darcy Road / Farm House Road / Westmead Hospital
Access (TCS 3281) (Site Folder: 2033 Do Minimum AM Peak)]**

■ ■ Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	8	0.0	0.470	25.9	LOS B	18.6	134.4	0.64	0.58	0.64	21.3
22	T1	955	6.6	942	6.6	0.470	22.5	LOS B	18.6	134.4	0.64	0.57	0.64	11.7
23	R2	132	0.8	130	0.8	* 0.822	79.5	LOS F	9.4	66.4	1.00	0.88	1.19	8.3
Approach		1095	5.8	1080 ^N ₁	5.8	0.822	29.4	LOS C	18.6	134.4	0.69	0.61	0.71	10.5
NorthEast: Westmead Hospital Access														
24	L2	43	0.0	43	0.0	0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	8.1
25	T1	1	0.0	1	0.0	* 0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	12.4
26	R2	75	6.7	75	6.7	0.881	81.5	LOS F	5.7	42.1	1.00	1.25	1.49	6.2
Approach		119	4.2	119	4.2	0.881	69.2	LOS E	5.7	42.1	0.95	1.03	1.26	6.8
NorthWest: Darcy Road														
27	L2	182	0.5	181	0.6	* 0.603	26.8	LOS B	13.2	96.3	0.66	0.68	0.66	12.7
28	T1	734	11.4	730	11.5	0.603	22.6	LOS B	13.2	96.3	0.66	0.63	0.66	8.7
29	R2	7	14.3	7	14.3	0.048	72.5	LOS F	0.5	3.7	1.00	0.67	1.00	9.7
Approach		923	9.3	918 ^{N1}	9.4	0.603	23.8	LOS B	13.2	96.3	0.67	0.64	0.67	10.3
SouthWest: Farm House Road														
30	L2	12	8.3	12	8.3	0.061	52.9	LOS D	0.9	6.6	0.88	0.69	0.88	9.9
31	T1	4	0.0	4	0.0	0.061	55.9	LOS D	0.9	6.6	0.88	0.69	0.88	12.1
32	R2	22	0.0	22	0.0	0.166	71.3	LOS F	1.5	10.2	0.97	0.70	0.97	8.0
Approach		38	2.6	38	2.6	0.166	63.9	LOS E	1.5	10.2	0.93	0.70	0.93	9.1
All Vehicles		2175	7.2	2155 ^N ₁	7.2	0.881	29.8	LOS C	18.6	134.4	0.70	0.65	0.73	9.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

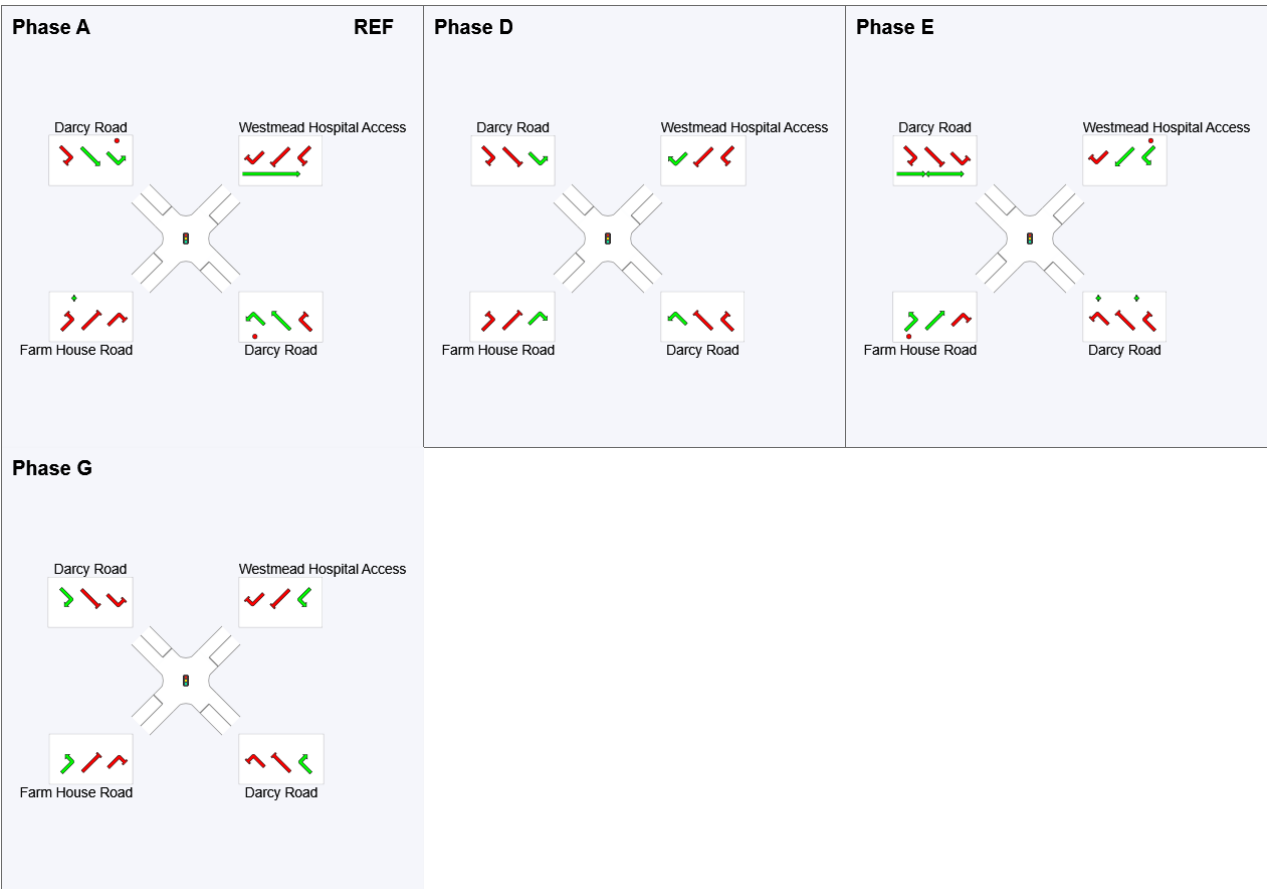
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	2	0.0	2	0.0	0.296	9.3	LOS A	0.0	0.3	0.01	0.00	0.01	31.1
22	T1	1040	6.4	1039	6.5	0.296	0.0	LOS A	0.0	0.3	0.00	0.00	0.01	39.7
Approach		1042	6.4	1041 ^N ₁	6.4	0.296	0.1	NA	0.0	0.3	0.00	0.00	0.01	39.6
NorthWest: Darcy Road														
28	T1	923	9.3	918	9.4	0.309	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		923	9.3	918 ^{N1}	9.4	0.309	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.005	15.7	LOS B	0.0	0.1	0.83	0.71	0.83	6.5
Approach		1	0.0	1	0.0	0.005	15.7	LOS B	0.0	0.1	0.83	0.71	0.83	6.5
All Vehicles		1966	7.8	1960 ^N ₁	7.8	0.309	0.1	NA	0.0	0.3	0.00	0.00	0.00	39.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	8	0.0	0.406	17.4	LOS B	15.7	113.3	0.53	0.48	0.53	17.8
22	T1	973	6.9	972	6.9	0.406	7.5	LOS A	15.7	113.3	0.29	0.26	0.29	23.0
23	R2	59	0.0	59	0.0	* 0.444	77.7	LOS F	4.2	29.1	1.00	0.76	1.00	7.9
Approach		1040	6.4	1039 ^N ₁	6.5	0.444	11.5	LOS A	15.7	113.3	0.33	0.29	0.33	18.6
NorthEast: Westmead Dental Hospital Access														
24	L2	19	0.0	19	0.0	0.023	0.6	LOS A	0.1	0.8	0.13	0.10	0.13	19.5
26	R2	37	0.0	37	0.0	* 0.136	52.5	LOS D	2.1	15.0	0.88	0.66	0.88	6.8
Approach		56	0.0	56	0.0	0.136	34.9	LOS C	2.1	15.0	0.62	0.47	0.62	8.7
NorthWest: Darcy Road														
27	L2	85	0.0	84	0.0	* 0.410	8.7	LOS A	5.9	43.1	0.20	0.25	0.20	21.8
28	T1	904	9.5	899	9.6	0.410	4.0	LOS A	5.9	43.1	0.16	0.17	0.16	27.6
29	R2	5	0.0	5	0.0	0.037	73.6	LOS F	0.3	2.4	1.00	0.65	1.00	6.9
Approach		994	8.7	989 ^{N1}	8.7	0.410	4.8	LOS A	5.9	43.1	0.17	0.18	0.17	25.7
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
32	R2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
Approach		2	0.0	2	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
All Vehicles		2092	7.3	2085 ^N ₁	7.3	0.444	9.0	LOS A	15.7	113.3	0.26	0.25	0.26	20.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	97.8	40.2	0.41

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

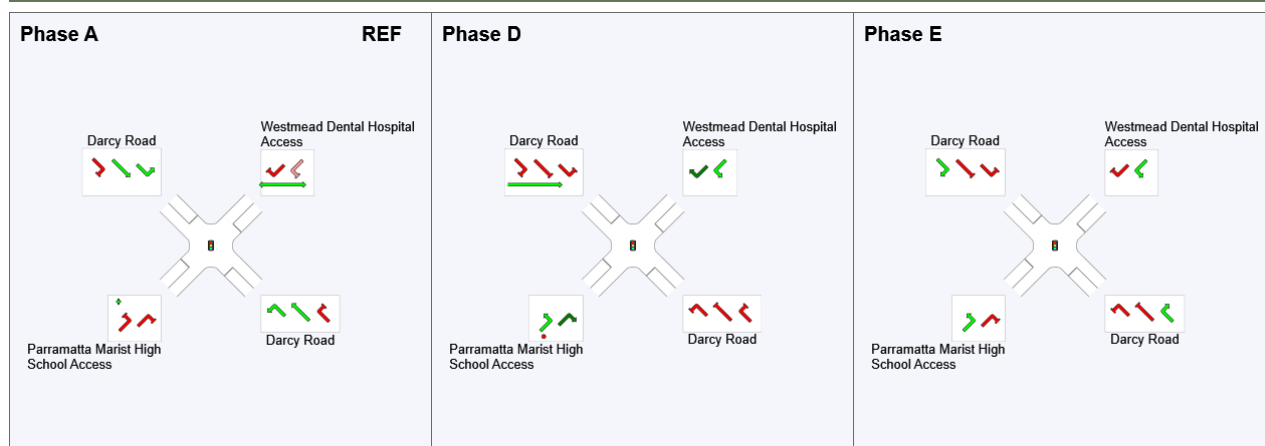
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	36	0.0	36	0.0	0.191	3.9	LOS A	0.2	1.7	0.06	0.07	0.06	26.2
22	T1	974	7.0	973	7.0	0.191	0.0	LOS A	11.3	81.6	0.01	0.02	0.01	39.3
Approach		1010	6.7	1009 ^N ₁	6.7	0.191	0.2	NA	11.3	81.6	0.01	0.02	0.01	38.0
NorthWest: Darcy Road														
28	T1	994	8.5	989	8.5	0.251	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		994	8.5	989 ^{N1}	8.5	0.251	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
Approach		1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
All Vehicles		2005	7.6	1998 ^N ₁	7.6	0.251	0.1	NA	11.3	81.6	0.01	0.01	0.01	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

**Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum AM Peak)]**

■ ■ Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21a	L1	640	1.3	639	1.3	0.311	16.9	LOS B	10.1	71.5	0.42	0.60	0.42	10.3
23a	R1	334	18.6	334	18.6	* 0.913	74.0	LOS F	11.8	89.8	0.99	1.00	1.22	16.2
Approach		974	7.2	973 ^{N1}	7.2	0.913	36.5	LOS C	11.8	89.8	0.61	0.74	0.69	14.6
East: Institute Road														
4b	L3	51	2.0	51	2.0	0.518	75.2	LOS F	4.2	30.2	1.00	0.76	1.00	13.0
5	T1	79	2.5	79	2.5	* 0.518	70.6	LOS F	4.9	34.9	1.00	0.76	1.00	13.3
6	R2	2	0.0	2	0.0	0.518	74.9	LOS F	4.9	34.9	1.00	0.76	1.00	21.1
Approach		132	2.3	132	2.3	0.518	72.4	LOS F	4.9	34.9	1.00	0.76	1.00	13.4
North: Mons Road														
7	L2	7	0.0	7	0.0	0.176	24.8	LOS B	5.2	44.6	0.60	0.61	0.60	30.9
7a	L1	170	44.1	170	44.1	0.176	23.1	LOS B	5.2	44.6	0.59	0.59	0.59	26.4
9	R2	126	10.3	126	10.3	0.309	51.0	LOS D	7.1	54.1	0.87	0.77	0.87	18.6
Approach		303	29.0	303	29.0	0.309	34.7	LOS C	7.1	54.1	0.71	0.67	0.71	22.7
West: Darcy Road														
10	L2	196	8.7	196	8.7	1.007	87.9	LOS F	12.7	91.4	1.00	1.18	1.46	12.9
11	T1	223	0.4	223	0.4	* 1.007	84.7	LOS F	12.7	91.4	1.00	1.18	1.46	11.1
12a	R1	772	1.0	772	1.0	1.007	101.5	LOS F	12.9	91.4	1.00	1.26	1.48	2.5
Approach		1191	2.2	1191	2.2	1.007	96.1	LOS F	12.9	91.4	1.00	1.23	1.47	6.5
All Vehicles		2600	7.2	2599 ^{N1}	7.2	1.007	65.4	LOS E	12.9	91.4	0.82	0.96	1.07	10.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

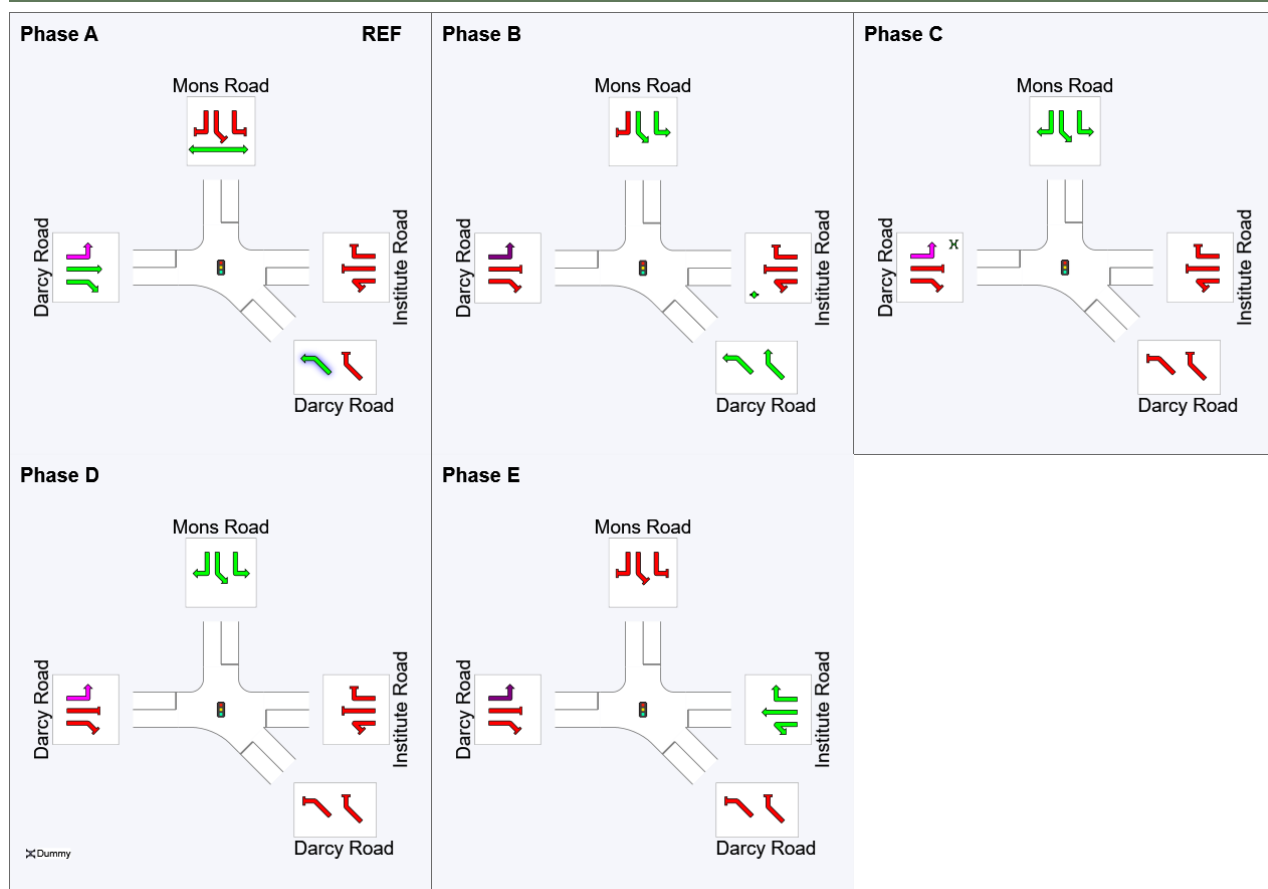
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	50	82	114	124
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 Do Minimum AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	434	1.2	434	1.2	0.704	8.7	LOS A	5.7	40.1	0.57	1.39	1.03	9.5
Approach		434	1.2	434	1.2	0.704	8.7	LOS A	5.7	40.1	0.57	1.39	1.03	9.5
East: Darcy Road														
4	L2	176	1.7	176	1.7	0.096	7.2	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	669	2.8	668	2.8	0.259	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		845	2.6	844 ^{N1}	2.6	0.259	1.5	NA	0.0	0.0	0.00	0.16	0.00	32.0
West: Darcy Road														
11	T1	1191	2.6	1191	2.6	0.395	2.7	LOS A	46.3	331.0	0.21	0.28	0.22	36.1
12	R2	371	1.3	371	1.3	0.947	41.9	LOS C	10.2	72.0	0.78	1.92	3.94	15.6
Approach		1562	2.3	1562	2.3	0.947	12.0	LOS A	46.3	331.0	0.34	0.67	1.11	27.4
All Vehicles		2841	2.2	2840 ^{N1}	2.2	0.947	8.4	NA	46.3	331.0	0.28	0.63	0.77	18.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Do Minimum AM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	67	64.3	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
East: Darcy Road											
P2	Full	40	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E2*

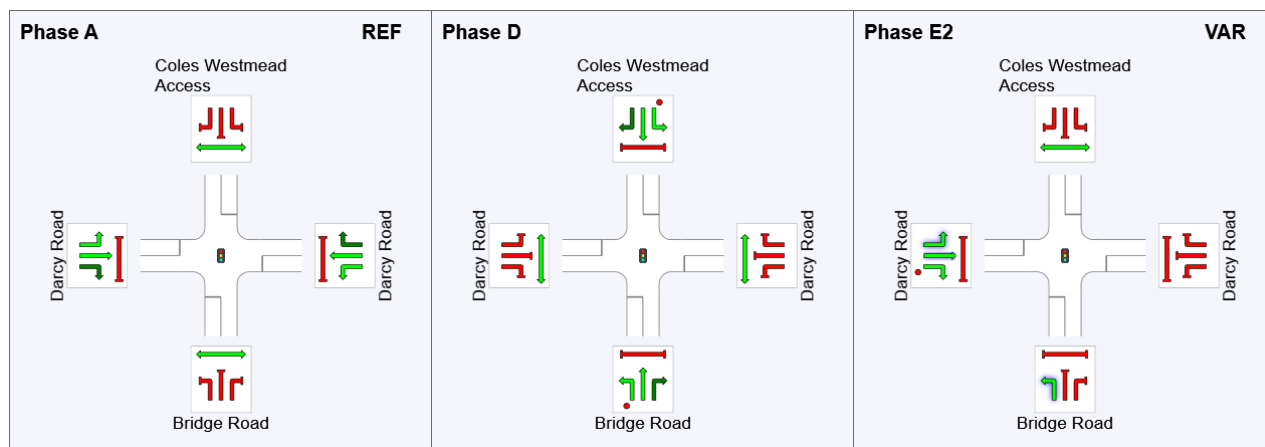
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E2
Phase Change Time (sec)	121	32	71
Green Time (sec)	44	32	44
Phase Time (sec)	51	38	51
Phase Split	36%	27%	36%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	471	0.2	471	0.2	0.638	4.1	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
3	R2	307	0.3	307	0.3	0.638	7.2	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
3u	U	4	0.0	4	0.0	0.638	8.6	LOS A	7.7	54.1	0.45	0.50	0.45	27.4
Approach		782	0.3	782	0.3	0.638	5.4	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
East: Alexandra Avenue														
4	L2	132	0.8	132	0.8	0.380	10.2	LOS A	2.3	15.9	0.75	0.88	0.76	39.9
6	R2	54	1.9	54	1.9	0.380	12.8	LOS A	2.3	15.9	0.75	0.88	0.76	40.4
6u	U	2	0.0	2	0.0	0.380	14.0	LOS A	2.3	15.9	0.75	0.88	0.76	40.4
Approach		188	1.1	188	1.1	0.380	11.0	LOS A	2.3	15.9	0.75	0.88	0.76	40.0
North: Bridge Road														
7	L2	175	0.6	174	0.6	1.085	101.6	LOS F	67.8	475.5	1.00	2.94	4.86	12.3
8	T1	682	0.1	677	0.1	1.085	101.1	LOS F	67.8	475.5	1.00	2.94	4.86	13.3
9u	U	1	0.0	1	0.0	1.085	105.3	LOS F	67.8	475.5	1.00	2.94	4.86	12.3
Approach		858	0.2	851 ^{N1}	0.2	1.085	101.2	LOS F	67.8	475.5	1.00	2.94	4.86	13.1
All Vehicles		1828	0.3	1821 ^{N1}	0.3	1.085	50.7	LOS D	67.8	475.5	0.74	1.68	2.54	16.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	54	0.0	54	0.0	0.841	66.3	LOS E	25.3	179.2	1.00	0.96	1.13	9.3
2	T1	637	1.4	637	1.4	0.841	62.0	LOS E	25.3	179.2	1.00	0.97	1.14	9.3
Approach		691	1.3	691	1.3	0.841	62.3	LOS E	25.3	179.2	1.00	0.97	1.14	9.3
East: Alexandra Avenue														
4	L2	33	0.0	33	0.0	0.876	72.9	LOS F	12.8	92.5	1.00	1.00	1.20	13.3
5	T1	245	0.0	245	0.0	* 0.876	68.5	LOS E	12.8	92.5	1.00	1.00	1.20	7.5
6	R2	312	21.5	312	21.5	0.876	75.7	LOS F	19.4	160.9	1.00	0.99	1.25	7.0
Approach		590	11.4	590	11.4	0.876	72.6	LOS F	19.4	160.9	1.00	0.99	1.23	7.6
North: Hawkesbury Road														
7	L2	351	19.1	288	19.1	0.733	16.1	LOS B	12.1	88.1	0.54	0.62	0.54	25.6
8	T1	913	1.1	749	1.0	0.733	24.4	LOS B	12.5	88.1	0.81	0.76	0.81	20.8
9	R2	96	0.0	79	0.0	0.733	39.0	LOS C	12.5	88.1	1.00	0.89	1.00	6.2
Approach		1360	5.7	1116 ^N ₁	5.6	0.733	23.3	LOS B	12.5	88.1	0.75	0.74	0.75	20.6
West: Alexandra Avenue														
10	L2	94	0.0	93	0.0	0.143	34.2	LOS C	4.1	28.6	0.69	0.72	0.69	28.8
11	T1	212	0.5	210	0.5	* 0.891	77.6	LOS F	16.1	113.0	1.00	1.04	1.31	21.3
Approach		306	0.3	304 ^{N1}	0.3	0.891	64.3	LOS E	16.1	113.0	0.90	0.94	1.12	22.9
All Vehicles		2947	5.2	2701 ^N ₁	5.7	0.891	48.7	LOS D	25.3	179.2	0.89	0.87	1.00	14.3
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	804	9.2	803	9.2	0.458	4.4	LOS A	8.8	63.6	0.28	0.27	0.28	25.0
3	R2	239	0.0	239	0.0	* 0.458	14.6	LOS B	8.8	63.6	0.69	0.70	0.69	37.6
Approach		1043	7.1	1042 ^N ₁	7.1	0.458	6.7	LOS A	8.8	63.6	0.37	0.37	0.37	32.9
East: Railway Parade														
4	L2	298	0.3	298	0.3	0.557	19.0	LOS B	10.8	75.9	0.66	0.76	0.66	33.1
6	R2	27	0.0	27	0.0	0.145	66.8	LOS E	1.7	11.9	0.94	0.72	0.94	17.9
Approach		325	0.3	325	0.3	0.557	23.0	LOS B	10.8	75.9	0.69	0.76	0.69	30.9
North: Hawkesbury Road														
7	L2	79	0.0	61	0.0	0.134	50.3	LOS D	4.9	43.8	0.83	0.71	0.83	24.2
8	T1	1061	7.4	817	7.8	* 0.883	55.4	LOS D	27.1	196.5	0.99	0.94	1.10	7.7
Approach		1140	6.8	878 ^{N1}	7.3	0.883	55.1	LOS D	27.1	196.5	0.98	0.93	1.08	9.3
All Vehicles		2508	6.1	2245 ^N ₁	6.8	0.883	28.0	LOS B	27.1	196.5	0.66	0.64	0.69	18.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

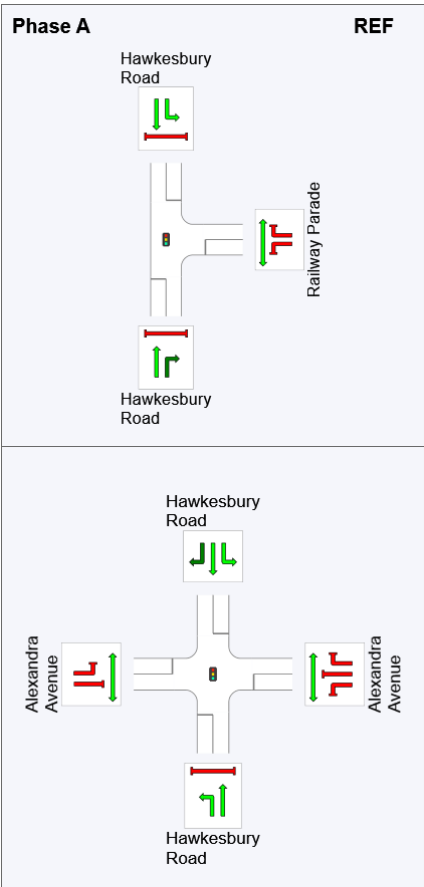
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

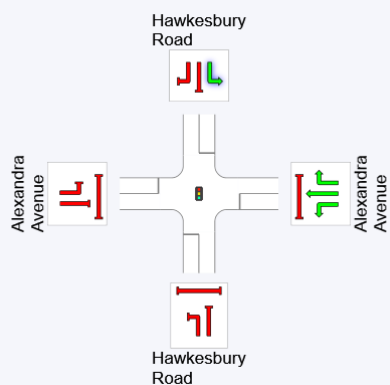
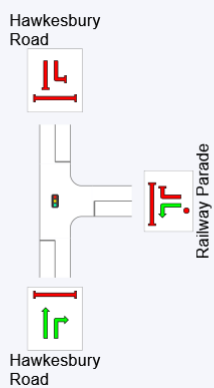
Phase	A	E	D	C
Phase Change Time (sec)	0	39	77	103
Green Time (sec)	33	29	17	31
Phase Time (sec)	42	38	23	37
Phase Split	30%	27%	16%	26%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

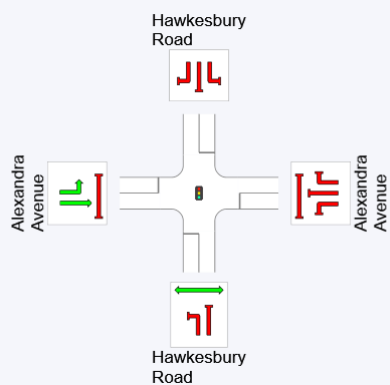
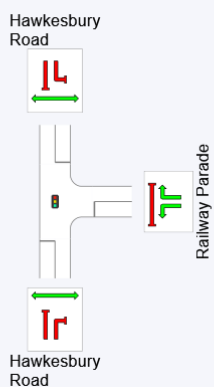
Output Phase Sequence (CCG)

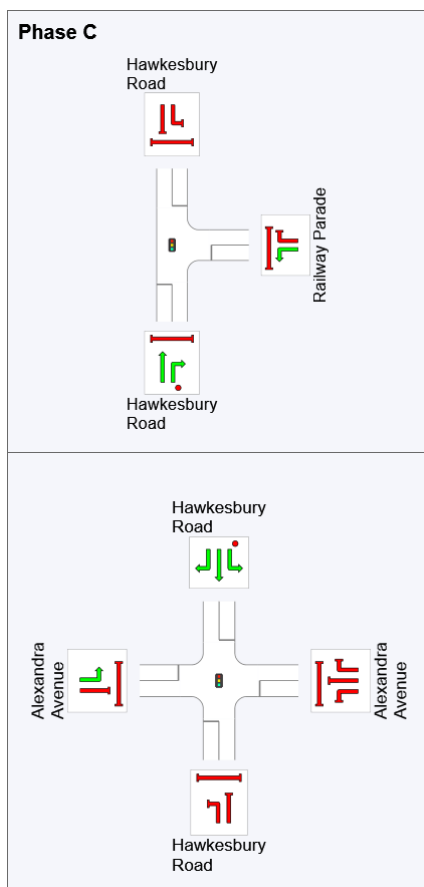


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.215	80.5	LOS F	0.6	15.9	0.99	0.69	0.99	10.6
Approach		8	100.0	8	100.0	0.215	80.5	LOS F	0.6	15.9	0.99	0.69	0.99	10.6
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.144	78.5	LOS F	0.6	15.3	0.98	0.68	0.98	10.6
25	T1	537	2.4	537	2.4	* 1.280	296.9	LOS F	85.4	610.1	0.98	2.07	2.51	2.3
26	R2	347	2.6	347	2.6	* 1.228	263.4	LOS F	51.1	366.0	1.00	1.69	2.35	2.5
Approach		892	3.4	892	3.4	1.280	281.9	LOS F	85.4	610.1	0.99	1.91	2.43	2.4
NorthWest: Darcy Road														
27	L2	198	5.1	186	5.3	1.174	21.8	LOS B	5.0	65.1	0.53	0.67	0.56	24.3
29	R2	604	10.4	568	10.8	* 1.257	268.2	LOS F	20.0	146.9	0.95	1.69	2.34	1.4
Approach		802	9.1	754 ^{N1}	9.4	1.257	207.4	LOS F	20.0	146.9	0.84	1.44	1.90	2.5
SouthWest: Hawkesbury Road														
30	L2	514	13.2	514	13.2	0.337	13.4	LOS A	11.0	81.7	0.37	0.66	0.37	21.8
31	T1	317	2.5	317	2.5	0.395	49.3	LOS D	19.3	138.1	0.97	0.82	0.97	15.8
Approach		831	9.1	831	9.2	0.395	27.1	LOS B	19.3	138.1	0.60	0.72	0.60	17.8
All Vehicles		2533	7.4	2485 ^{N1}	7.5	1.280	173.5	LOS F	85.4	610.1	0.81	1.37	1.65	3.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.2	LOS D	0.1	0.1	0.92	0.92	55.9	30.9	0.55
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43

SouthWest: Hawkesbury Road											
P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42	
All Pedestrians	580	61.0	LOS F	0.8	0.8	0.96	0.96	124.9	76.7	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

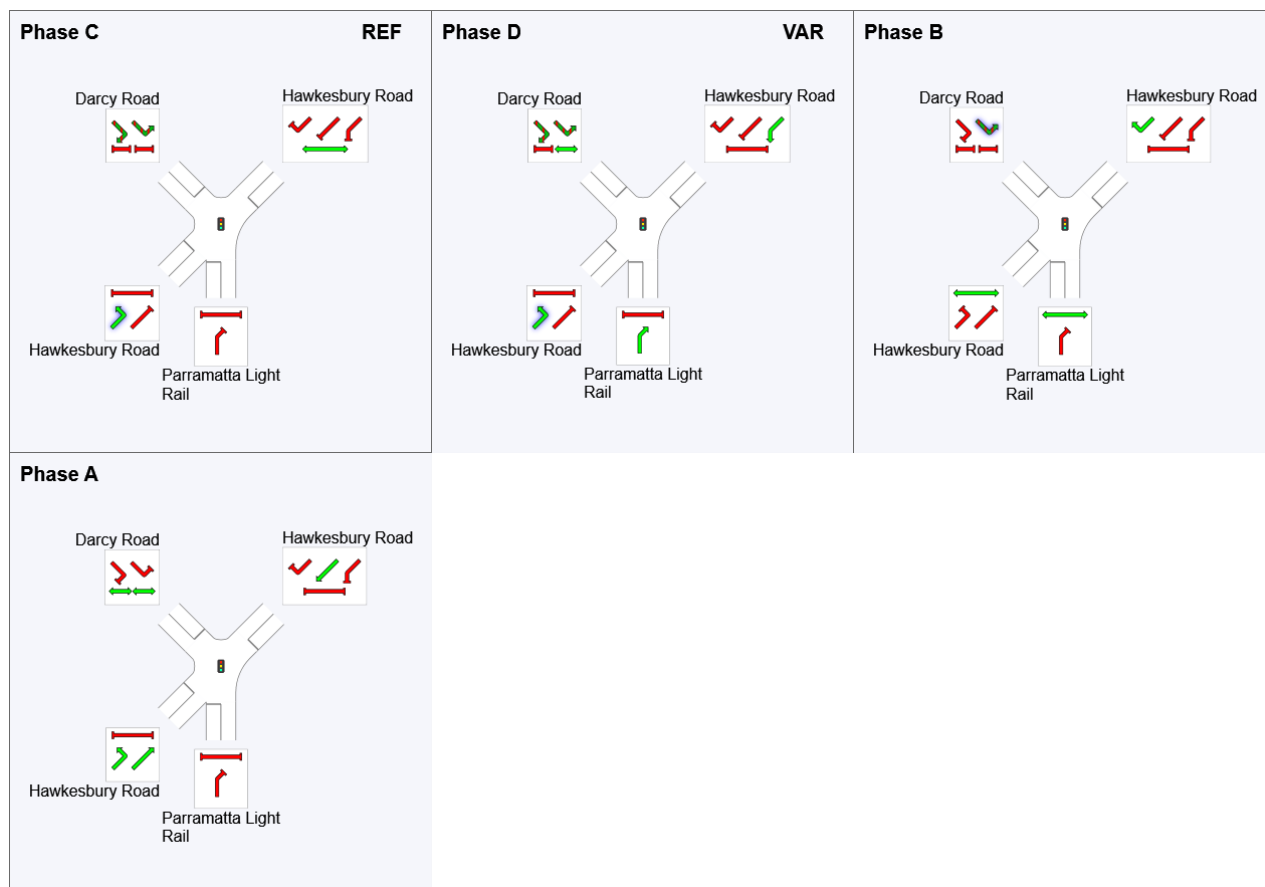
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	42	57	90
Green Time (sec)	36	7	24	39
Phase Time (sec)	44	16	33	47
Phase Split	31%	11%	24%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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■ **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum PM Peak)]**
■ **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	5	0.0	5	0.0	0.239	11.7	LOS A	0.1	1.0	0.03	0.01	0.04	30.4
22	T1	979	7.4	922	7.6	0.239	0.1	LOS A	0.1	1.0	0.02	0.00	0.02	38.9
Approach		984	7.3	927 ^{N1}	7.6	0.239	0.2	NA	0.1	1.0	0.02	0.00	0.02	38.8
NorthWest: Darcy Road														
28	T1	804	8.5	746	8.9	0.245	0.0	LOS A	11.4	83.0	0.00	0.00	0.00	39.9
Approach		804	8.5	746 ^{N1}	8.9	0.245	0.0	NA	11.4	83.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.007	27.8	LOS B	0.0	0.2	0.89	0.81	0.89	4.3
Approach		1	0.0	1	0.0	0.007	27.8	LOS B	0.0	0.2	0.89	0.81	0.89	4.3
All Vehicles		1789	7.8	1674 ^{N1}	8.4	0.245	0.1	NA	11.4	83.0	0.01	0.00	0.01	39.3

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.341	14.6	LOS B	12.5	90.8	0.48	0.42	0.48	19.3
22	T1	935	7.6	882	7.9	0.341	10.6	LOS A	12.5	90.8	0.45	0.40	0.45	19.4
23	R2	45	0.0	42	0.0	* 0.531	81.0	LOS F	3.1	21.5	1.00	0.74	1.01	8.6
Approach		981	7.2	925 ^{N1}	7.5	0.531	13.8	LOS A	12.5	90.8	0.48	0.42	0.48	17.3
NorthEast: Westmead Dental Hospital Access														
24	L2	46	0.0	46	0.0	0.069	4.8	LOS A	0.4	3.0	0.19	0.52	0.19	29.2
26	R2	37	0.0	37	0.0	* 0.146	57.8	LOS E	2.2	15.3	0.89	0.72	0.89	7.6
Approach		83	0.0	83	0.0	0.146	28.4	LOS B	2.2	15.3	0.50	0.61	0.50	12.7
NorthWest: Darcy Road														
27	L2	66	0.0	63	0.0	0.240	13.6	LOS A	12.0	86.8	0.44	0.42	0.44	26.9
28	T1	757	9.0	726	9.4	0.240	11.1	LOS A	12.0	86.8	0.48	0.44	0.48	18.2
29	R2	2	50.0	2	51.2	0.022	76.6	LOS F	0.1	1.4	1.00	0.61	1.00	6.7
Approach		825	8.4	791 ^{N1}	8.7	0.240	11.5	LOS A	12.0	86.8	0.48	0.44	0.48	19.1
SouthWest: Parramatta Marist High School Access														
30	L2	3	0.0	3	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
32	R2	1	0.0	1	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
Approach		4	0.0	4	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
All Vehicles		1893	7.4	1803 ^{N1}	7.8	0.531	13.5	LOS A	12.5	90.8	0.48	0.44	0.48	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	154	64.3	LOS F	0.3	0.3	0.96	0.96	98.9	41.4	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

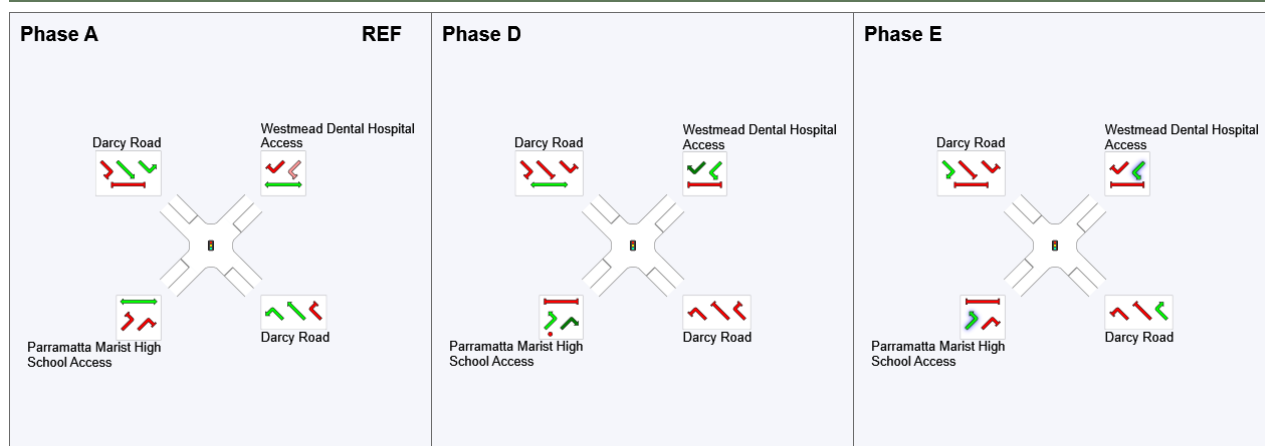
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.177	3.7	LOS A	2.2	16.3	0.00	0.00	0.00	26.8
22	T1	975	7.5	923	7.8	0.177	0.0	LOS A	5.5	40.3	0.00	0.00	0.00	39.9
Approach		976	7.5	923 ^{N1}	7.7	0.177	0.0	NA	5.5	40.3	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	825	8.2	791	8.6	0.200	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		825	8.2	791 ^{N1}	8.6	0.200	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	25	0.0	25	0.0	0.054	1.7	LOS A	0.2	1.2	0.42	0.28	0.42	18.4
Approach		25	0.0	25	0.0	0.054	1.7	LOS A	0.2	1.2	0.42	0.28	0.42	18.4
All Vehicles		1826	7.7	1739 ^{N1}	8.1	0.200	0.0	NA	5.5	40.3	0.01	0.00	0.01	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum PM Peak)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

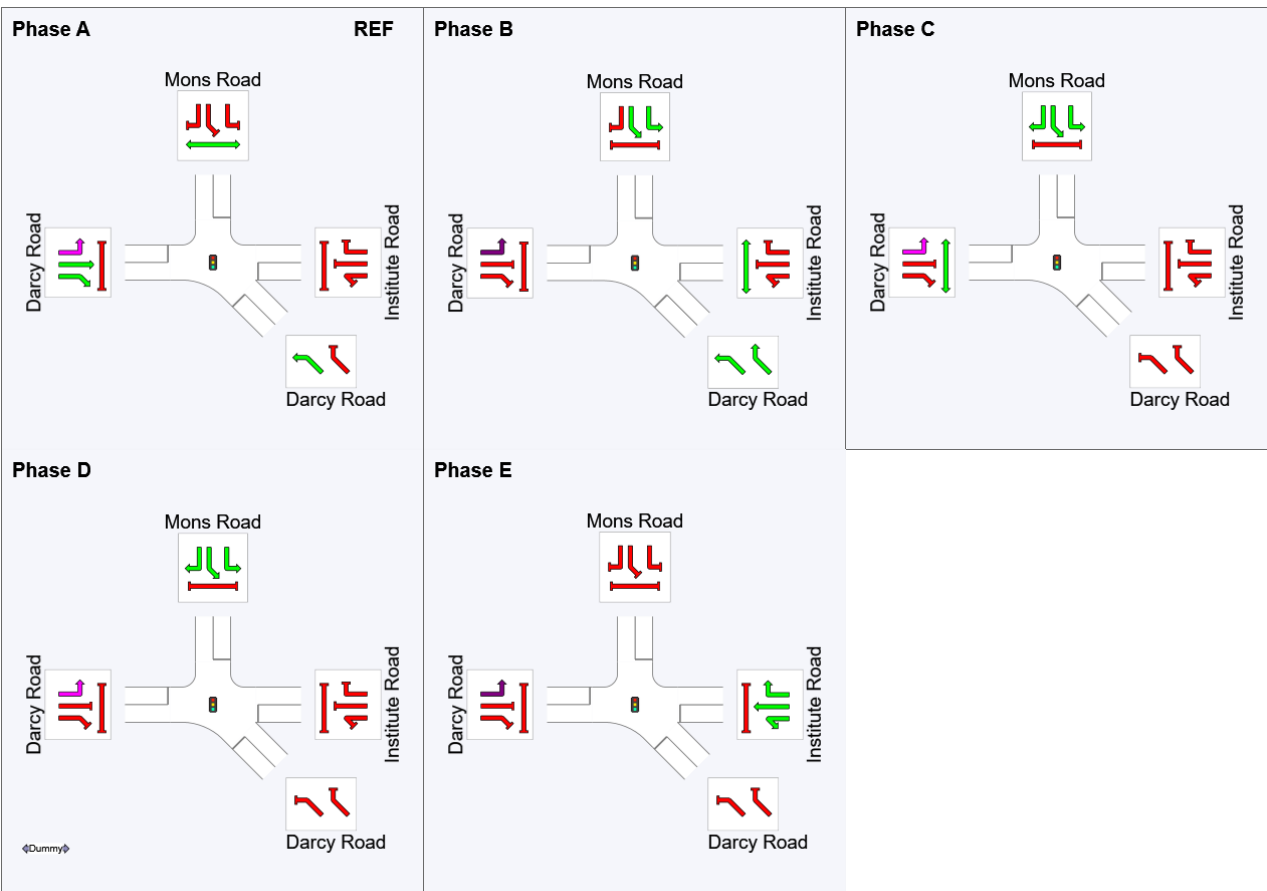
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	78	110	2	12
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 Do Minimum PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

1500 - 1600
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	244	4.1	244	4.1	0.551	10.4	LOS A	2.8	20.0	0.65	1.39	1.04	9.4
Approach		244	4.1	244	4.1	0.551	10.4	LOS A	2.8	20.0	0.65	1.39	1.04	9.4
East: Darcy Road														
4	L2	57	8.8	52	9.4	0.030	7.3	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	1325	1.4	1197	1.5	0.310	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1382	1.7	1249 ^{N1}	1.9	0.310	0.3	NA	0.0	0.0	0.00	0.03	0.00	38.0
West: Darcy Road														
11	T1	645	2.5	644	2.5	0.217	2.1	LOS A	3.6	26.0	0.00	0.36	0.00	37.0
12	R2	96	4.2	96	4.2	0.328	15.3	LOS B	0.8	5.7	0.75	0.97	0.87	25.5
Approach		741	2.7	740 ^{N1}	2.7	0.328	3.8	LOS A	3.6	26.0	0.10	0.44	0.11	35.0
All Vehicles		2367	2.3	2233 ^{N1}	2.4	0.551	2.6	NA	3.6	26.0	0.10	0.31	0.15	21.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
South: Bridge Road														
1	L2	229	1.3	227	1.3	* 0.439	41.6	LOS C	11.7	82.5	0.84	0.78	0.84	25.5
2	T1	29	0.0	29	0.0	* 0.739	76.7	LOS F	8.2	60.7	1.00	0.86	1.14	15.5
3	R2	87	9.2	86	9.3	0.739	76.3	LOS F	8.2	60.7	1.00	0.86	1.14	15.2
Approach		345	3.2	342 ^{N1}	3.2	0.739	53.3	LOS D	11.7	82.5	0.89	0.81	0.94	21.5
East: Darcy Road														
4	L2	284	4.6	263	4.9	* 0.359	20.2	LOS B	19.7	141.2	0.46	0.51	0.46	27.7
5	T1	1257	1.4	1161	1.4	0.359	13.4	LOS A	19.7	141.2	0.40	0.40	0.40	35.0
6	R2	28	0.0	26	0.0	0.055	12.8	LOS A	0.4	2.6	0.38	0.61	0.38	29.0
Approach		1569	1.9	1450 ^{N1}	2.0	0.359	14.6	LOS B	19.7	141.2	0.41	0.42	0.41	33.7
North: Coles Westmead Access														
7	L2	26	0.0	26	0.0	0.068	43.0	LOS D	1.3	9.4	0.83	0.61	0.83	4.3
8	T1	45	0.0	45	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	3.1
9	R2	42	0.0	42	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	8.8
Approach		113	0.0	113	0.0	0.573	61.8	LOS E	5.9	41.3	0.96	0.74	0.96	5.8
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.310	16.3	LOS B	13.6	96.2	0.48	0.46	0.48	23.6
11	T1	628	1.4	628	1.4	0.310	11.2	LOS A	13.6	96.2	0.46	0.42	0.46	25.6
12	R2	335	1.8	335	1.8	0.834	33.1	LOS C	13.7	97.7	0.70	0.88	0.86	13.5
Approach		1020	1.5	1020	1.5	0.834	18.6	LOS B	13.7	97.7	0.54	0.57	0.59	19.8
All Vehicles		3047	1.8	2925 ^{N1}	1.9	0.834	22.4	LOS B	19.7	141.2	0.53	0.53	0.56	25.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, E2

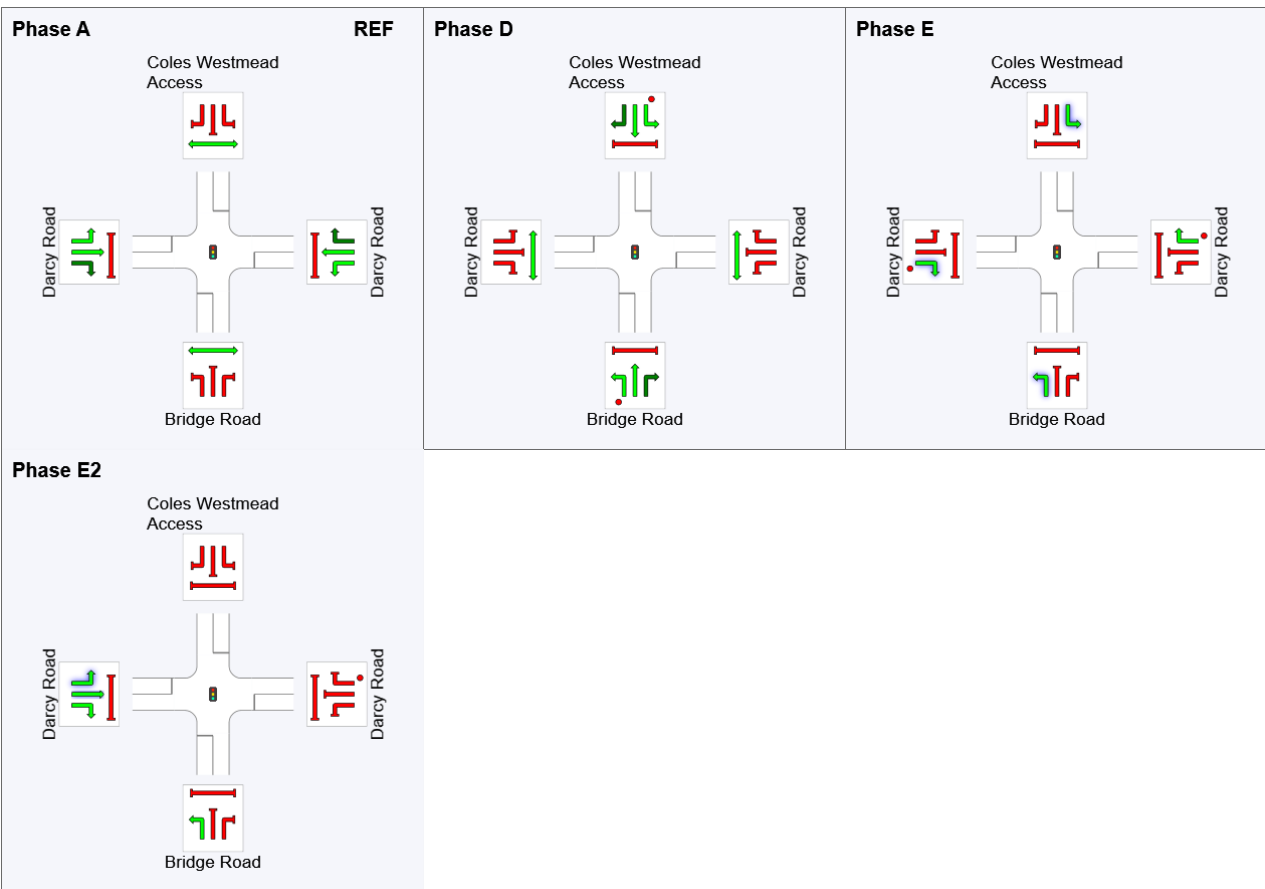
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	454	2.4	454	2.4	0.632	5.3	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
3	R2	162	0.6	162	0.6	0.632	8.4	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
3u	U	1	100.0	1	100.0	0.632	11.5	LOS A	6.5	46.5	0.68	0.61	0.68	24.1
Approach		617	2.1	617	2.1	0.632	6.2	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
East: Alexandra Avenue														
4	L2	253	0.4	242	0.4	0.787	22.0	LOS B	8.4	59.3	0.88	1.19	1.43	33.6
6	R2	152	0.0	146	0.0	0.787	24.5	LOS B	8.4	59.3	0.88	1.19	1.43	33.5
6u	U	1	0.0	1	0.0	0.787	25.8	LOS B	8.4	59.3	0.88	1.19	1.43	33.5
Approach		406	0.2	389 ^{N1}	0.3	0.787	22.9	LOS B	8.4	59.3	0.88	1.19	1.43	33.6
North: Bridge Road														
7	L2	105	0.0	102	0.0	0.817	9.6	LOS A	12.6	90.2	0.84	0.74	0.95	39.0
8	T1	687	2.8	670	2.8	0.817	9.3	LOS A	12.6	90.2	0.84	0.74	0.95	38.8
9u	U	1	0.0	1	0.0	0.817	13.4	LOS A	12.6	90.2	0.84	0.74	0.95	39.0
Approach		793	2.4	774 ^{N1}	2.4	0.817	9.4	LOS A	12.6	90.2	0.84	0.74	0.95	38.9
All Vehicles		1816	1.8	1780 ^{N1}	1.9	0.817	11.2	LOS A	12.6	90.2	0.79	0.79	0.96	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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Appendix G: Future Year 2023 and 2033 With Development SIDRA Modelling Results



CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	21	4.8	21	4.8	1.412	401.2	LOS F	92.0	648.9	1.00	2.41	2.93	1.7
2	T1	998	0.7	998	0.7	* 1.412	396.2	LOS F	104.2	733.8	1.00	2.43	2.93	1.7
Approach		1019	0.8	1019	0.8	1.412	396.4	LOS F	104.2	733.8	1.00	2.43	2.93	1.7
East: Alexandra Avenue														
4	L2	38	0.0	38	0.0	1.427	440.1	LOS F	13.7	101.8	1.00	2.13	3.05	2.6
5	T1	115	0.0	115	0.0	* 1.427	435.6	LOS F	13.7	101.8	1.00	2.13	3.05	1.3
6	R2	333	17.4	333	17.4	1.427	441.1	LOS F	42.4	340.9	1.00	1.96	3.06	1.3
Approach		486	11.9	486	11.9	1.427	439.7	LOS F	42.4	340.9	1.00	2.01	3.06	1.4
North: Hawkesbury Road														
7	L2	364	16.8	364	16.8	* 0.572	11.0	LOS A	11.8	86.8	0.34	0.52	0.34	29.6
8	T1	432	2.1	432	2.1	0.572	29.7	LOS C	12.4	88.1	0.68	0.71	0.68	18.3
9	R2	57	0.0	57	0.0	0.572	55.9	LOS D	12.4	88.1	1.00	0.90	1.00	4.4
Approach		853	8.2	853	8.2	0.572	23.5	LOS B	12.4	88.1	0.56	0.64	0.56	20.2
West: Alexandra Avenue														
10	L2	247	0.0	244	0.0	0.462	43.1	LOS D	13.0	91.0	0.83	0.80	0.83	25.9
11	T1	292	0.3	289	0.3	* 1.050	136.3	LOS F	29.9	210.0	1.00	1.38	1.78	14.6
Approach		539	0.2	533 ^{N1}	0.2	1.050	93.6	LOS F	29.9	210.0	0.92	1.12	1.35	17.8
All Vehicles		2897	4.7	2891 ^{N1}	4.7	1.427	237.8	LOS F	104.2	733.8	0.86	1.59	1.96	4.1
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1286	4.9	999	4.6	0.523	6.3	LOS A	12.1	88.1	0.42	0.42	0.42	20.9
3	R2	292	0.3	227	0.3	0.523	10.6	LOS A	10.7	77.0	0.46	0.53	0.46	41.3
Approach		1578	4.1	1226 ^{N1}	3.8	0.523	7.1	LOS A	12.1	88.1	0.43	0.44	0.43	30.9
East: Railway Parade														
4	L2	183	1.1	183	1.1	0.405	25.3	LOS B	7.4	52.4	0.69	0.75	0.69	29.8
6	R2	30	0.0	30	0.0	0.185	67.6	LOS E	1.9	13.4	0.95	0.73	0.95	17.7
Approach		213	0.9	213	0.9	0.405	31.2	LOS C	7.4	52.4	0.73	0.74	0.73	27.2
North: Hawkesbury Road														
7	L2	110	0.0	110	0.0	0.145	37.9	LOS C	6.0	51.9	0.63	0.65	0.63	27.7
8	T1	669	12.9	669	12.9	0.472	22.5	LOS B	12.5	92.9	0.57	0.50	0.57	15.6
Approach		779	11.0	779	11.0	0.472	24.7	LOS B	12.5	92.9	0.58	0.52	0.58	19.1
All Vehicles		2570	5.9	2218 ^{N1}	6.9	0.523	15.6	LOS B	12.5	92.9	0.51	0.50	0.51	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

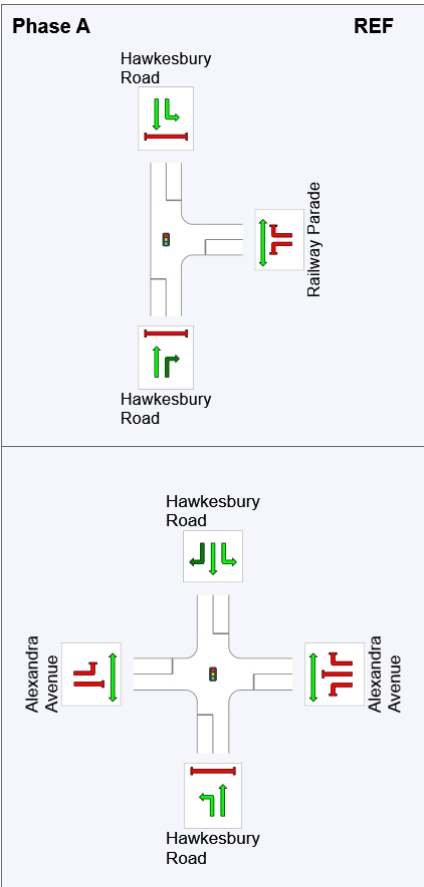
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

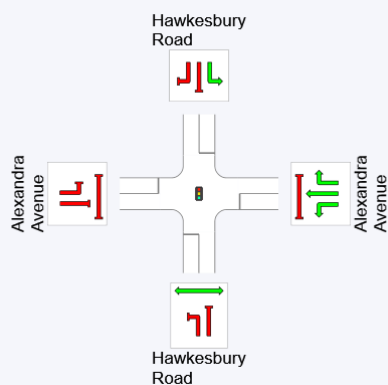
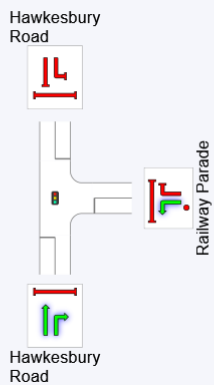
Phase	A	E	D	C
Phase Change Time (sec)	0	54	83	109
Green Time (sec)	48	20	17	25
Phase Time (sec)	57	29	23	31
Phase Split	41%	21%	16%	22%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

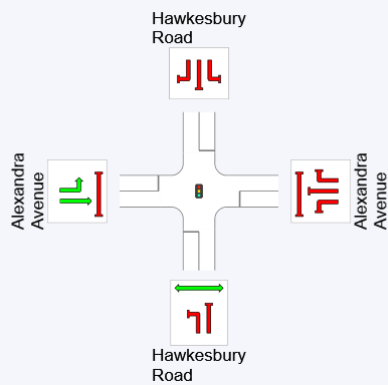
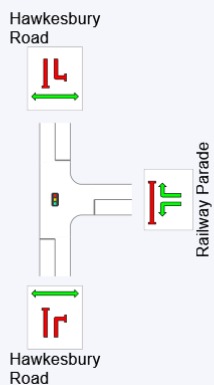
Output Phase Sequence (CCG)

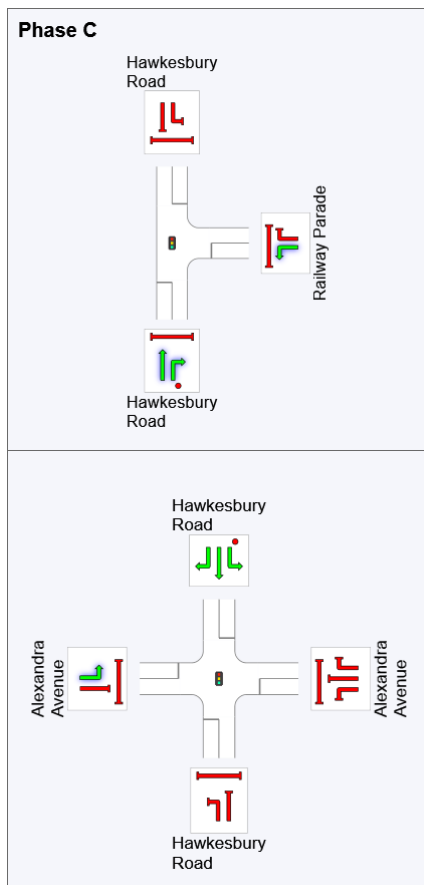


Phase E



Phase D





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
Approach		8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	77.8	LOS F	0.6	15.4	0.97	0.69	0.97	10.7
25	T1	278	4.3	278	4.3	* 0.579	47.7	LOS D	16.3	118.7	0.92	0.78	0.92	11.4
26	R2	131	3.8	131	3.8	* 0.570	64.3	LOS E	8.5	61.7	0.98	0.80	0.98	8.9
Approach		417	6.0	417	6.0	0.579	53.5	LOS D	16.3	118.7	0.94	0.79	0.94	10.5
NorthWest: Darcy Road														
27	L2	245	4.5	245	4.5	0.545	22.2	LOS B	6.9	49.1	0.65	0.70	0.65	21.9
29	R2	501	13.6	501	13.6	* 0.579	50.6	LOS D	15.8	117.7	0.84	0.77	0.84	6.7
Approach		746	10.6	746	10.6	0.579	41.3	LOS C	15.8	117.7	0.77	0.75	0.77	10.8
SouthWest: Hawkesbury Road														
30	L2	920	6.3	733	5.9	0.551	13.7	LOS A	18.7	134.8	0.42	0.69	0.42	21.5
31	T1	397	1.5	317	1.4	0.518	47.9	LOS D	18.2	129.2	0.90	0.79	0.90	16.1
Approach		1317	4.9	1050 ^N ₁	4.6	0.551	24.1	LOS B	18.7	134.8	0.57	0.72	0.57	18.4
All Vehicles		2488	7.1	2221 ^N ₁	7.9	0.579	35.6	LOS C	18.7	134.8	0.71	0.74	0.71	13.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^N₁ Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	29.6	LOS C	0.1	0.1	0.92	0.92	55.3	30.9	0.56

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	61.7	LOS F	0.8	0.8	0.96	0.96	134.9	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

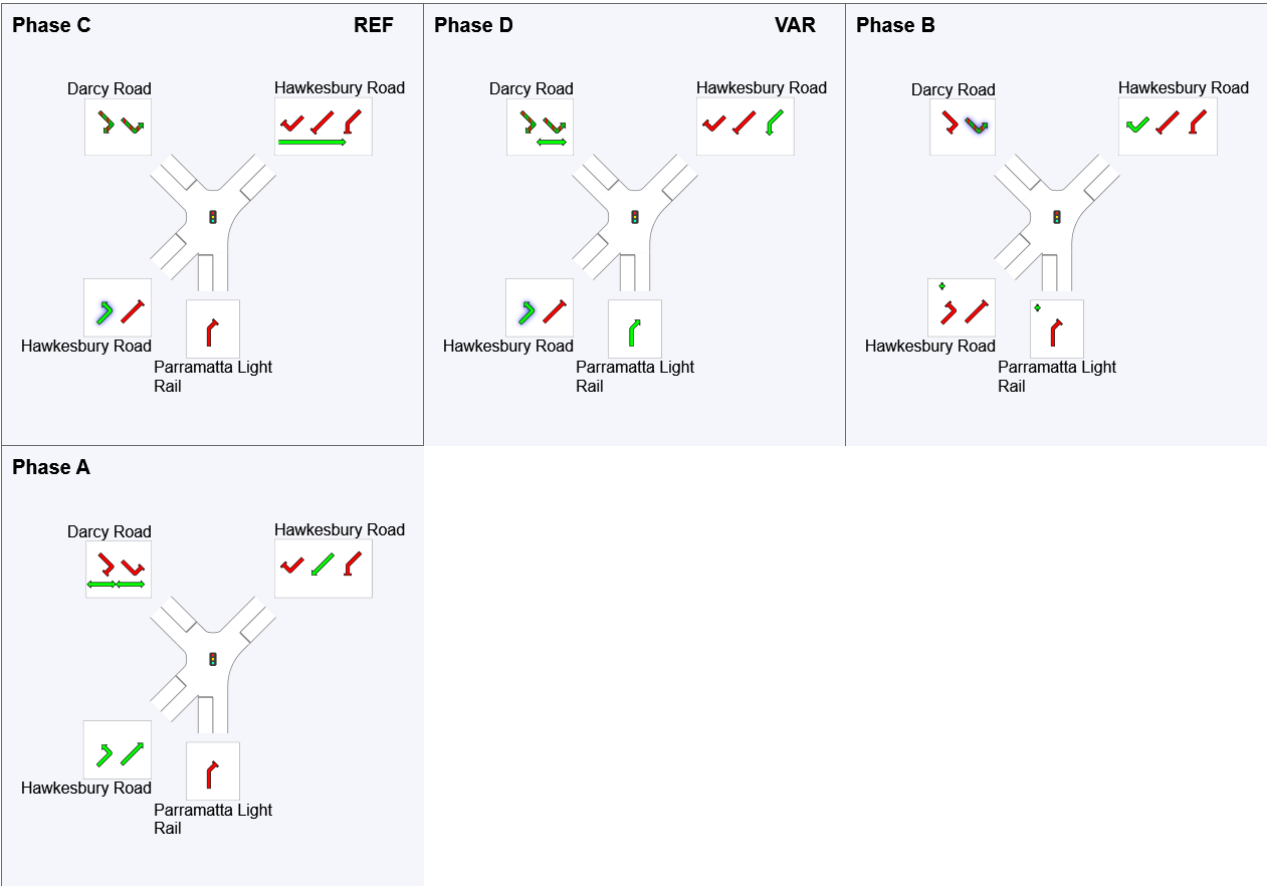
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	45	62	92
Green Time (sec)	39	9	21	37
Phase Time (sec)	47	18	30	45
Phase Split	34%	13%	21%	32%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development AM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

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

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

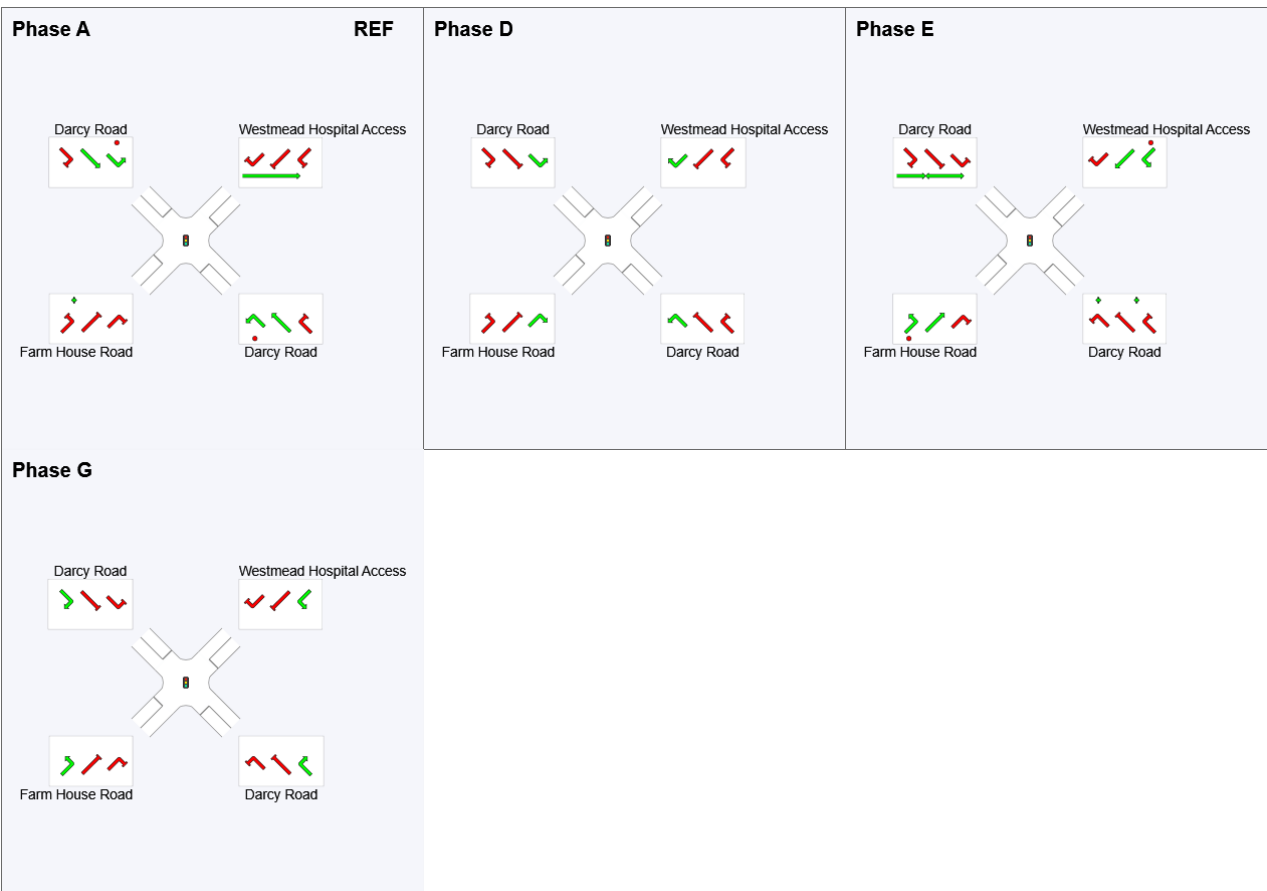
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	350	0.0	304	0.0	0.477	10.3	LOS A	2.3	16.4	0.71	0.96	0.97	16.7
22	T1	661	10.1	572	9.7	0.292	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1011	6.6	876 ^{N1}	6.4	0.477	3.6	NA	2.3	16.4	0.25	0.33	0.34	24.8
NorthWest: Darcy Road														
28	T1	849	10.1	849	10.1	0.259	0.0	LOS A	1.0	7.7	0.00	0.00	0.00	39.9
Approach		849	10.1	849	10.1	0.259	0.0	NA	1.0	7.7	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.40	0.61	11.7
Approach		1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.40	0.61	11.7
All Vehicles		1861	8.2	1726 ^{N1}	8.9	0.477	1.8	NA	2.3	16.4	0.13	0.17	0.17	31.6

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	0.225	4.1	LOS A	0.5	3.4	0.03	0.04	0.03	27.4
22	T1	607	11.0	537	10.7	0.225	0.7	LOS A	0.5	3.4	0.03	0.03	0.03	37.3
23	R2	45	0.0	40	0.0	* 0.301	76.6	LOS F	2.8	19.6	1.00	0.74	1.00	8.0
Approach		660	10.2	584 ^{N1}	9.9	0.301	5.9	LOS A	2.8	19.6	0.09	0.08	0.09	24.6
NorthEast: Westmead Dental Hospital Access														
24	L2	16	0.0	16	0.0	0.018	0.5	LOS A	0.1	0.6	0.12	0.09	0.12	19.6
26	R2	29	0.0	29	0.0	0.165	60.8	LOS E	1.8	12.7	0.93	0.69	0.93	6.1
Approach		45	0.0	45	0.0	0.165	39.4	LOS C	1.8	12.7	0.64	0.48	0.64	8.1
NorthWest: Darcy Road														
27	L2	77	0.0	77	0.0	* 0.344	8.8	LOS A	4.8	35.3	0.20	0.25	0.20	21.8
28	T1	749	11.5	748	11.5	0.344	4.1	LOS A	4.8	35.3	0.16	0.17	0.16	27.4
29	R2	5	0.0	5	0.0	0.038	73.6	LOS F	0.3	2.4	1.00	0.65	1.00	6.9
Approach		831	10.3	830 ^{N1}	10.4	0.344	5.0	LOS A	4.8	35.3	0.17	0.18	0.17	25.4
SouthWest: Parramatta Marist High School Access														
30	L2	156	0.0	156	0.0	0.687	50.9	LOS D	14.7	103.0	0.98	0.83	0.99	5.0
32	R2	84	0.0	84	0.0	* 0.687	50.9	LOS D	14.7	103.0	0.98	0.83	0.99	5.0
Approach		240	0.0	240	0.0	0.687	50.9	LOS D	14.7	103.0	0.98	0.83	0.99	5.0
All Vehicles		1776	8.6	1699 ^{N1}	9.0	0.687	12.7	LOS A	14.7	103.0	0.27	0.25	0.27	16.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	97.8	40.2	0.41

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

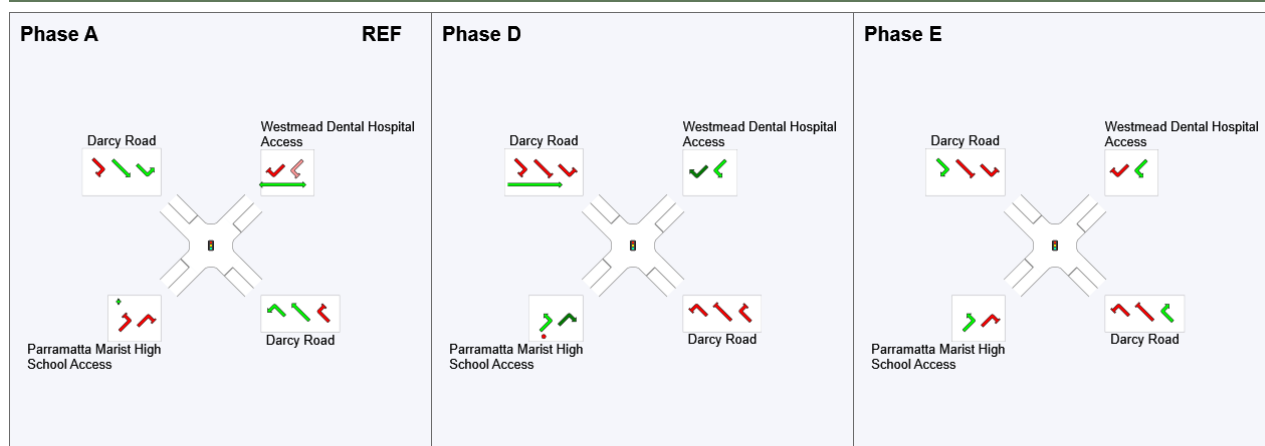
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 With Development)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.161	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	793	8.6	738	8.2	0.161	0.0	LOS A	7.6	55.3	0.00	0.00	0.00	39.9
Approach		794	8.6	739 ^{N1}	8.2	0.161	0.0	NA	7.6	55.3	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	831	10.1	830	10.1	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		831	10.1	830 ^{N1}	10.1	0.210	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
Approach		1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
All Vehicles		1626	9.3	1570 ^{N1}	9.7	0.210	0.0	NA	7.6	55.3	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

**Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 With Development AM Peak)]**

■ ■ Network: N101 [AM Peak
(Network Folder: 2023 With
Development)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	517	1.5	494	1.5	0.273	26.8	LOS B	11.3	80.2	0.68	0.72	0.68	7.2
23a	R1	275	22.5	261	22.1	* 0.975	95.6	LOS F	11.6	89.8	1.00	1.06	1.33	13.8
Approach		792	8.8	755 ^{N1}	8.7	0.975	50.6	LOS D	11.6	89.8	0.79	0.83	0.91	11.8
East: Institute Road														
4b	L3	46	2.2	46	2.2	0.457	74.8	LOS F	3.7	26.4	1.00	0.76	1.00	13.0
5	T1	68	2.9	68	2.9	* 0.457	70.2	LOS E	4.3	30.6	1.00	0.76	1.00	13.4
6	R2	2	0.0	2	0.0	0.457	74.3	LOS F	4.3	30.6	1.00	0.76	1.00	21.2
Approach		116	2.6	116	2.6	0.457	72.1	LOS F	4.3	30.6	1.00	0.76	1.00	13.4
North: Mons Road														
7	L2	7	0.0	7	0.0	0.155	23.4	LOS B	4.4	38.9	0.57	0.59	0.57	31.4
7a	L1	154	48.7	154	48.7	0.155	21.7	LOS B	4.4	38.9	0.57	0.58	0.57	26.9
9	R2	108	12.0	108	12.0	0.210	42.6	LOS D	5.5	42.2	0.79	0.73	0.79	20.4
Approach		269	32.7	269	32.7	0.210	30.2	LOS C	5.5	42.2	0.66	0.64	0.66	24.1
West: Darcy Road														
10	L2	177	9.6	177	9.6	0.878	55.6	LOS D	12.6	91.4	1.00	1.01	1.11	19.5
11	T1	202	0.5	202	0.5	* 0.878	52.4	LOS D	12.6	91.4	1.00	1.01	1.11	17.3
12a	R1	631	1.3	630	1.3	0.878	58.0	LOS E	12.9	91.4	1.00	0.98	1.11	4.3
Approach		1010	2.6	1008 ^{N1}	2.6	0.878	56.5	LOS D	12.9	91.4	1.00	0.99	1.11	11.0
All Vehicles		2187	8.6	2148 ^{N1}	8.7	0.975	51.9	LOS D	12.9	91.4	0.88	0.88	0.98	13.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 With
Development)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

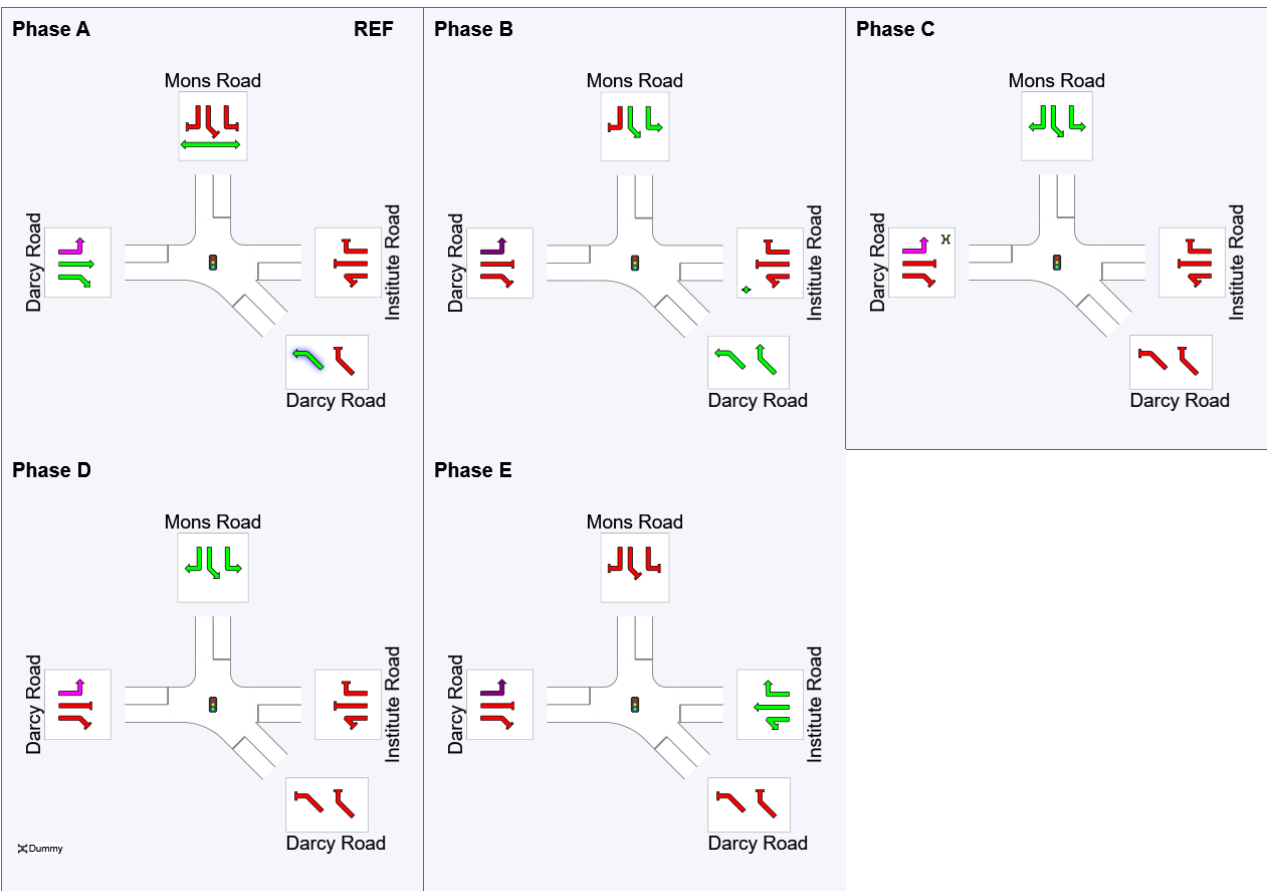
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	48	73	110	124
Green Time (sec)	42	19	31	8	10
Phase Time (sec)	48	25	37	14	16
Phase Split	34%	18%	26%	10%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 With Development AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2023 With Development)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	250	2.0	250	2.0	0.392	4.6	LOS A	1.5	11.0	0.45	0.94	0.49	9.7
Approach		250	2.0	250	2.0	0.392	4.6	LOS A	1.5	11.0	0.45	0.94	0.49	9.7
East: Darcy Road														
4	L2	80	3.8	78	3.8	0.043	7.2	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	613	3.1	601	3.1	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		693	3.2	679 ^{N1}	3.2	0.157	0.8	NA	0.0	0.0	0.00	0.09	0.00	35.1
West: Darcy Road														
11	T1	1010	3.1	1008	3.1	0.264	2.1	LOS A	21.9	157.5	0.00	0.36	0.00	37.0
12	R2	193	2.6	193	2.6	0.369	10.6	LOS A	1.1	8.0	0.58	0.91	0.69	28.7
Approach		1203	3.0	1201 ^{N1}	3.0	0.369	3.5	LOS A	21.9	157.5	0.09	0.45	0.11	35.4
All Vehicles		2146	2.9	2130 ^{N1}	3.0	0.392	2.8	NA	21.9	157.5	0.11	0.39	0.12	23.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development AM Peak)] **Network: N101 [AM Peak (Network Folder: 2023 With Development)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	67	64.3	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
East: Darcy Road											
P2	Full	40	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2023 With Development AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2023 With Development)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E*

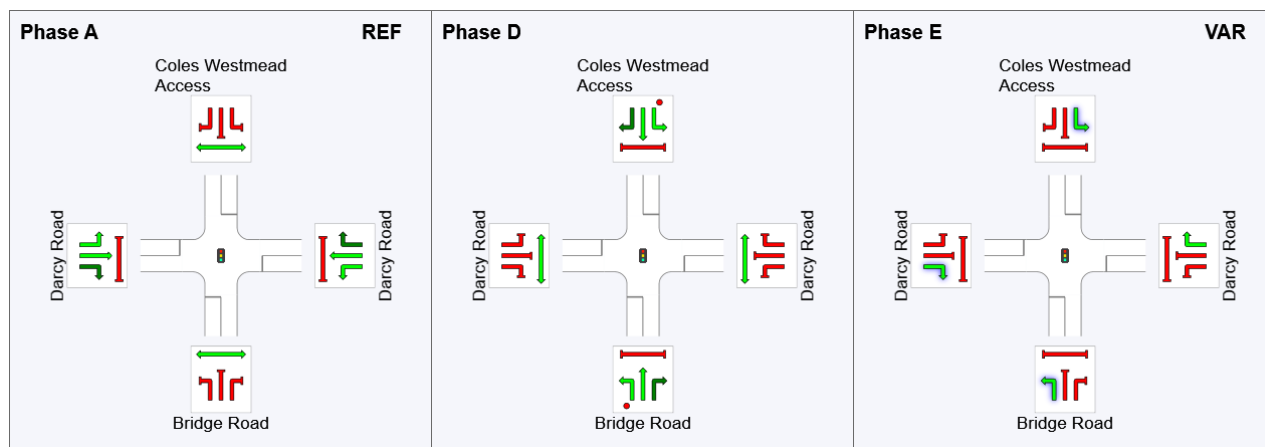
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	121	77	109
Green Time (sec)	89	25	10
Phase Time (sec)	96	27	17
Phase Split	69%	19%	12%

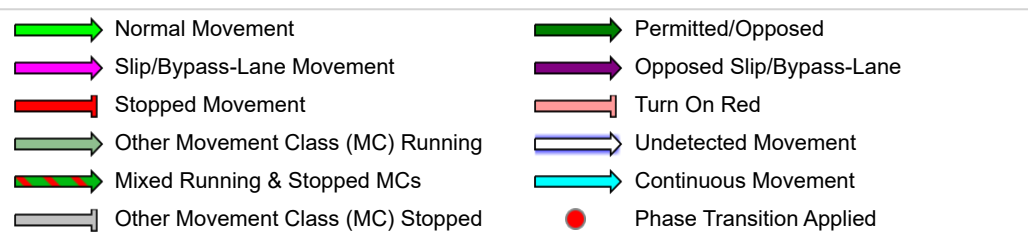
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 With Development AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	348	0.3	348	0.3	0.525	3.8	LOS A	5.3	37.1	0.30	0.51	0.30	24.9
3	R2	315	0.3	315	0.3	0.525	6.9	LOS A	5.3	37.1	0.30	0.51	0.30	24.9
3u	U	4	0.0	4	0.0	0.525	8.3	LOS A	5.3	37.1	0.30	0.51	0.30	27.9
Approach		667	0.3	667	0.3	0.525	5.3	LOS A	5.3	37.1	0.30	0.51	0.30	25.0
East: Alexandra Avenue														
4	L2	109	0.9	88	1.0	0.232	8.7	LOS A	1.2	8.3	0.60	0.77	0.60	40.8
6	R2	48	2.1	39	2.2	0.232	11.3	LOS A	1.2	8.3	0.60	0.77	0.60	41.5
6u	U	2	0.0	2	0.0	0.232	12.5	LOS A	1.2	8.3	0.60	0.77	0.60	41.5
Approach		159	1.3	129 ^{N1}	1.4	0.232	9.5	LOS A	1.2	8.3	0.60	0.77	0.60	41.0
North: Bridge Road														
7	L2	247	0.4	247	0.4	1.024	61.5	LOS E	46.4	325.7	1.00	2.19	3.45	17.5
8	T1	552	0.2	552	0.2	1.024	61.1	LOS E	46.4	325.7	1.00	2.19	3.45	18.7
9u	U	1	0.0	1	0.0	1.024	65.3	LOS E	46.4	325.7	1.00	2.19	3.45	17.5
Approach		800	0.3	800	0.3	1.024	61.2	LOS E	46.4	325.7	1.00	2.19	3.45	18.3
All Vehicles		1626	0.4	1596 ^{N1}	0.4	1.024	33.7	LOS C	46.4	325.7	0.68	1.37	1.90	20.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2023 With Development)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	43	0.0	43	0.0	0.605	55.4	LOS D	16.8	119.3	0.94	0.81	0.94	10.9
2	T1	487	1.8	487	1.8	0.605	50.8	LOS D	16.8	119.3	0.94	0.80	0.94	10.9
Approach		530	1.7	530	1.7	0.605	51.2	LOS D	16.8	119.3	0.94	0.80	0.94	10.9
East: Alexandra Avenue														
4	L2	29	0.0	29	0.0	0.854	72.2	LOS F	12.7	92.2	1.00	0.98	1.18	13.4
5	T1	215	0.0	215	0.0	* 0.854	67.7	LOS E	12.7	92.2	1.00	0.98	1.18	7.6
6	R2	276	24.3	276	24.3	0.854	74.6	LOS F	16.8	141.8	1.00	0.96	1.22	7.1
Approach		520	12.9	520	12.9	0.854	71.6	LOS F	16.8	141.8	1.00	0.97	1.20	7.7
North: Hawkesbury Road														
7	L2	304	22.0	282	22.1	* 0.626	12.8	LOS A	11.9	88.1	0.40	0.52	0.40	28.1
8	T1	773	1.3	716	1.3	0.626	18.2	LOS B	12.5	88.1	0.66	0.65	0.66	24.2
9	R2	79	0.0	73	0.0	0.626	28.3	LOS B	12.5	88.1	0.82	0.74	0.82	8.5
Approach		1156	6.7	1071 ^N ₁	6.7	0.626	17.5	LOS B	12.5	88.1	0.60	0.62	0.60	24.1
West: Alexandra Avenue														
10	L2	103	0.0	103	0.0	0.147	32.9	LOS C	4.4	30.9	0.67	0.72	0.67	29.3
11	T1	155	0.6	155	0.6	* 0.657	65.1	LOS E	10.4	73.3	1.00	0.82	1.02	23.5
Approach		258	0.4	258	0.4	0.657	52.2	LOS D	10.4	73.3	0.87	0.78	0.88	25.2
All Vehicles		2464	6.3	2379 ^N ₁	6.5	0.854	40.6	LOS C	16.8	141.8	0.80	0.75	0.84	16.1
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	674	11.0	674	11.0	0.374	4.8	LOS A	7.9	57.5	0.30	0.28	0.30	24.0
3	R2	191	0.0	191	0.0	0.374	15.2	LOS B	7.9	57.5	0.72	0.70	0.72	37.3
Approach		865	8.6	865	8.6	0.374	7.1	LOS A	7.9	57.5	0.39	0.37	0.39	32.1
East: Railway Parade														
4	L2	244	0.4	244	0.4	0.461	18.4	LOS B	8.4	58.7	0.62	0.74	0.62	33.4
6	R2	22	0.0	22	0.0	0.111	66.2	LOS E	1.4	9.6	0.94	0.71	0.94	18.0
Approach		266	0.4	266	0.4	0.461	22.4	LOS B	8.4	58.7	0.65	0.73	0.65	31.2
North: Hawkesbury Road														
7	L2	74	0.0	67	0.0	0.142	49.8	LOS D	5.3	47.6	0.83	0.71	0.83	24.3
8	T1	912	8.6	822	8.7	* 0.863	53.6	LOS D	26.5	193.3	0.98	0.92	1.06	8.0
Approach		986	7.9	888 ^{N1}	8.1	0.863	53.3	LOS D	26.5	193.3	0.97	0.90	1.05	9.7
All Vehicles		2117	7.2	2019 ^N ₁	7.6	0.863	29.4	LOS C	26.5	193.3	0.68	0.65	0.71	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

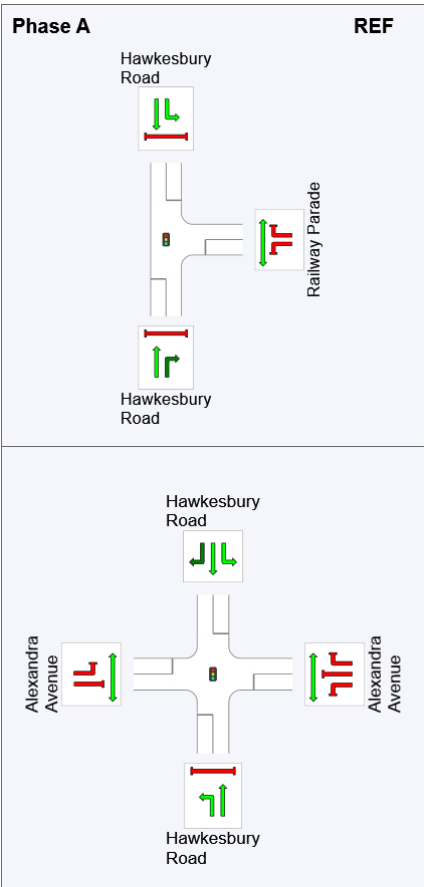
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

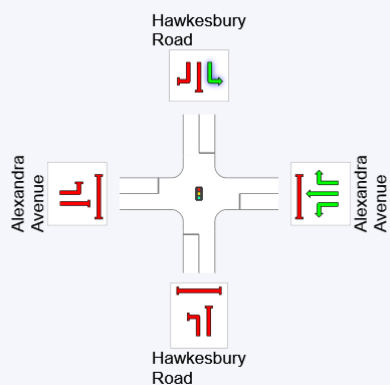
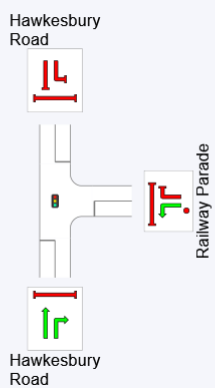
Phase	A	E	D	C
Phase Change Time (sec)	0	40	75	101
Green Time (sec)	34	26	17	33
Phase Time (sec)	43	35	23	39
Phase Split	31%	25%	16%	28%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

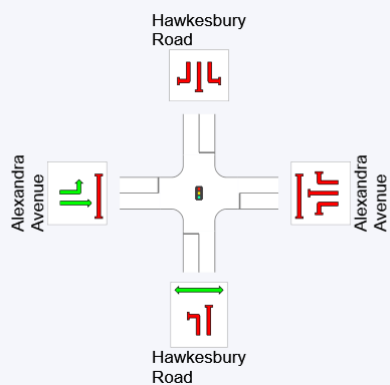
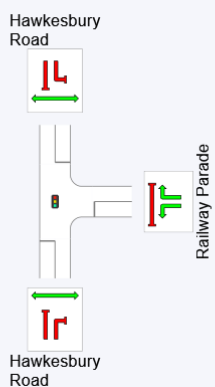
Output Phase Sequence (CCG)

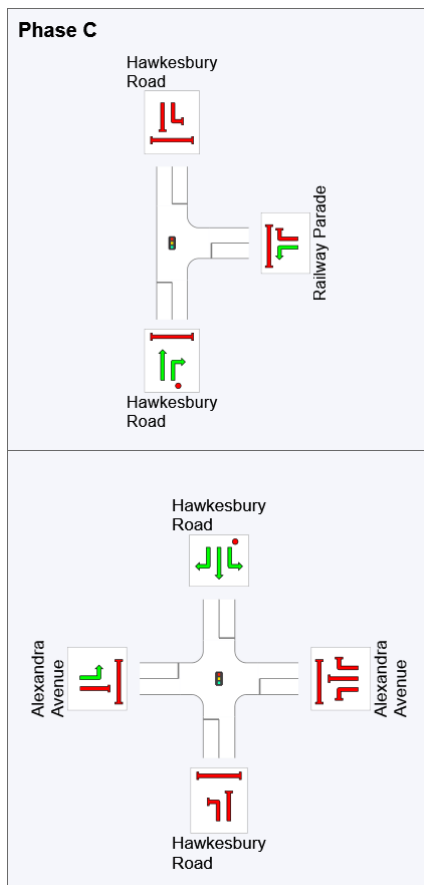


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development PM Peak)]

■ ■ Network: N101 [PM Peak
(Network Folder: 2023 With
Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.188	78.4	LOS F	0.6	15.7	0.98	0.69	0.98	10.8
Approach		8	100.0	8	100.0	0.188	78.4	LOS F	0.6	15.7	0.98	0.69	0.98	10.8
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.126	76.7	LOS F	0.6	15.0	0.98	0.68	0.98	10.8
25	T1	426	3.1	426	3.1	* 1.147	186.5	LOS F	53.8	386.5	1.00	1.66	2.00	3.6
26	R2	265	3.4	265	3.4	* 0.993	87.1	LOS F	21.3	153.3	0.99	1.08	1.39	7.0
Approach		699	4.3	699	4.3	1.147	147.5	LOS F	53.8	386.5	0.99	1.43	1.76	4.4
NorthWest: Darcy Road														
27	L2	172	5.8	172	5.8	1.091	23.3	LOS B	4.3	30.7	0.58	0.69	0.61	22.8
29	R2	560	11.3	560	11.3	* 1.131	161.9	LOS F	19.9	146.9	0.95	1.39	1.85	2.3
Approach		732	10.0	732	10.0	1.131	129.4	LOS F	19.9	146.9	0.86	1.23	1.56	3.8
SouthWest: Hawkesbury Road														
30	L2	449	15.1	449	15.1	0.270	11.9	LOS A	9.4	70.4	0.36	0.65	0.36	23.4
31	T1	247	3.2	247	3.2	0.345	50.7	LOS D	15.1	108.8	0.97	0.81	0.97	15.5
Approach		696	10.9	696	10.9	0.345	25.6	LOS B	15.1	108.8	0.58	0.71	0.58	18.2
All Vehicles		2135	8.8	2135	8.8	1.147	101.3	LOS F	53.8	386.5	0.81	1.12	1.30	5.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	29.4	LOS C	0.1	0.1	0.92	0.92	55.2	30.9	0.56
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road											

P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42
All Pedestrians	580	60.9	LOS F	0.8	0.8	0.96	0.96	124.8	76.7	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

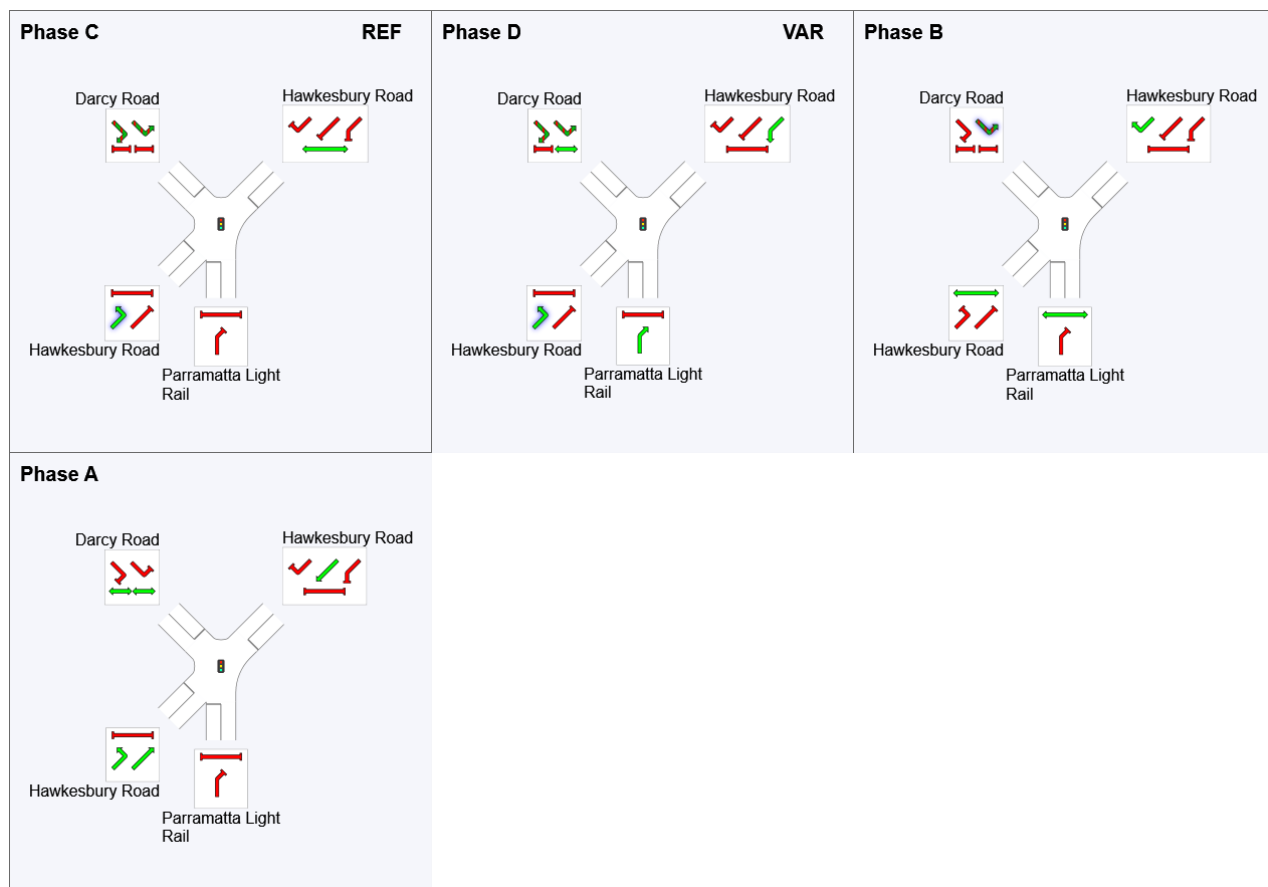
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	48	64	94
Green Time (sec)	42	8	21	35
Phase Time (sec)	50	17	30	43
Phase Split	36%	12%	21%	31%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development PM Peak)]

■ ■ Network: N101 [PM Peak
(Network Folder: 2023 With
Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	6	0.0	6	0.0	0.306	26.4	LOS B	14.0	103.1	0.73	0.64	0.73	21.1
22	T1	640	11.1	640	11.1	0.306	22.4	LOS B	14.0	103.1	0.72	0.62	0.72	11.7
23	R2	68	0.0	68	0.0	* 0.570	74.7	LOS F	4.7	32.7	0.99	0.76	1.00	8.6
Approach		714	9.9	714	9.9	0.570	27.5	LOS B	14.0	103.1	0.74	0.64	0.74	10.8
NorthEast: Westmead Hospital Access														
24	L2	56	3.6	56	3.6	0.445	53.0	LOS D	3.5	25.3	0.92	0.72	0.92	7.7
25	T1	1	0.0	1	0.0	* 0.445	53.0	LOS D	3.5	25.3	0.92	0.72	0.92	11.9
26	R2	137	0.0	137	0.0	0.538	48.4	LOS D	8.0	55.7	0.93	0.74	0.93	8.1
Approach		194	1.0	194	1.0	0.538	49.8	LOS D	8.0	55.7	0.93	0.73	0.93	8.0
NorthWest: Darcy Road														
27	L2	103	1.0	103	1.0	* 0.650	26.4	LOS B	13.2	96.3	0.66	0.66	0.66	12.8
28	T1	627	11.5	627	11.5	0.650	25.3	LOS B	13.2	96.3	0.74	0.70	0.74	9.3
29	R2	6	0.0	6	0.0	0.050	74.5	LOS F	0.4	2.9	1.00	0.66	1.00	9.5
Approach		736	9.9	736	9.9	0.650	25.8	LOS B	13.2	96.3	0.73	0.69	0.73	9.5
SouthWest: Farm House Road														
30	L2	30	0.0	30	0.0	0.127	53.8	LOS D	2.0	13.9	0.89	0.71	0.89	9.8
31	T1	5	0.0	5	0.0	0.127	56.8	LOS E	2.0	13.9	0.89	0.71	0.89	12.0
32	R2	50	0.0	50	0.0	0.197	49.4	LOS D	2.7	19.1	0.92	0.72	0.92	10.6
Approach		85	0.0	85	0.0	0.197	51.4	LOS D	2.7	19.1	0.91	0.72	0.91	10.5
All Vehicles		1729	8.4	1729	8.4	0.650	30.4	LOS C	14.0	103.1	0.77	0.67	0.77	9.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											
P6	Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road											

P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

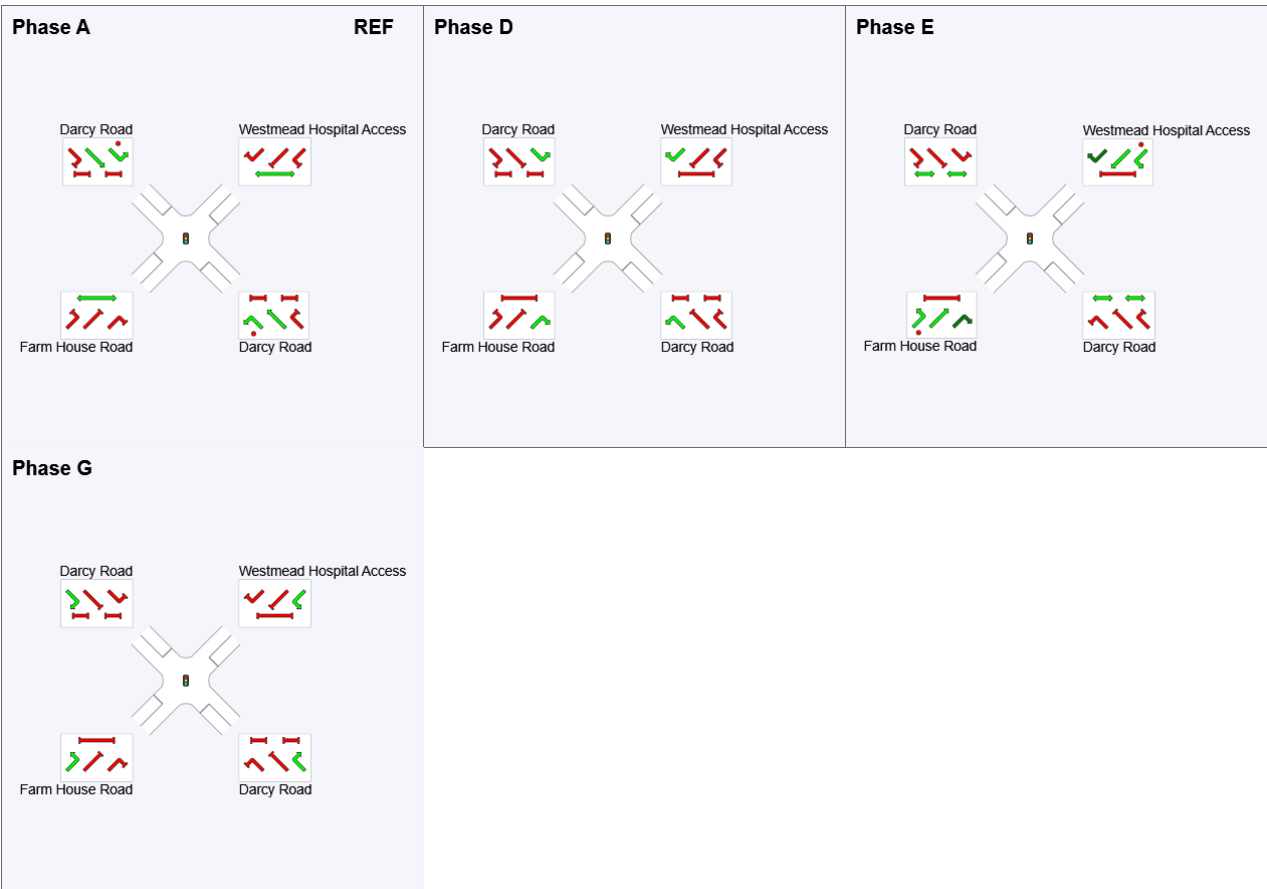
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	86	0.0	86	0.0	0.268	11.1	LOS A	1.6	11.6	0.61	0.27	0.68	19.1
22	T1	722	10.0	722	10.0	0.268	1.4	LOS A	1.6	11.6	0.16	0.07	0.18	30.9
Approach		808	8.9	808	8.9	0.268	2.4	NA	1.6	11.6	0.21	0.09	0.23	28.3
NorthWest: Darcy Road														
28	T1	735	9.3	735	9.3	0.248	0.0	LOS A	0.1	0.6	0.00	0.00	0.00	39.9
Approach		735	9.3	735	9.3	0.248	0.0	NA	0.1	0.6	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.004	14.4	LOS A	0.0	0.1	0.82	0.67	0.82	6.9
Approach		1	0.0	1	0.0	0.004	14.4	LOS A	0.0	0.1	0.82	0.67	0.82	6.9
All Vehicles		1544	9.1	1544	9.1	0.268	1.3	NA	1.6	11.6	0.11	0.05	0.12	33.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %]	[Total veh/h	HV %]				[Veh. veh	Dist m]				
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.265	13.1	LOS A	8.4	62.0	0.42	0.36	0.42	20.1
22	T1	687	10.3	687	10.3	0.265	9.6	LOS A	8.4	62.0	0.39	0.34	0.39	20.3
23	R2	34	0.0	34	0.0	* 0.427	80.4	LOS F	2.5	17.2	1.00	0.72	1.00	8.7
Approach		722	9.8	722	9.8	0.427	13.0	LOS A	8.4	62.0	0.42	0.36	0.42	17.9
NorthEast: Westmead Dental Hospital Access														
24	L2	38	0.0	38	0.0	0.045	4.1	LOS A	0.2	1.7	0.14	0.50	0.14	30.3
26	R2	29	0.0	29	0.0	0.155	63.0	LOS E	1.8	12.6	0.92	0.72	0.92	7.1
Approach		67	0.0	67	0.0	0.155	29.6	LOS C	1.8	12.6	0.48	0.60	0.48	12.4
NorthWest: Darcy Road														
27	L2	60	0.0	60	0.0	0.185	12.2	LOS A	7.0	51.4	0.33	0.34	0.33	28.0
28	T1	636	10.7	636	10.7	0.185	9.2	LOS A	8.1	59.7	0.38	0.35	0.38	20.0
29	R2	2	50.0	2	50.0	0.023	76.6	LOS F	0.1	1.4	1.00	0.61	1.00	6.7
Approach		698	9.9	698	9.9	0.185	9.7	LOS A	8.1	59.7	0.37	0.35	0.37	20.8
SouthWest: Parramatta Marist High School Access														
30	L2	115	0.0	115	0.0	0.560	51.4	LOS D	10.6	74.3	0.96	0.79	0.96	5.0
32	R2	61	0.0	61	0.0	* 0.560	51.4	LOS D	10.6	74.3	0.96	0.79	0.96	5.0
Approach		176	0.0	176	0.0	0.560	51.4	LOS D	10.6	74.3	0.96	0.79	0.96	5.0
All Vehicles		1663	8.4	1663	8.4	0.560	16.3	LOS B	10.6	74.3	0.46	0.41	0.46	15.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32
All Pedestrians		154	64.3	LOS F	0.3	0.3	0.96	0.96	98.9	41.4	0.42

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

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

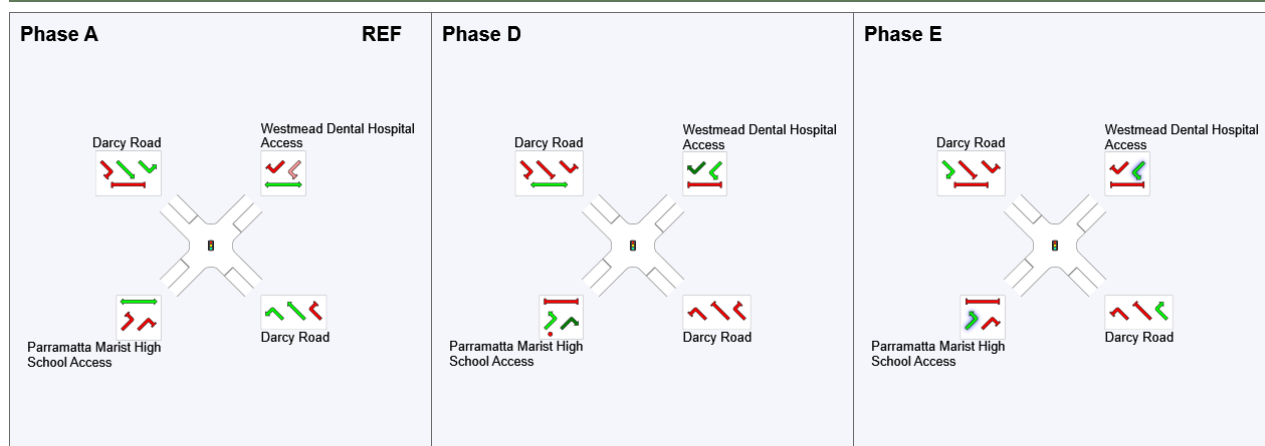
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

▼ Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 With Development PM Peak)]

■ Network: N101 [PM Peak
(Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.148	3.7	LOS A	2.3	16.6	0.00	0.00	0.00	26.8
22	T1	832	8.8	832	8.8	0.148	0.0	LOS A	3.0	21.8	0.00	0.00	0.00	39.9
Approach		833	8.8	833	8.8	0.148	0.0	NA	3.0	21.8	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	698	9.7	698	9.7	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		698	9.7	698	9.7	0.176	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.3	LOS A	0.0	0.1	0.38	0.18	0.38	18.6
Approach		1	0.0	1	0.0	0.002	1.3	LOS A	0.0	0.1	0.38	0.18	0.38	18.6
All Vehicles		1532	9.2	1532	9.2	0.176	0.0	NA	3.0	21.8	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 With Development PM Peak)]

 Network: N101 [PM Peak
(Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	685	2.3	685	2.3	0.386	27.9	LOS B	12.6	89.8	0.71	0.74	0.71	6.9
23a	R1	147	40.8	147	40.8	* 0.463	61.4	LOS E	7.3	61.1	0.96	0.77	0.96	18.0
Approach		832	9.1	832	9.1	0.463	33.8	LOS C	12.6	89.8	0.75	0.74	0.75	11.5
East: Institute Road														
4b	L3	94	0.0	94	0.0	0.935	81.7	LOS F	12.6	88.0	1.00	1.02	1.31	12.4
5	T1	242	0.4	242	0.4	* 0.935	70.5	LOS F	13.1	92.2	1.00	0.97	1.22	13.3
6	R2	7	0.0	7	0.0	0.935	71.4	LOS F	13.1	92.2	1.00	0.94	1.18	21.5
Approach		343	0.3	343	0.3	0.935	73.6	LOS F	13.1	92.2	1.00	0.98	1.24	13.3
North: Mons Road														
7	L2	3	0.0	3	0.0	0.173	10.7	LOS A	2.0	16.2	0.22	0.39	0.22	36.0
7a	L1	175	33.1	175	33.1	0.173	9.1	LOS A	2.0	16.2	0.22	0.39	0.22	33.2
9	R2	239	3.3	239	3.3	0.473	36.9	LOS C	11.2	80.5	0.73	0.74	0.73	21.8
Approach		417	15.8	417	15.8	0.473	25.0	LOS B	11.2	80.5	0.51	0.59	0.51	25.6
West: Darcy Road														
10	L2	68	1.5	68	1.5	0.524	28.8	LOS C	10.5	74.6	0.66	0.67	0.66	26.3
11	T1	39	0.0	39	0.0	* 0.524	25.6	LOS B	10.5	74.6	0.66	0.67	0.66	24.0
12a	R1	429	2.3	429	2.3	0.524	33.1	LOS C	12.8	91.4	0.73	0.70	0.73	7.0
Approach		536	2.1	536	2.1	0.524	32.0	LOS C	12.8	91.4	0.72	0.69	0.72	12.8
All Vehicles		2128	7.2	2128	7.2	0.935	38.1	LOS C	13.1	92.2	0.74	0.74	0.77	15.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39

All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2023 With
Development)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

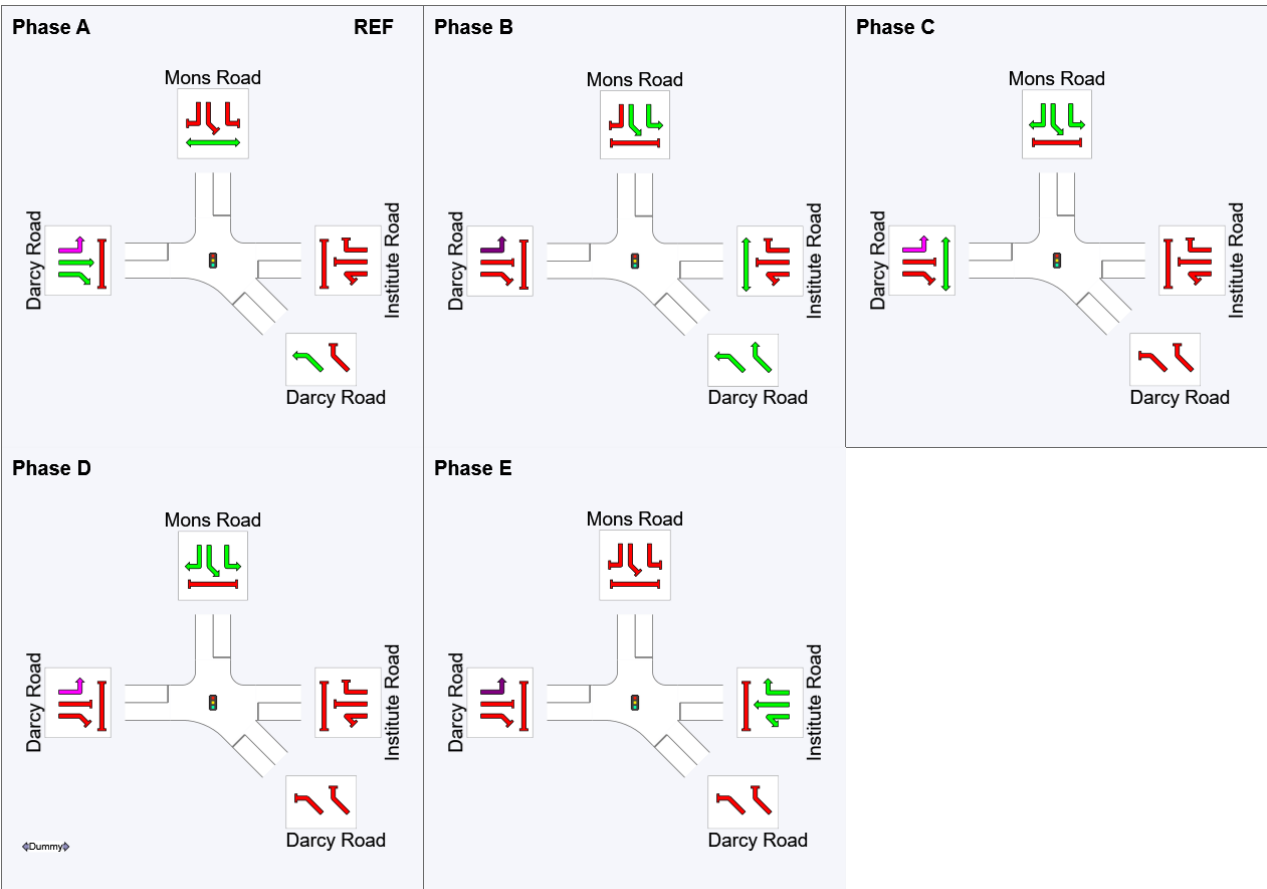
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	73	100	133	8
Green Time (sec)	39	21	27	9	14
Phase Time (sec)	45	27	33	15	20
Phase Split	32%	19%	24%	11%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 With Development PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2023 With Development)]**

1500 - 1600
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	100	10.0	100	10.0	0.226	6.6	LOS A	0.7	5.1	0.56	0.97	0.56	9.6
Approach		100	10.0	100	10.0	0.226	6.6	LOS A	0.7	5.1	0.56	0.97	0.56	9.6
East: Darcy Road														
4	L2	33	15.2	33	15.2	0.020	7.3	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	1132	1.7	1132	1.7	0.293	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1165	2.1	1165	2.1	0.293	0.2	NA	0.0	0.0	0.00	0.02	0.00	38.6
West: Darcy Road														
11	T1	536	3.0	536	3.0	0.166	2.1	LOS A	0.6	4.4	0.00	0.36	0.00	37.1
12	R2	52	7.7	52	7.7	0.156	12.6	LOS A	0.3	2.5	0.68	0.92	0.68	27.3
Approach		588	3.4	588	3.4	0.166	3.0	LOS A	0.6	4.4	0.06	0.41	0.06	35.9
All Vehicles		1853	2.9	1853	2.9	0.293	1.5	NA	0.7	5.1	0.05	0.20	0.05	26.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
1	L2	218	1.4	217	1.4	* 0.412	41.4	LOS C	11.1	78.7	0.83	0.78	0.83	25.6
2	T1	28	0.0	28	0.0	0.584	73.3	LOS F	6.4	48.0	1.00	0.79	1.00	16.0
3	R2	66	12.1	66	12.1	0.584	72.9	LOS F	6.4	48.0	1.00	0.79	1.00	15.6
Approach		312	3.5	311 ^{N1}	3.5	0.584	50.9	LOS D	11.1	78.7	0.88	0.78	0.88	22.1
East: Darcy Road														
4	L2	191	6.8	191	6.8	* 0.305	17.9	LOS B	14.3	103.2	0.39	0.45	0.39	29.7
5	T1	1017	1.7	1017	1.7	0.305	14.8	LOS B	17.0	120.7	0.43	0.42	0.43	34.0
6	R2	24	0.0	24	0.0	0.045	12.8	LOS A	0.3	2.4	0.39	0.60	0.39	29.0
Approach		1232	2.4	1232	2.4	0.305	15.2	LOS B	17.0	120.7	0.42	0.43	0.42	33.4
North: Coles Westmead Access														
7	L2	23	0.0	23	0.0	0.060	42.9	LOS D	1.2	8.3	0.83	0.60	0.83	4.3
8	T1	38	0.0	38	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	3.1
9	R2	42	0.0	42	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	8.8
Approach		103	0.0	103	0.0	0.522	61.7	LOS E	5.4	37.8	0.96	0.74	0.96	6.0
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.240	15.6	LOS B	9.9	70.2	0.45	0.44	0.45	23.9
11	T1	498	1.8	498	1.8	0.240	10.7	LOS A	9.9	70.2	0.44	0.40	0.44	26.1
12	R2	312	1.9	312	1.9	0.630	15.6	LOS B	7.4	52.6	0.59	0.75	0.59	22.0
Approach		867	1.7	867	1.7	0.630	12.8	LOS A	9.9	70.2	0.49	0.53	0.49	24.3
All Vehicles		2514	2.2	2513 ^{N1}	2.2	0.630	20.7	LOS B	17.0	120.7	0.53	0.52	0.53	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2023 With Development PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2023 With
Development)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

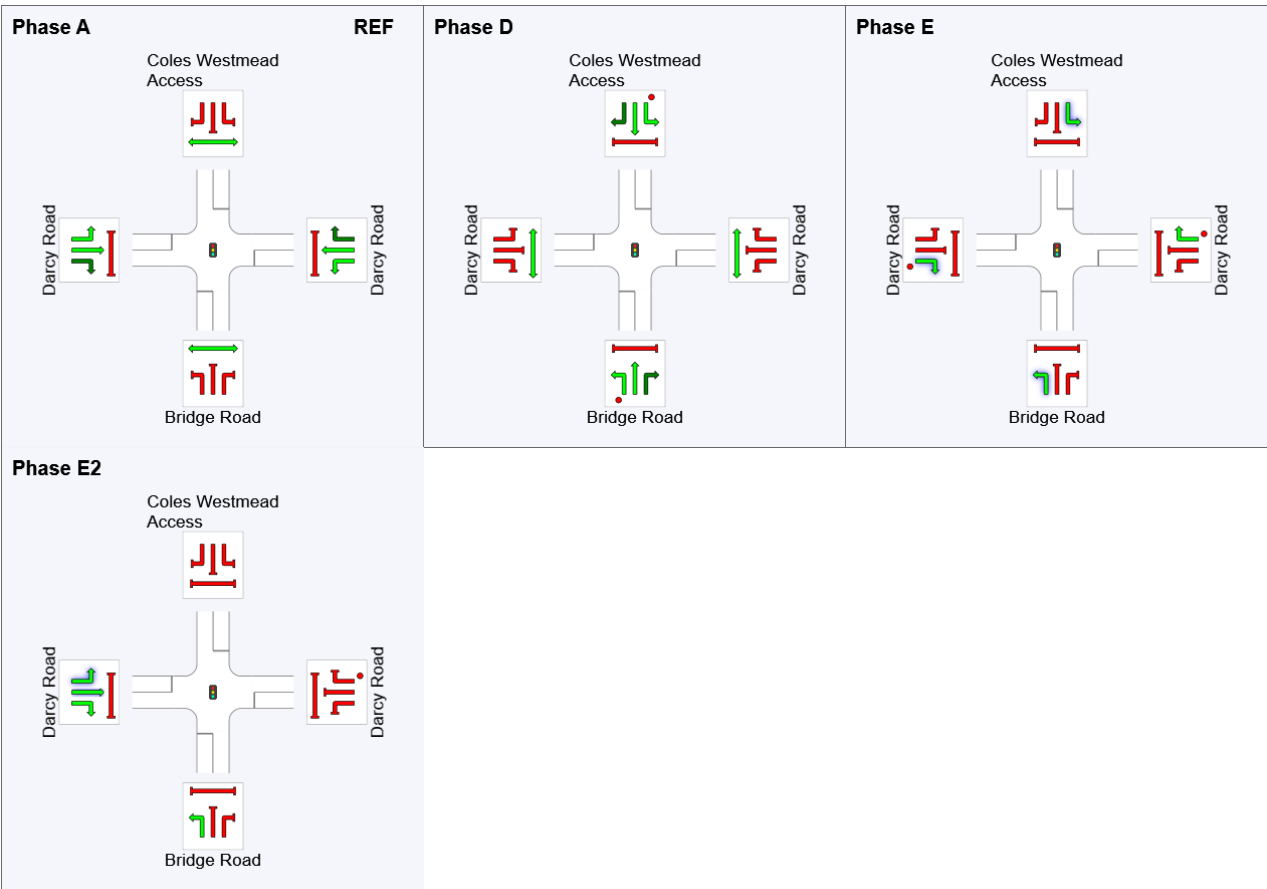
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, E2
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 With Development PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
2	T1	384	2.9	384	2.9	0.542	5.0	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
3	R2	153	0.7	153	0.7	0.542	8.0	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
3u	U	1	100.0	1	100.0	0.542	10.7	LOS A	4.9	35.2	0.56	0.58	0.56	24.6
				0										
Approach		538	2.4	538	2.4	0.542	5.9	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
East: Alexandra Avenue														
4	L2	210	0.5	207	0.5	0.567	12.1	LOS A	4.2	29.7	0.71	0.93	0.87	38.6
6	R2	135	0.0	133	0.0	0.567	14.6	LOS B	4.2	29.7	0.71	0.93	0.87	39.0
6u	U	1	0.0	1	0.0	0.567	16.0	LOS B	4.2	29.7	0.71	0.93	0.87	39.0
Approach		346	0.3	341 ^{N1}	0.3	0.567	13.1	LOS A	4.2	29.7	0.71	0.93	0.87	38.7
North: Bridge Road														
7	L2	91	0.0	91	0.0	0.674	6.6	LOS A	6.5	46.6	0.65	0.62	0.66	41.6
8	T1	546	3.5	546	3.5	0.674	6.2	LOS A	6.5	46.6	0.65	0.62	0.66	41.1
9u	U	1	0.0	1	0.0	0.674	10.4	LOS A	6.5	46.6	0.65	0.62	0.66	41.6
Approach		638	3.0	638	3.0	0.674	6.3	LOS A	6.5	46.6	0.65	0.62	0.66	41.1
All Vehicles		1522	2.2	1517 ^{N1}	2.2	0.674	7.7	LOS A	6.5	46.6	0.63	0.67	0.67	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2023 With Development)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	26	3.8	26	3.8	1.210	207.4	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
2	T1	1176	0.6	1176	0.6	* 1.210	202.7	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
Approach		1202	0.7	1202	0.7	1.210	202.8	LOS F	88.8	625.8	1.00	1.86	2.19	3.3
East: Alexandra Avenue														
4	L2	43	0.0	43	0.0	1.221	259.0	LOS F	13.7	102.0	1.00	1.69	2.33	4.3
5	T1	131	0.0	131	0.0	* 1.221	254.5	LOS F	13.7	102.0	1.00	1.69	2.33	2.2
6	R2	375	15.5	375	15.5	1.221	260.9	LOS F	34.4	272.3	1.00	1.60	2.35	2.2
Approach		549	10.6	549	10.6	1.221	259.2	LOS F	34.4	272.3	1.00	1.63	2.35	2.3
North: Hawkesbury Road														
7	L2	415	14.7	414	14.7	0.925	34.3	LOS C	12.1	88.1	0.82	0.89	0.93	16.9
8	T1	484	1.9	483	1.9	0.925	32.6	LOS C	12.1	88.1	0.89	0.92	1.00	17.3
9	R2	70	0.0	70	0.0	1.235	286.2	LOS F	10.8	75.7	1.00	1.34	2.64	0.8
Approach		969	7.2	967 ^{N1}	7.2	1.235	51.7	LOS D	12.1	88.1	0.87	0.94	1.09	11.7
West: Alexandra Avenue														
10	L2	126	0.0	122	0.0	0.700	72.2	LOS F	8.9	62.4	1.00	0.85	1.09	19.6
11	T1	386	0.3	375	0.3	* 1.221	268.2	LOS F	56.3	395.2	1.00	1.91	2.42	8.5
Approach		512	0.2	497 ^{N1}	0.2	1.221	220.0	LOS F	56.3	395.2	1.00	1.65	2.10	9.7
All Vehicles		3232	4.2	3215 ^{N1}	4.3	1.235	169.6	LOS F	88.8	625.8	0.96	1.51	1.87	5.4
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1314	4.8	1311	4.8	1.105	141.7	LOS F	12.3	88.1	1.00	1.57	1.82	1.6
3	R2	363	0.3	362	0.3	1.105	145.9	LOS F	12.3	88.1	1.00	1.49	1.86	10.6
Approach		1677	3.8	1673 ^{N1}	3.8	1.105	142.6	LOS F	12.3	88.1	1.00	1.55	1.83	4.0
East: Railway Parade														
4	L2	224	0.9	224	0.9	0.740	46.3	LOS D	13.2	93.0	0.95	0.87	1.02	22.2
6	R2	36	0.0	36	0.0	0.342	70.7	LOS F	2.4	16.9	0.97	0.75	0.97	17.2
Approach		260	0.8	260	0.8	0.740	49.7	LOS D	13.2	93.0	0.95	0.85	1.01	21.4
North: Hawkesbury Road														
7	L2	118	0.0	118	0.0	0.100	21.2	LOS B	4.2	35.6	0.42	0.57	0.42	34.5
8	T1	745	11.5	743	11.6	0.334	18.7	LOS B	11.4	83.9	0.50	0.45	0.50	17.5
Approach		863	10.0	861 ^{N1}	10.0	0.334	19.1	LOS B	11.4	83.9	0.49	0.47	0.49	22.0
All Vehicles		2800	5.4	2794 ^{N1}	5.4	1.105	95.9	LOS F	13.2	93.0	0.84	1.15	1.34	6.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

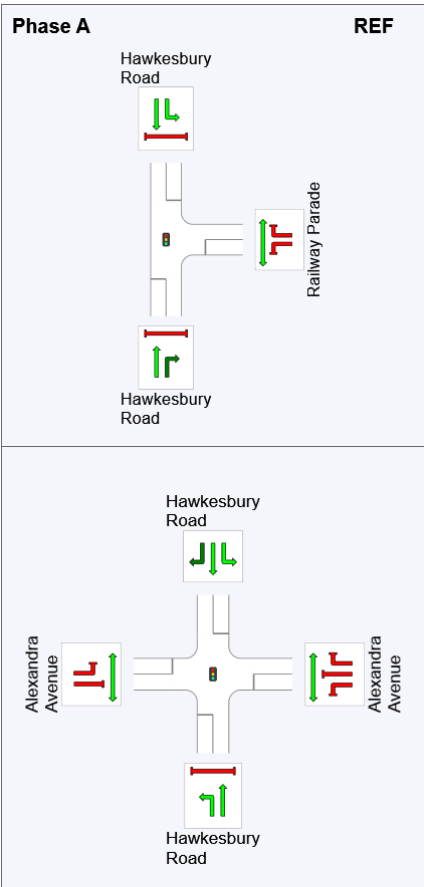
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C*
Output Phase Sequence: A, E, D
(* Variable Phase)

Phase Timing Summary (CCG)

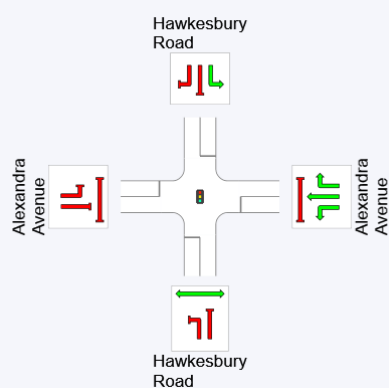
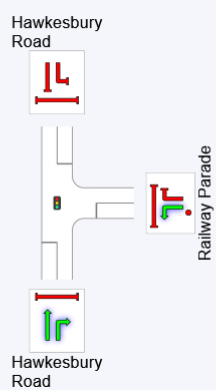
Phase	A	E	D
Phase Change Time (sec)	0	77	114
Green Time (sec)	71	28	17
Phase Time (sec)	80	37	23
Phase Split	57%	26%	16%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

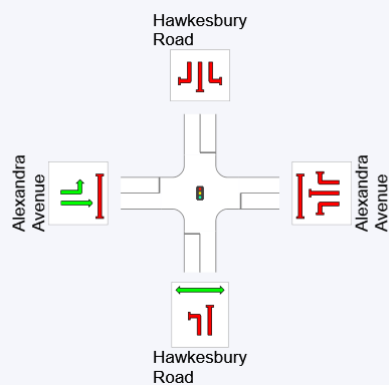
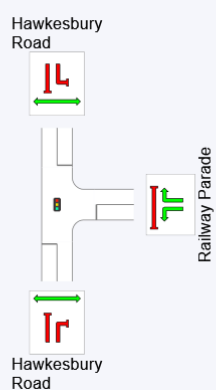
Output Phase Sequence (CCG)



Phase E



Phase D



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

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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.251	84.0	LOS F	0.6	16.3	1.00	0.69	1.00	10.1
25	T1	346	3.5	346	3.5	0.900	64.7	LOS E	24.9	179.8	0.93	1.01	1.20	9.1
26	R2	250	2.0	250	2.0	* 1.009	126.1	LOS F	26.0	185.3	1.00	1.29	1.69	5.1
Approach		604	4.1	604	4.1	1.009	90.3	LOS F	26.0	185.3	0.96	1.12	1.40	6.9
NorthWest: Darcy Road														
27	L2	281	3.9	280	3.9	0.818	13.2	LOS A	5.2	36.8	0.40	0.61	0.41	26.9
29	R2	518	13.1	516	13.2	0.910	60.5	LOS E	19.8	146.9	0.94	0.93	1.14	5.7
Approach		799	9.9	795 ^{N1}	9.9	0.910	43.9	LOS D	19.8	146.9	0.75	0.82	0.88	10.5
SouthWest: Hawkesbury Road														
30	L2	845	6.9	810	6.9	* 0.998	92.2	LOS F	28.9	208.9	0.98	1.12	1.39	5.4
31	T1	506	1.2	485	1.2	0.731	47.4	LOS D	27.7	195.9	0.90	0.81	0.90	16.2
Approach		1351	4.7	1294 ^{N1}	4.7	0.998	75.4	LOS F	28.9	208.9	0.95	1.00	1.21	8.5
All Vehicles		2762	6.4	2701 ^{N1}	6.5	1.009	69.5	LOS E	28.9	208.9	0.90	0.98	1.15	8.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	32.5	LOS D	0.1	0.1	0.92	0.92	58.2	30.9	0.53

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	62.0	LOS F	0.8	0.8	0.96	0.96	135.1	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

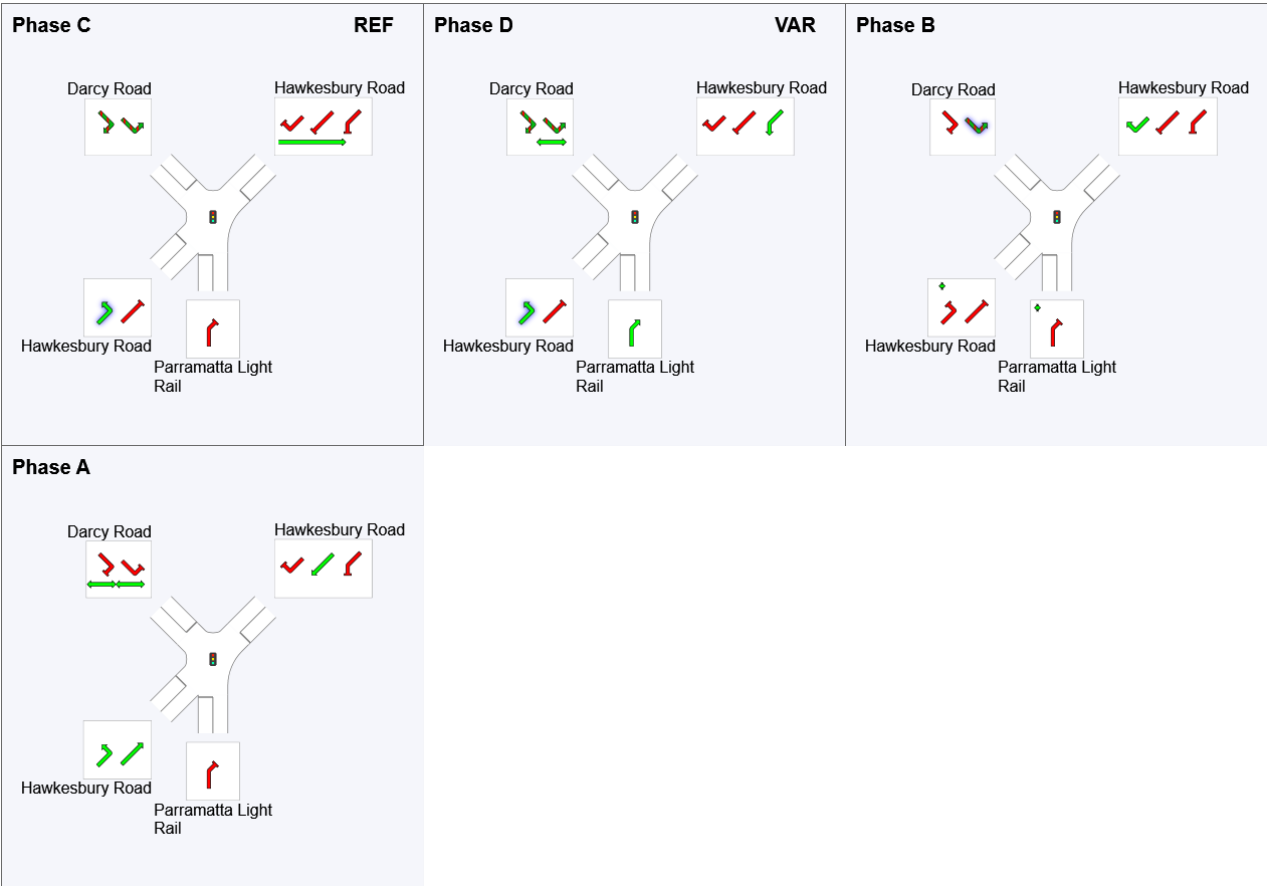
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	33	47	89
Green Time (sec)	27	6	33	40
Phase Time (sec)	35	15	42	48
Phase Split	25%	11%	30%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum AM Peak)] Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

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

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

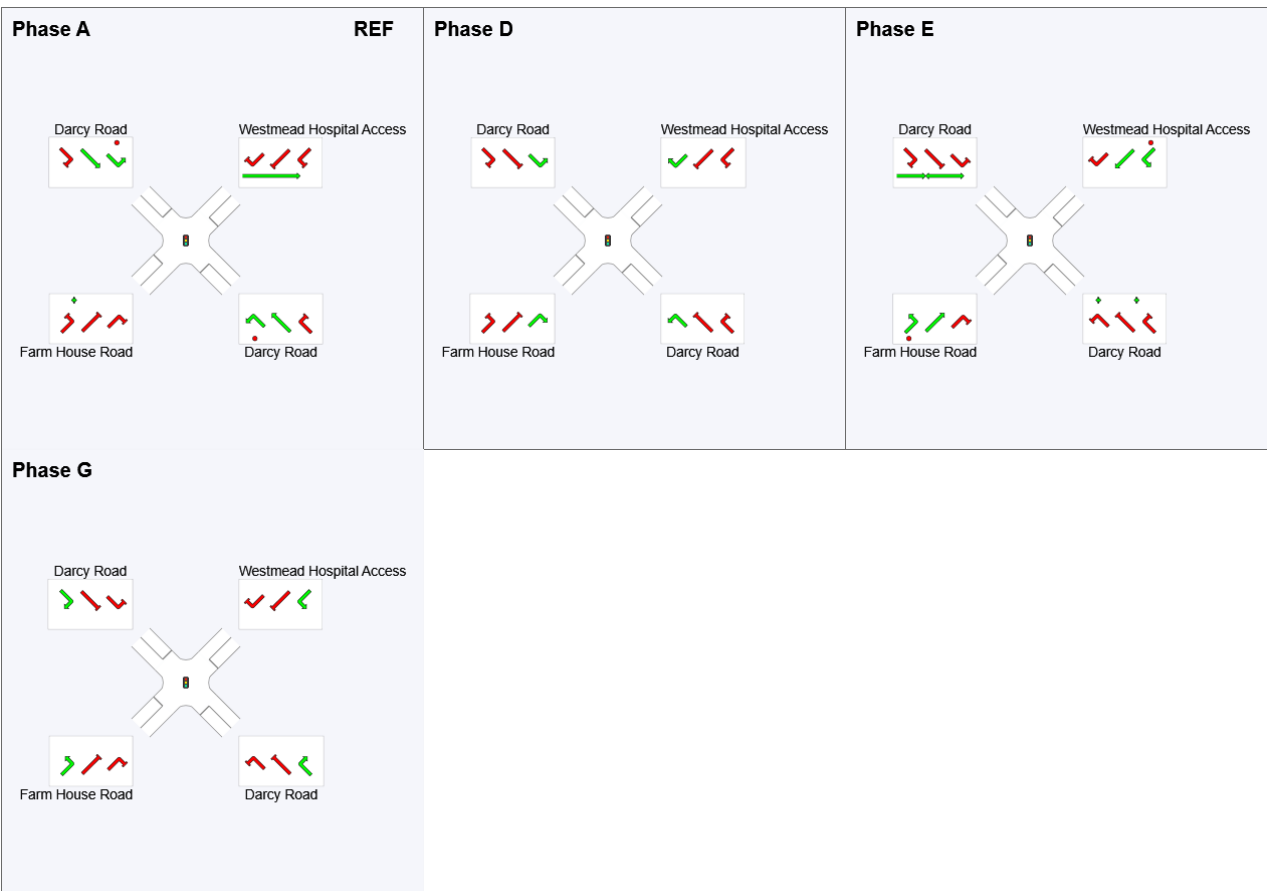
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	2	0.0	2	0.0	0.296	9.3	LOS A	0.0	0.3	0.01	0.00	0.01	31.1
22	T1	1040	6.4	1039	6.5	0.296	0.0	LOS A	0.0	0.3	0.00	0.00	0.01	39.7
Approach		1042	6.4	1041 ^N ₁	6.4	0.296	0.1	NA	0.0	0.3	0.00	0.00	0.01	39.6
NorthWest: Darcy Road														
28	T1	923	9.3	918	9.4	0.309	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		923	9.3	918 ^{N1}	9.4	0.309	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.005	15.7	LOS B	0.0	0.1	0.83	0.71	0.83	6.5
Approach		1	0.0	1	0.0	0.005	15.7	LOS B	0.0	0.1	0.83	0.71	0.83	6.5
All Vehicles		1966	7.8	1960 ^N ₁	7.8	0.309	0.1	NA	0.0	0.3	0.00	0.00	0.00	39.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	8	0.0	0.406	17.4	LOS B	15.7	113.3	0.53	0.48	0.53	17.8
22	T1	973	6.9	972	6.9	0.406	7.5	LOS A	15.7	113.3	0.29	0.26	0.29	23.0
23	R2	59	0.0	59	0.0	* 0.444	77.7	LOS F	4.2	29.1	1.00	0.76	1.00	7.9
Approach		1040	6.4	1039 ^N ₁	6.5	0.444	11.5	LOS A	15.7	113.3	0.33	0.29	0.33	18.6
NorthEast: Westmead Dental Hospital Access														
24	L2	19	0.0	19	0.0	0.023	0.6	LOS A	0.1	0.8	0.13	0.10	0.13	19.5
26	R2	37	0.0	37	0.0	* 0.136	52.5	LOS D	2.1	15.0	0.88	0.66	0.88	6.8
Approach		56	0.0	56	0.0	0.136	34.9	LOS C	2.1	15.0	0.62	0.47	0.62	8.7
NorthWest: Darcy Road														
27	L2	85	0.0	84	0.0	* 0.410	8.7	LOS A	5.9	43.1	0.20	0.25	0.20	21.8
28	T1	904	9.5	899	9.6	0.410	4.0	LOS A	5.9	43.1	0.16	0.17	0.16	27.6
29	R2	5	0.0	5	0.0	0.037	73.6	LOS F	0.3	2.4	1.00	0.65	1.00	6.9
Approach		994	8.7	989 ^{N1}	8.7	0.410	4.8	LOS A	5.9	43.1	0.17	0.18	0.17	25.7
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
32	R2	1	0.0	1	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
Approach		2	0.0	2	0.0	0.006	42.7	LOS D	0.1	0.7	0.81	0.51	0.81	5.7
All Vehicles		2092	7.3	2085 ^N ₁	7.3	0.444	9.0	LOS A	15.7	113.3	0.26	0.25	0.26	20.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	97.8	40.2	0.41

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

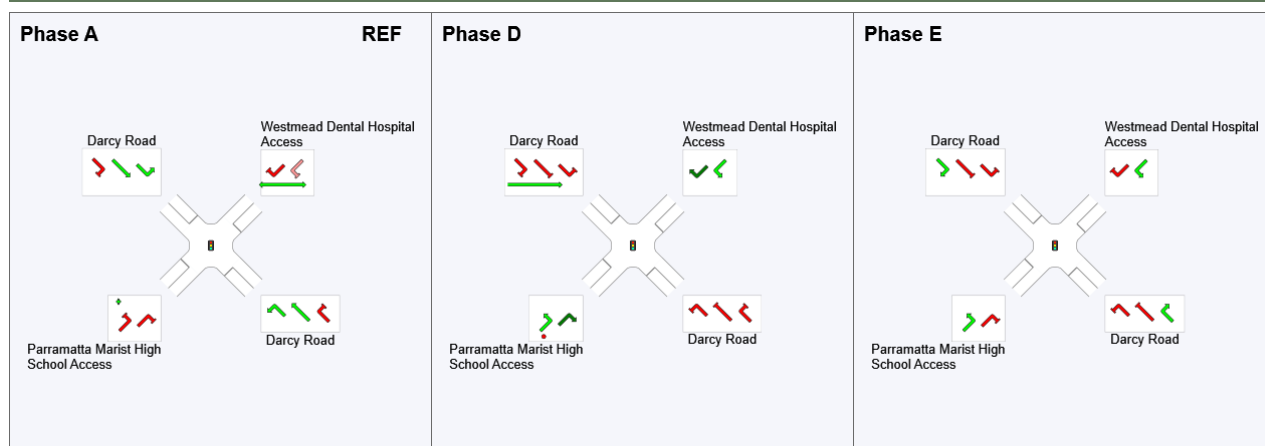
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	36	0.0	36	0.0	0.191	3.9	LOS A	0.2	1.7	0.06	0.07	0.06	26.2
22	T1	974	7.0	973	7.0	0.191	0.0	LOS A	11.3	81.6	0.01	0.02	0.01	39.3
Approach		1010	6.7	1009 ^N ₁	6.7	0.191	0.2	NA	11.3	81.6	0.01	0.02	0.01	38.0
NorthWest: Darcy Road														
28	T1	994	8.5	989	8.5	0.251	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		994	8.5	989 ^{N1}	8.5	0.251	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
Approach		1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
All Vehicles		2005	7.6	1998 ^N ₁	7.6	0.251	0.1	NA	11.3	81.6	0.01	0.01	0.01	38.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

**Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum AM Peak)]**

■ ■ Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21a	L1	640	1.3	639	1.3	0.311	16.9	LOS B	10.1	71.5	0.42	0.60	0.42	10.3
23a	R1	334	18.6	334	18.6	* 0.913	74.0	LOS F	11.8	89.8	0.99	1.00	1.22	16.2
Approach		974	7.2	973 ^{N1}	7.2	0.913	36.5	LOS C	11.8	89.8	0.61	0.74	0.69	14.6
East: Institute Road														
4b	L3	51	2.0	51	2.0	0.518	75.2	LOS F	4.2	30.2	1.00	0.76	1.00	13.0
5	T1	79	2.5	79	2.5	* 0.518	70.6	LOS F	4.9	34.9	1.00	0.76	1.00	13.3
6	R2	2	0.0	2	0.0	0.518	74.9	LOS F	4.9	34.9	1.00	0.76	1.00	21.1
Approach		132	2.3	132	2.3	0.518	72.4	LOS F	4.9	34.9	1.00	0.76	1.00	13.4
North: Mons Road														
7	L2	7	0.0	7	0.0	0.176	24.8	LOS B	5.2	44.6	0.60	0.61	0.60	30.9
7a	L1	170	44.1	170	44.1	0.176	23.1	LOS B	5.2	44.6	0.59	0.59	0.59	26.4
9	R2	126	10.3	126	10.3	0.309	51.0	LOS D	7.1	54.1	0.87	0.77	0.87	18.6
Approach		303	29.0	303	29.0	0.309	34.7	LOS C	7.1	54.1	0.71	0.67	0.71	22.7
West: Darcy Road														
10	L2	196	8.7	196	8.7	1.007	87.9	LOS F	12.7	91.4	1.00	1.18	1.46	12.9
11	T1	223	0.4	223	0.4	* 1.007	84.7	LOS F	12.7	91.4	1.00	1.18	1.46	11.1
12a	R1	772	1.0	772	1.0	1.007	101.5	LOS F	12.9	91.4	1.00	1.26	1.48	2.5
Approach		1191	2.2	1191	2.2	1.007	96.1	LOS F	12.9	91.4	1.00	1.23	1.47	6.5
All Vehicles		2600	7.2	2599 ^{N1}	7.2	1.007	65.4	LOS E	12.9	91.4	0.82	0.96	1.07	10.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

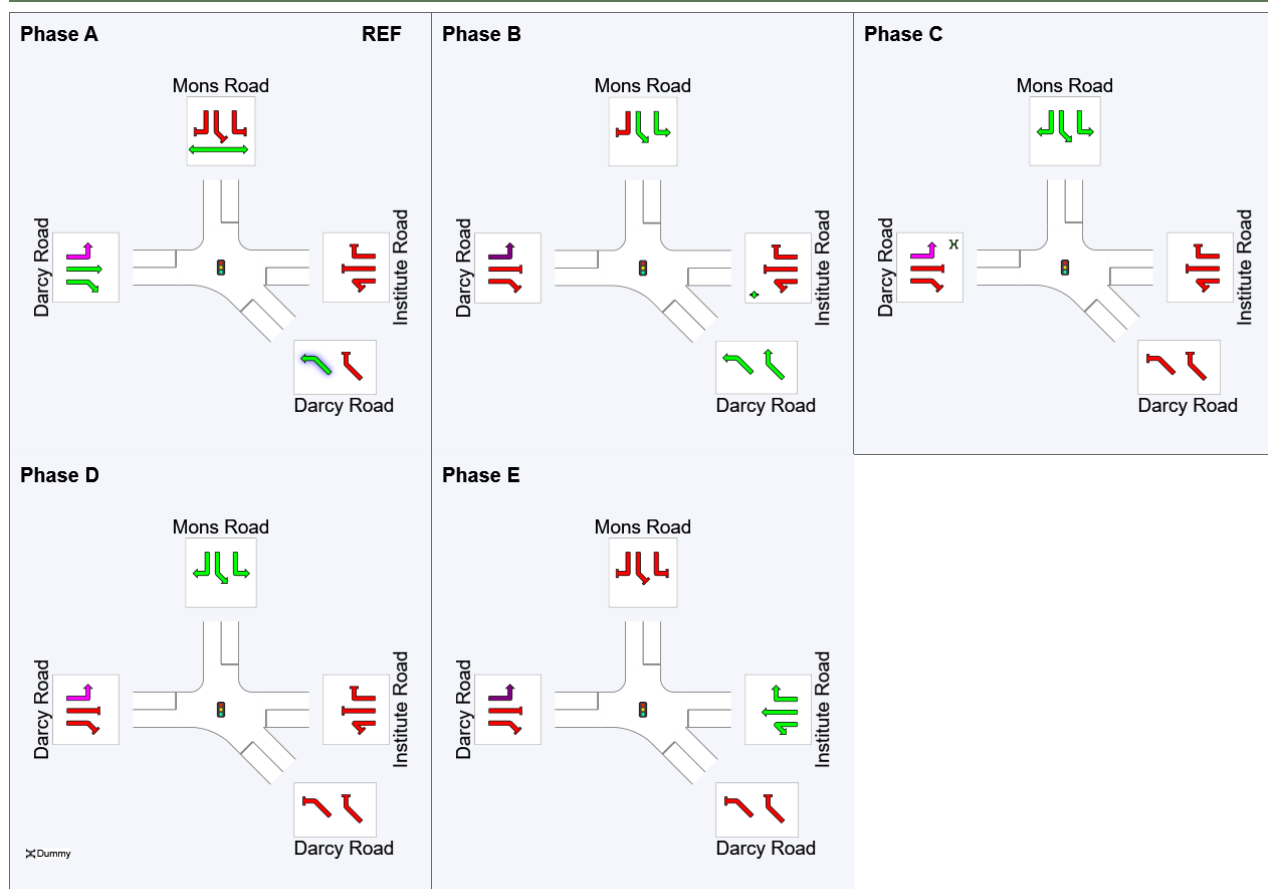
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	50	82	114	124
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 Do Minimum AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	434	1.2	434	1.2	0.704	8.7	LOS A	5.7	40.1	0.57	1.39	1.03	9.5
Approach		434	1.2	434	1.2	0.704	8.7	LOS A	5.7	40.1	0.57	1.39	1.03	9.5
East: Darcy Road														
4	L2	176	1.7	176	1.7	0.096	7.2	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	669	2.8	668	2.8	0.259	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		845	2.6	844 ^{N1}	2.6	0.259	1.5	NA	0.0	0.0	0.00	0.16	0.00	32.0
West: Darcy Road														
11	T1	1191	2.6	1191	2.6	0.395	2.7	LOS A	46.3	331.0	0.21	0.28	0.22	36.1
12	R2	371	1.3	371	1.3	0.947	41.9	LOS C	10.2	72.0	0.78	1.92	3.94	15.6
Approach		1562	2.3	1562	2.3	0.947	12.0	LOS A	46.3	331.0	0.34	0.67	1.11	27.4
All Vehicles		2841	2.2	2840 ^{N1}	2.2	0.947	8.4	NA	46.3	331.0	0.28	0.63	0.77	18.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Do Minimum AM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	67	64.3	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
East: Darcy Road											
P2	Full	40	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2033 Do Minimum AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033 Do
Minimum)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E2*

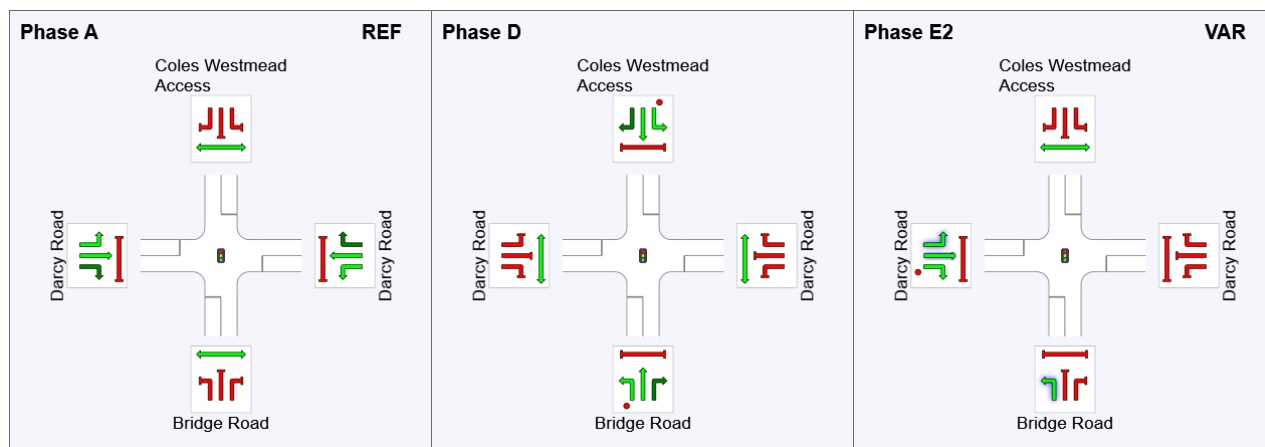
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E2
Phase Change Time (sec)	121	32	71
Green Time (sec)	44	32	44
Phase Time (sec)	51	38	51
Phase Split	36%	27%	36%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Do Minimum AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	471	0.2	471	0.2	0.638	4.1	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
3	R2	307	0.3	307	0.3	0.638	7.2	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
3u	U	4	0.0	4	0.0	0.638	8.6	LOS A	7.7	54.1	0.45	0.50	0.45	27.4
Approach		782	0.3	782	0.3	0.638	5.4	LOS A	7.7	54.1	0.45	0.50	0.45	24.2
East: Alexandra Avenue														
4	L2	132	0.8	132	0.8	0.380	10.2	LOS A	2.3	15.9	0.75	0.88	0.76	39.9
6	R2	54	1.9	54	1.9	0.380	12.8	LOS A	2.3	15.9	0.75	0.88	0.76	40.4
6u	U	2	0.0	2	0.0	0.380	14.0	LOS A	2.3	15.9	0.75	0.88	0.76	40.4
Approach		188	1.1	188	1.1	0.380	11.0	LOS A	2.3	15.9	0.75	0.88	0.76	40.0
North: Bridge Road														
7	L2	175	0.6	174	0.6	1.085	101.6	LOS F	67.8	475.5	1.00	2.94	4.86	12.3
8	T1	682	0.1	677	0.1	1.085	101.1	LOS F	67.8	475.5	1.00	2.94	4.86	13.3
9u	U	1	0.0	1	0.0	1.085	105.3	LOS F	67.8	475.5	1.00	2.94	4.86	12.3
Approach		858	0.2	851 ^{N1}	0.2	1.085	101.2	LOS F	67.8	475.5	1.00	2.94	4.86	13.1
All Vehicles		1828	0.3	1821 ^{N1}	0.3	1.085	50.7	LOS D	67.8	475.5	0.74	1.68	2.54	16.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2033 Do Minimum)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	54	0.0	54	0.0	0.841	66.3	LOS E	25.3	179.2	1.00	0.96	1.13	9.3
2	T1	637	1.4	637	1.4	0.841	62.0	LOS E	25.3	179.2	1.00	0.97	1.14	9.3
Approach		691	1.3	691	1.3	0.841	62.3	LOS E	25.3	179.2	1.00	0.97	1.14	9.3
East: Alexandra Avenue														
4	L2	33	0.0	33	0.0	0.876	72.9	LOS F	12.8	92.5	1.00	1.00	1.20	13.3
5	T1	245	0.0	245	0.0	* 0.876	68.5	LOS E	12.8	92.5	1.00	1.00	1.20	7.5
6	R2	312	21.5	312	21.5	0.876	75.7	LOS F	19.4	160.9	1.00	0.99	1.25	7.0
Approach		590	11.4	590	11.4	0.876	72.6	LOS F	19.4	160.9	1.00	0.99	1.23	7.6
North: Hawkesbury Road														
7	L2	351	19.1	288	19.1	0.733	16.1	LOS B	12.1	88.1	0.54	0.62	0.54	25.6
8	T1	913	1.1	749	1.0	0.733	24.4	LOS B	12.5	88.1	0.81	0.76	0.81	20.8
9	R2	96	0.0	79	0.0	0.733	39.0	LOS C	12.5	88.1	1.00	0.89	1.00	6.2
Approach		1360	5.7	1116 ^N ₁	5.6	0.733	23.3	LOS B	12.5	88.1	0.75	0.74	0.75	20.6
West: Alexandra Avenue														
10	L2	94	0.0	93	0.0	0.143	34.2	LOS C	4.1	28.6	0.69	0.72	0.69	28.8
11	T1	212	0.5	210	0.5	* 0.891	77.6	LOS F	16.1	113.0	1.00	1.04	1.31	21.3
Approach		306	0.3	304 ^{N1}	0.3	0.891	64.3	LOS E	16.1	113.0	0.90	0.94	1.12	22.9
All Vehicles		2947	5.2	2701 ^N ₁	5.7	0.891	48.7	LOS D	25.3	179.2	0.89	0.87	1.00	14.3
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	804	9.2	803	9.2	0.458	4.4	LOS A	8.8	63.6	0.28	0.27	0.28	25.0
3	R2	239	0.0	239	0.0	* 0.458	14.6	LOS B	8.8	63.6	0.69	0.70	0.69	37.6
Approach		1043	7.1	1042 ^N ₁	7.1	0.458	6.7	LOS A	8.8	63.6	0.37	0.37	0.37	32.9
East: Railway Parade														
4	L2	298	0.3	298	0.3	0.557	19.0	LOS B	10.8	75.9	0.66	0.76	0.66	33.1
6	R2	27	0.0	27	0.0	0.145	66.8	LOS E	1.7	11.9	0.94	0.72	0.94	17.9
Approach		325	0.3	325	0.3	0.557	23.0	LOS B	10.8	75.9	0.69	0.76	0.69	30.9
North: Hawkesbury Road														
7	L2	79	0.0	61	0.0	0.134	50.3	LOS D	4.9	43.8	0.83	0.71	0.83	24.2
8	T1	1061	7.4	817	7.8	* 0.883	55.4	LOS D	27.1	196.5	0.99	0.94	1.10	7.7
Approach		1140	6.8	878 ^{N1}	7.3	0.883	55.1	LOS D	27.1	196.5	0.98	0.93	1.08	9.3
All Vehicles		2508	6.1	2245 ^N ₁	6.8	0.883	28.0	LOS B	27.1	196.5	0.66	0.64	0.69	18.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

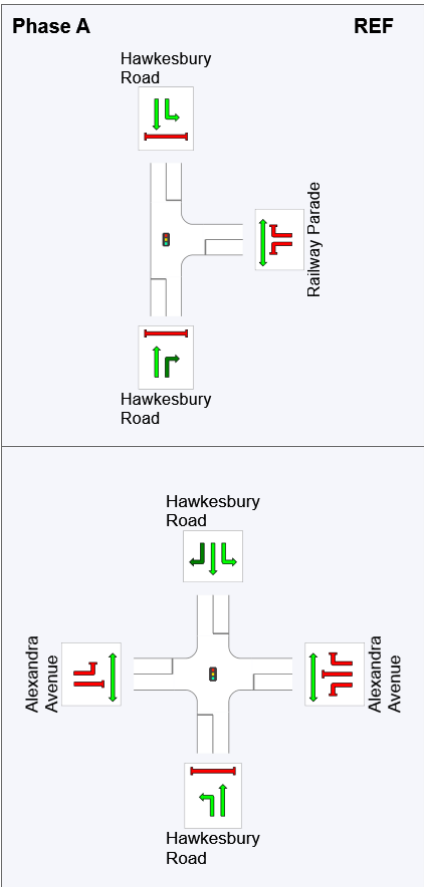
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

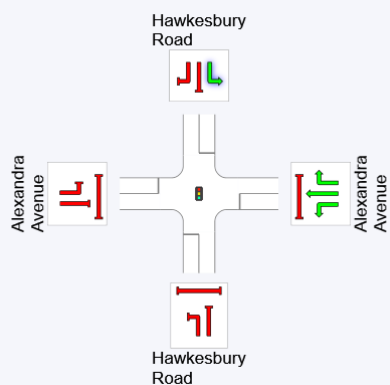
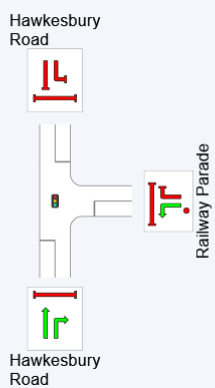
Phase	A	E	D	C
Phase Change Time (sec)	0	39	77	103
Green Time (sec)	33	29	17	31
Phase Time (sec)	42	38	23	37
Phase Split	30%	27%	16%	26%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

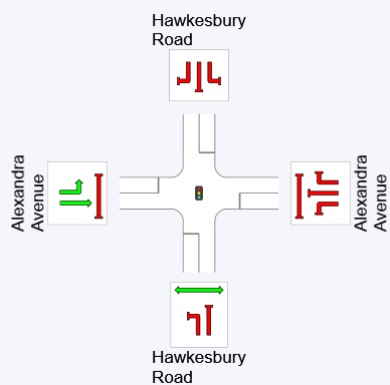
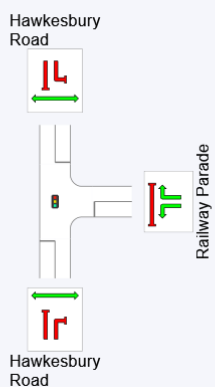
Output Phase Sequence (CCG)

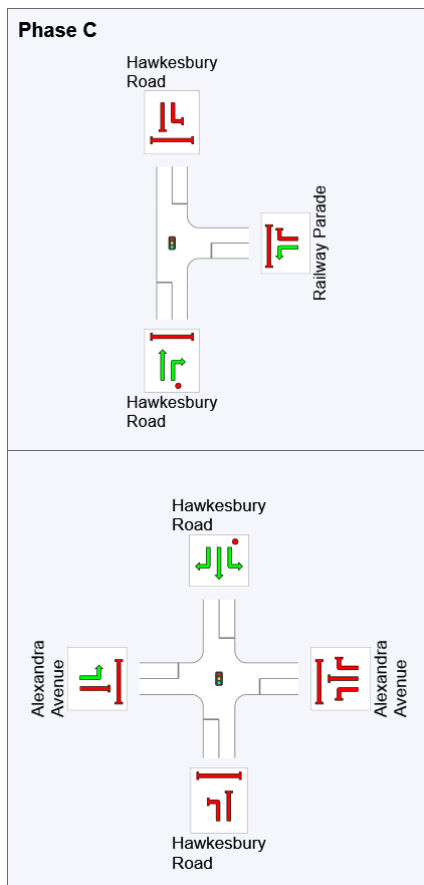


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.215	80.5	LOS F	0.6	15.9	0.99	0.69	0.99	10.6
Approach		8	100.0	8	100.0	0.215	80.5	LOS F	0.6	15.9	0.99	0.69	0.99	10.6
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.144	78.5	LOS F	0.6	15.3	0.98	0.68	0.98	10.6
25	T1	537	2.4	537	2.4	* 1.280	296.9	LOS F	85.4	610.1	0.98	2.07	2.51	2.3
26	R2	347	2.6	347	2.6	* 1.228	263.4	LOS F	51.1	366.0	1.00	1.69	2.35	2.5
Approach		892	3.4	892	3.4	1.280	281.9	LOS F	85.4	610.1	0.99	1.91	2.43	2.4
NorthWest: Darcy Road														
27	L2	198	5.1	186	5.3	1.174	21.8	LOS B	5.0	65.1	0.53	0.67	0.56	24.3
29	R2	604	10.4	568	10.8	* 1.257	268.2	LOS F	20.0	146.9	0.95	1.69	2.34	1.4
Approach		802	9.1	754 ^{N1}	9.4	1.257	207.4	LOS F	20.0	146.9	0.84	1.44	1.90	2.5
SouthWest: Hawkesbury Road														
30	L2	514	13.2	514	13.2	0.337	13.4	LOS A	11.0	81.7	0.37	0.66	0.37	21.8
31	T1	317	2.5	317	2.5	0.395	49.3	LOS D	19.3	138.1	0.97	0.82	0.97	15.8
Approach		831	9.1	831	9.2	0.395	27.1	LOS B	19.3	138.1	0.60	0.72	0.60	17.8
All Vehicles		2533	7.4	2485 ^{N1}	7.5	1.280	173.5	LOS F	85.4	610.1	0.81	1.37	1.65	3.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.2	LOS D	0.1	0.1	0.92	0.92	55.9	30.9	0.55
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43

SouthWest: Hawkesbury Road											
P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42	
All Pedestrians	580	61.0	LOS F	0.8	0.8	0.96	0.96	124.9	76.7	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

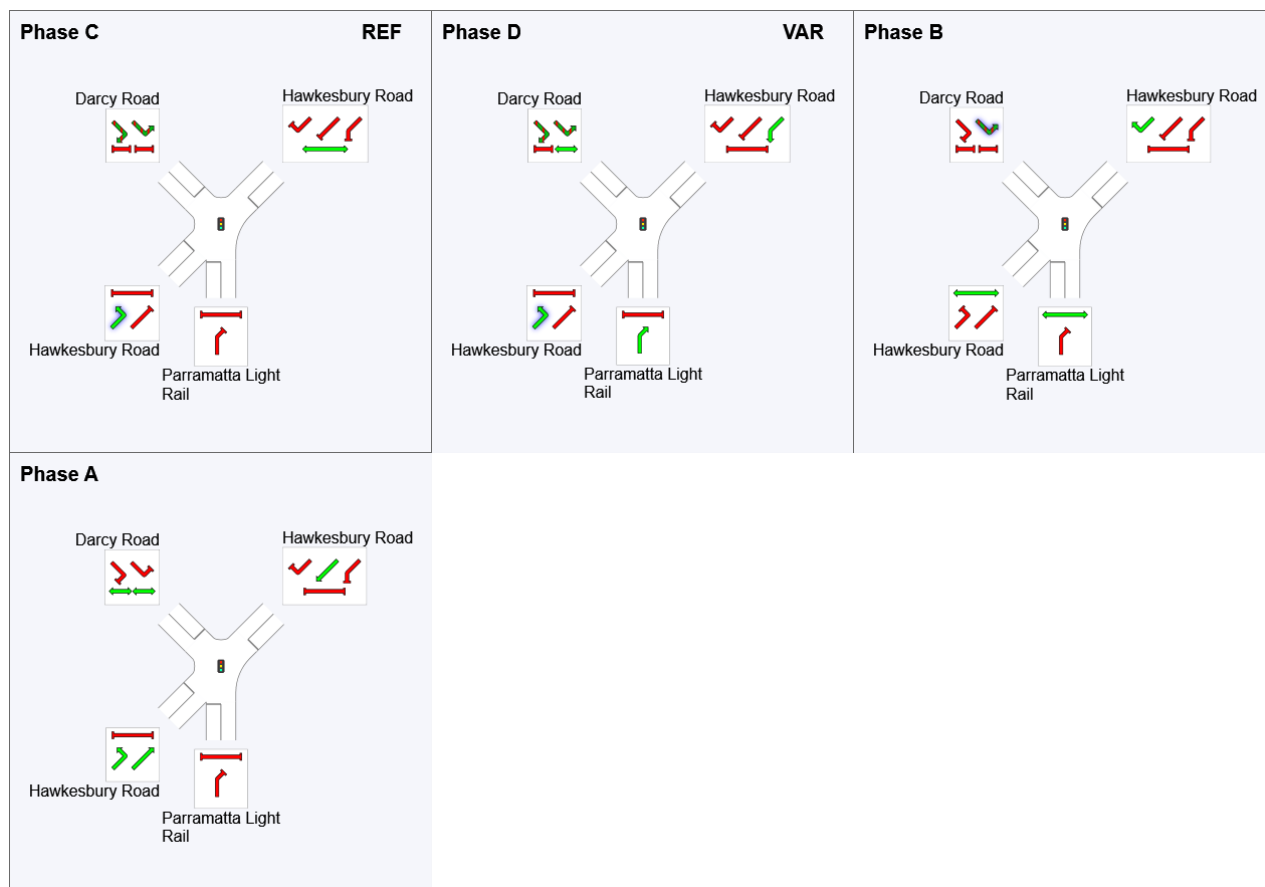
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	42	57	90
Green Time (sec)	36	7	24	39
Phase Time (sec)	44	16	33	47
Phase Split	31%	11%	24%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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■ **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum PM Peak)]**
■ **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Do Minimum PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	5	0.0	5	0.0	0.239	11.7	LOS A	0.1	1.0	0.03	0.01	0.04	30.4
22	T1	979	7.4	922	7.6	0.239	0.1	LOS A	0.1	1.0	0.02	0.00	0.02	38.9
Approach		984	7.3	927 ^{N1}	7.6	0.239	0.2	NA	0.1	1.0	0.02	0.00	0.02	38.8
NorthWest: Darcy Road														
28	T1	804	8.5	746	8.9	0.245	0.0	LOS A	11.4	83.0	0.00	0.00	0.00	39.9
Approach		804	8.5	746 ^{N1}	8.9	0.245	0.0	NA	11.4	83.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.007	27.8	LOS B	0.0	0.2	0.89	0.81	0.89	4.3
Approach		1	0.0	1	0.0	0.007	27.8	LOS B	0.0	0.2	0.89	0.81	0.89	4.3
All Vehicles		1789	7.8	1674 ^{N1}	8.4	0.245	0.1	NA	11.4	83.0	0.01	0.00	0.01	39.3

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

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.341	14.6	LOS B	12.5	90.8	0.48	0.42	0.48	19.3
22	T1	935	7.6	882	7.9	0.341	10.6	LOS A	12.5	90.8	0.45	0.40	0.45	19.4
23	R2	45	0.0	42	0.0	* 0.531	81.0	LOS F	3.1	21.5	1.00	0.74	1.01	8.6
Approach		981	7.2	925 ^{N1}	7.5	0.531	13.8	LOS A	12.5	90.8	0.48	0.42	0.48	17.3
NorthEast: Westmead Dental Hospital Access														
24	L2	46	0.0	46	0.0	0.069	4.8	LOS A	0.4	3.0	0.19	0.52	0.19	29.2
26	R2	37	0.0	37	0.0	* 0.146	57.8	LOS E	2.2	15.3	0.89	0.72	0.89	7.6
Approach		83	0.0	83	0.0	0.146	28.4	LOS B	2.2	15.3	0.50	0.61	0.50	12.7
NorthWest: Darcy Road														
27	L2	66	0.0	63	0.0	0.240	13.6	LOS A	12.0	86.8	0.44	0.42	0.44	26.9
28	T1	757	9.0	726	9.4	0.240	11.1	LOS A	12.0	86.8	0.48	0.44	0.48	18.2
29	R2	2	50.0	2	51.2	0.022	76.6	LOS F	0.1	1.4	1.00	0.61	1.00	6.7
Approach		825	8.4	791 ^{N1}	8.7	0.240	11.5	LOS A	12.0	86.8	0.48	0.44	0.48	19.1
SouthWest: Parramatta Marist High School Access														
30	L2	3	0.0	3	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
32	R2	1	0.0	1	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
Approach		4	0.0	4	0.0	0.013	43.9	LOS D	0.2	1.5	0.82	0.54	0.82	5.5
All Vehicles		1893	7.4	1803 ^{N1}	7.8	0.531	13.5	LOS A	12.5	90.8	0.48	0.44	0.48	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	88.1	28.6	0.32

All Pedestrians	154	64.3	LOS F	0.3	0.3	0.96	0.96	98.9	41.4	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

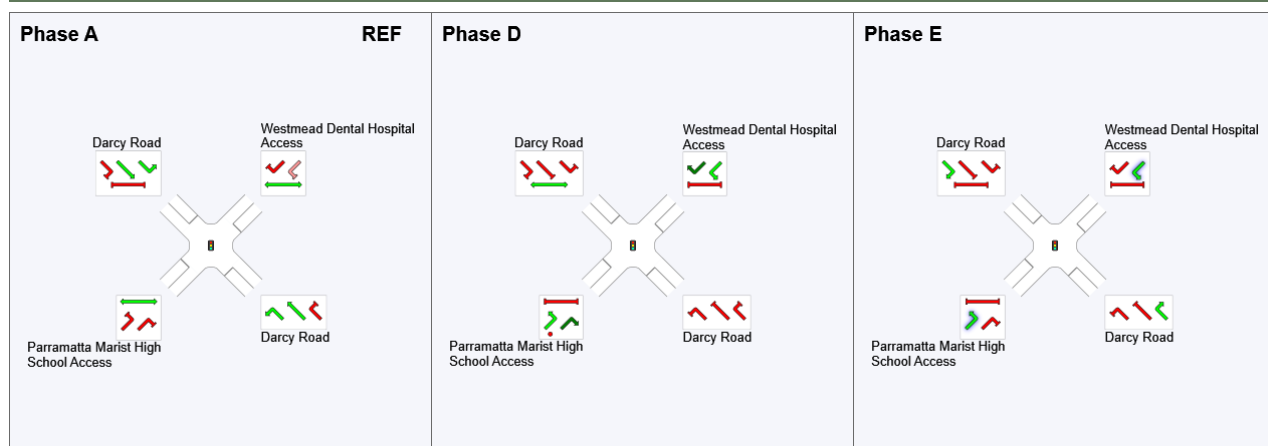
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.177	3.7	LOS A	2.2	16.3	0.00	0.00	0.00	26.8
22	T1	975	7.5	923	7.8	0.177	0.0	LOS A	5.5	40.3	0.00	0.00	0.00	39.9
Approach		976	7.5	923 ^{N1}	7.7	0.177	0.0	NA	5.5	40.3	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	825	8.2	791	8.6	0.200	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		825	8.2	791 ^{N1}	8.6	0.200	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	25	0.0	25	0.0	0.054	1.7	LOS A	0.2	1.2	0.42	0.28	0.42	18.4
Approach		25	0.0	25	0.0	0.054	1.7	LOS A	0.2	1.2	0.42	0.28	0.42	18.4
All Vehicles		1826	7.7	1739 ^{N1}	8.1	0.200	0.0	NA	5.5	40.3	0.01	0.00	0.01	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum PM Peak)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

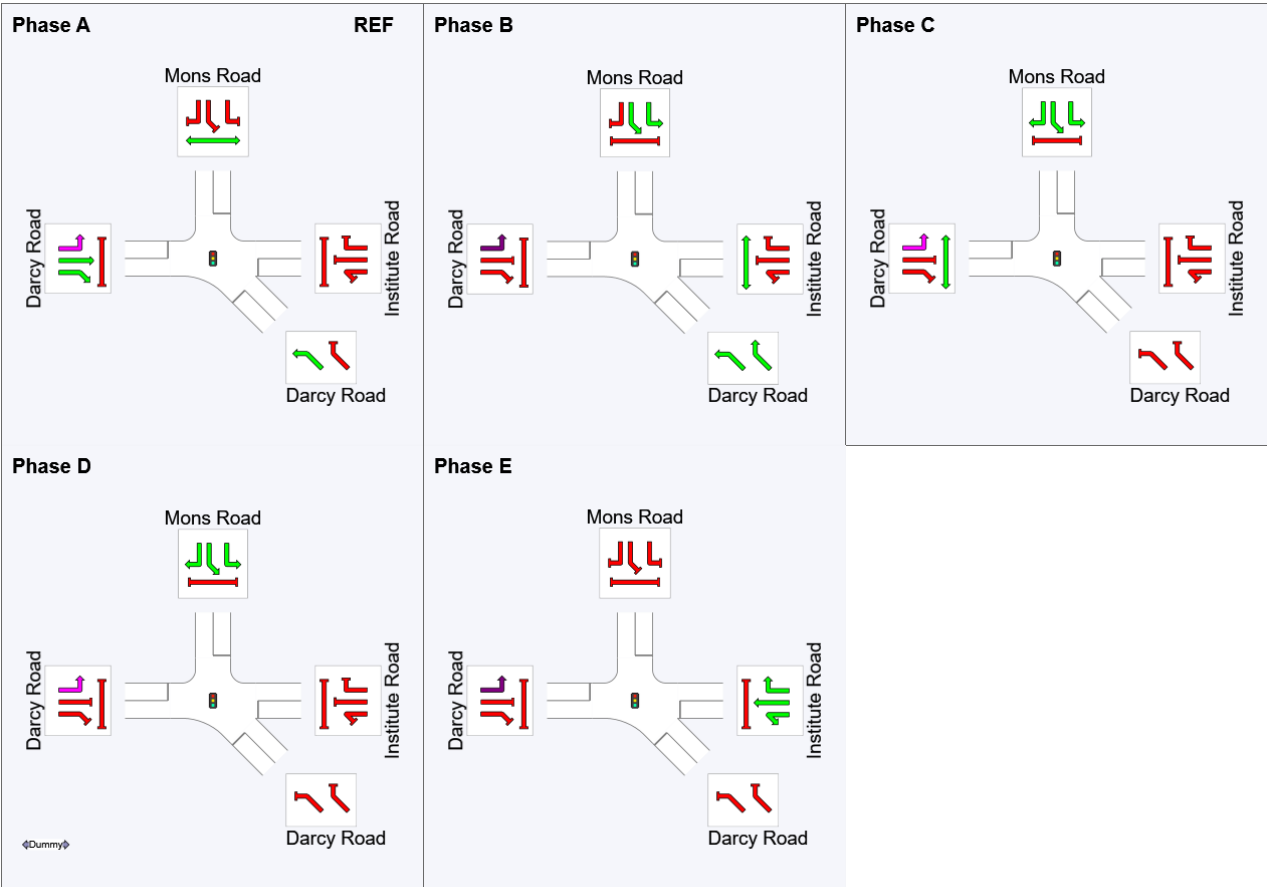
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	78	110	2	12
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 Do Minimum PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]**

1500 - 1600
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	244	4.1	244	4.1	0.551	10.4	LOS A	2.8	20.0	0.65	1.39	1.04	9.4
Approach		244	4.1	244	4.1	0.551	10.4	LOS A	2.8	20.0	0.65	1.39	1.04	9.4
East: Darcy Road														
4	L2	57	8.8	52	9.4	0.030	7.3	LOS A	0.0	0.0	0.00	0.76	0.00	18.9
5	T1	1325	1.4	1197	1.5	0.310	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1382	1.7	1249 ^{N1}	1.9	0.310	0.3	NA	0.0	0.0	0.00	0.03	0.00	38.0
West: Darcy Road														
11	T1	645	2.5	644	2.5	0.217	2.1	LOS A	3.6	26.0	0.00	0.36	0.00	37.0
12	R2	96	4.2	96	4.2	0.328	15.3	LOS B	0.8	5.7	0.75	0.97	0.87	25.5
Approach		741	2.7	740 ^{N1}	2.7	0.328	3.8	LOS A	3.6	26.0	0.10	0.44	0.11	35.0
All Vehicles		2367	2.3	2233 ^{N1}	2.4	0.551	2.6	NA	3.6	26.0	0.10	0.31	0.15	21.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Bridge Road														
1	L2	229	1.3	227	1.3	* 0.439	41.6	LOS C	11.7	82.5	0.84	0.78	0.84	25.5
2	T1	29	0.0	29	0.0	* 0.739	76.7	LOS F	8.2	60.7	1.00	0.86	1.14	15.5
3	R2	87	9.2	86	9.3	0.739	76.3	LOS F	8.2	60.7	1.00	0.86	1.14	15.2
Approach		345	3.2	342 ^{N1}	3.2	0.739	53.3	LOS D	11.7	82.5	0.89	0.81	0.94	21.5
East: Darcy Road														
4	L2	284	4.6	263	4.9	* 0.359	20.2	LOS B	19.7	141.2	0.46	0.51	0.46	27.7
5	T1	1257	1.4	1161	1.4	0.359	13.4	LOS A	19.7	141.2	0.40	0.40	0.40	35.0
6	R2	28	0.0	26	0.0	0.055	12.8	LOS A	0.4	2.6	0.38	0.61	0.38	29.0
Approach		1569	1.9	1450 ^{N1}	2.0	0.359	14.6	LOS B	19.7	141.2	0.41	0.42	0.41	33.7
North: Coles Westmead Access														
7	L2	26	0.0	26	0.0	0.068	43.0	LOS D	1.3	9.4	0.83	0.61	0.83	4.3
8	T1	45	0.0	45	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	3.1
9	R2	42	0.0	42	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	8.8
Approach		113	0.0	113	0.0	0.573	61.8	LOS E	5.9	41.3	0.96	0.74	0.96	5.8
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.310	16.3	LOS B	13.6	96.2	0.48	0.46	0.48	23.6
11	T1	628	1.4	628	1.4	0.310	11.2	LOS A	13.6	96.2	0.46	0.42	0.46	25.6
12	R2	335	1.8	335	1.8	0.834	33.1	LOS C	13.7	97.7	0.70	0.88	0.86	13.5
Approach		1020	1.5	1020	1.5	0.834	18.6	LOS B	13.7	97.7	0.54	0.57	0.59	19.8
All Vehicles		3047	1.8	2925 ^{N1}	1.9	0.834	22.4	LOS B	19.7	141.2	0.53	0.53	0.56	25.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access
(TCS 1630) (Site Folder: 2033 Do Minimum PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 Do
Minimum)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

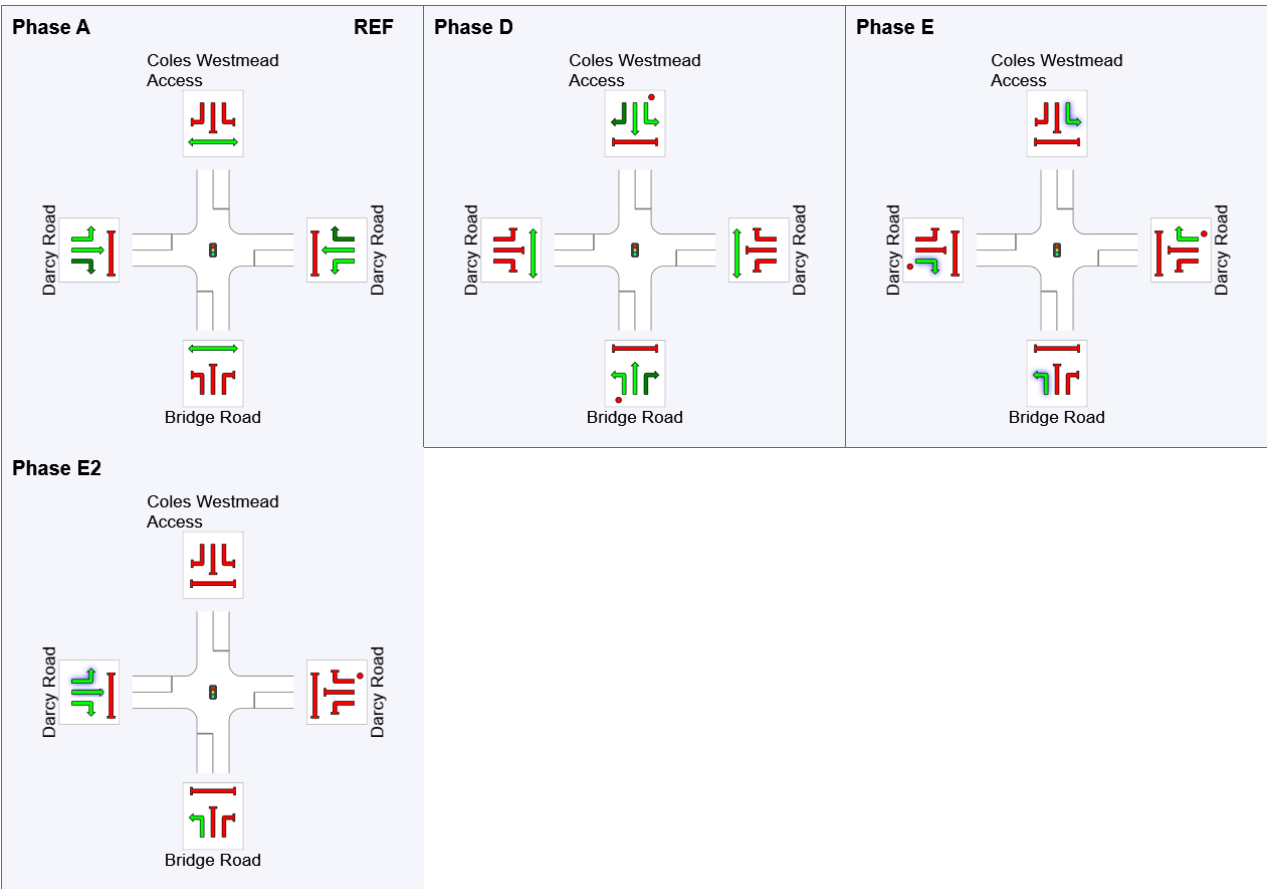
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, E2
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Do Minimum PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	454	2.4	454	2.4	0.632	5.3	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
3	R2	162	0.6	162	0.6	0.632	8.4	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
3u	U	1	100.0	1	100.0	0.632	11.5	LOS A	6.5	46.5	0.68	0.61	0.68	24.1
Approach		617	2.1	617	2.1	0.632	6.2	LOS A	6.5	46.5	0.68	0.61	0.68	22.8
East: Alexandra Avenue														
4	L2	253	0.4	242	0.4	0.787	22.0	LOS B	8.4	59.3	0.88	1.19	1.43	33.6
6	R2	152	0.0	146	0.0	0.787	24.5	LOS B	8.4	59.3	0.88	1.19	1.43	33.5
6u	U	1	0.0	1	0.0	0.787	25.8	LOS B	8.4	59.3	0.88	1.19	1.43	33.5
Approach		406	0.2	389 ^{N1}	0.3	0.787	22.9	LOS B	8.4	59.3	0.88	1.19	1.43	33.6
North: Bridge Road														
7	L2	105	0.0	102	0.0	0.817	9.6	LOS A	12.6	90.2	0.84	0.74	0.95	39.0
8	T1	687	2.8	670	2.8	0.817	9.3	LOS A	12.6	90.2	0.84	0.74	0.95	38.8
9u	U	1	0.0	1	0.0	0.817	13.4	LOS A	12.6	90.2	0.84	0.74	0.95	39.0
Approach		793	2.4	774 ^{N1}	2.4	0.817	9.4	LOS A	12.6	90.2	0.84	0.74	0.95	38.9
All Vehicles		1816	1.8	1780 ^{N1}	1.9	0.817	11.2	LOS A	12.6	90.2	0.79	0.79	0.96	35.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2033 Do Minimum)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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Appendix H: Future Year 2023 and 2033 With Development With Upgrade SIDRA Modelling Results



CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	21	4.8	21	4.8	1.412	401.2	LOS F	92.0	648.9	1.00	2.41	2.93	1.7
2	T1	998	0.7	998	0.7	* 1.412	396.2	LOS F	104.2	733.8	1.00	2.43	2.93	1.7
Approach		1019	0.8	1019	0.8	1.412	396.3	LOS F	104.2	733.8	1.00	2.43	2.93	1.7
East: Alexandra Avenue														
4	L2	38	0.0	38	0.0	1.427	440.1	LOS F	13.7	101.8	1.00	2.13	3.05	2.6
5	T1	115	0.0	115	0.0	* 1.427	435.6	LOS F	13.7	101.8	1.00	2.13	3.05	1.3
6	R2	333	17.4	333	17.4	1.427	441.1	LOS F	42.4	340.9	1.00	1.96	3.06	1.3
Approach		486	11.9	486	11.9	1.427	439.7	LOS F	42.4	340.9	1.00	2.01	3.06	1.4
North: Hawkesbury Road														
7	L2	364	16.8	364	16.8	* 0.572	11.0	LOS A	11.8	86.8	0.34	0.52	0.34	29.6
8	T1	432	2.1	432	2.1	0.572	29.7	LOS C	12.4	88.1	0.68	0.71	0.68	18.3
9	R2	57	0.0	57	0.0	0.572	55.9	LOS D	12.4	88.1	1.00	0.90	1.00	4.4
Approach		853	8.2	853	8.2	0.572	23.5	LOS B	12.4	88.1	0.56	0.64	0.56	20.2
West: Alexandra Avenue														
10	L2	247	0.0	244	0.0	0.462	43.1	LOS D	13.0	91.0	0.83	0.80	0.83	25.9
11	T1	292	0.3	289	0.3	* 1.050	136.3	LOS F	29.9	210.0	1.00	1.38	1.78	14.6
Approach		539	0.2	533 ^{N1}	0.2	1.050	93.6	LOS F	29.9	210.0	0.92	1.12	1.35	17.8
All Vehicles		2897	4.7	2891 ^{N1}	4.7	1.427	237.8	LOS F	104.2	733.8	0.86	1.59	1.96	4.1
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1286	4.9	999	4.6	0.523	6.3	LOS A	12.1	88.1	0.42	0.42	0.42	20.9
3	R2	292	0.3	227	0.3	0.523	10.6	LOS A	10.7	77.0	0.46	0.53	0.46	41.3
Approach		1578	4.1	1226 ^{N1}	3.8	0.523	7.1	LOS A	12.1	88.1	0.43	0.44	0.43	30.9
East: Railway Parade														
4	L2	183	1.1	183	1.1	0.405	25.3	LOS B	7.4	52.4	0.69	0.75	0.69	29.8
6	R2	30	0.0	30	0.0	0.185	67.6	LOS E	1.9	13.4	0.95	0.73	0.95	17.7
Approach		213	0.9	213	0.9	0.405	31.2	LOS C	7.4	52.4	0.73	0.74	0.73	27.2
North: Hawkesbury Road														
7	L2	110	0.0	110	0.0	0.145	37.9	LOS C	6.0	51.9	0.63	0.65	0.63	27.7
8	T1	669	12.9	669	12.9	0.472	22.5	LOS B	12.5	92.9	0.57	0.50	0.57	15.6
Approach		779	11.0	779	11.0	0.472	24.7	LOS B	12.5	92.9	0.58	0.52	0.58	19.0
All Vehicles		2570	5.9	2218 ^{N1}	6.9	0.523	15.6	LOS B	12.5	92.9	0.51	0.50	0.51	24.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

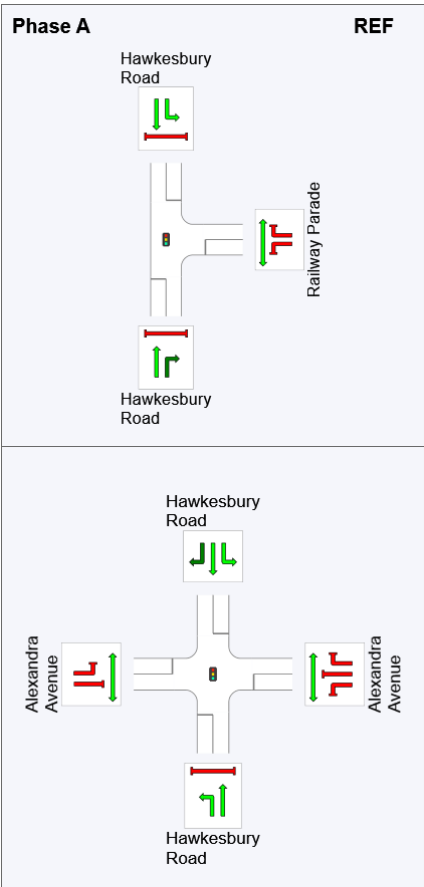
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

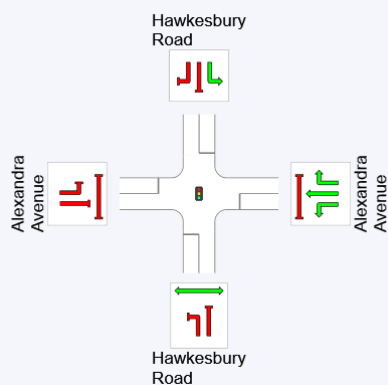
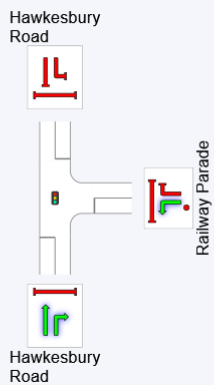
Phase	A	E	D	C
Phase Change Time (sec)	0	54	83	109
Green Time (sec)	48	20	17	25
Phase Time (sec)	57	29	23	31
Phase Split	41%	21%	16%	22%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

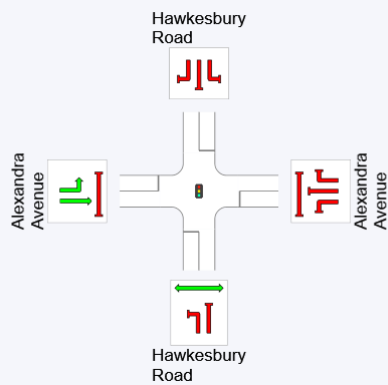
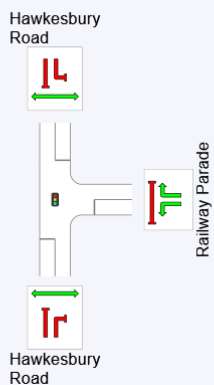
Output Phase Sequence (CCG)

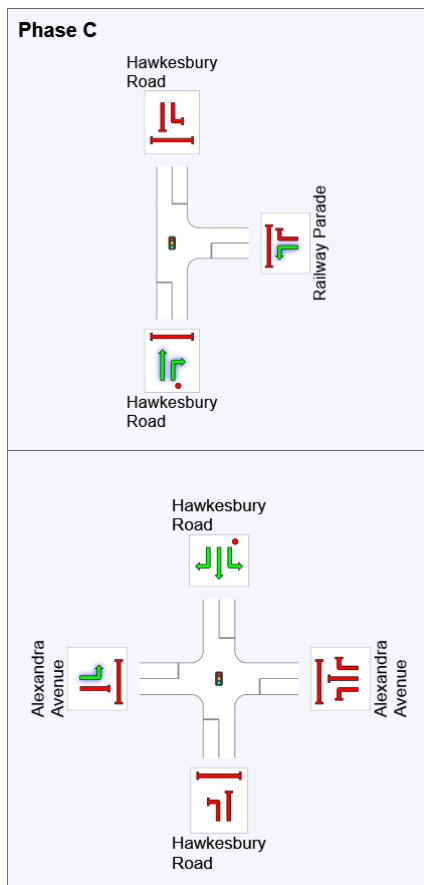


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development + Upgrades AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
Approach		8	100.0	8	100.0	0.168	76.6	LOS F	0.6	15.4	0.97	0.69	0.97	11.0
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	77.8	LOS F	0.6	15.4	0.97	0.69	0.97	10.7
25	T1	278	4.3	278	4.3	* 0.579	47.7	LOS D	16.3	118.7	0.92	0.78	0.92	11.4
26	R2	131	3.8	131	3.8	* 0.570	64.3	LOS E	8.5	61.7	0.98	0.80	0.98	8.9
Approach		417	6.0	417	6.0	0.579	53.5	LOS D	16.3	118.7	0.94	0.79	0.94	10.5
NorthWest: Darcy Road														
27	L2	245	4.5	245	4.5	0.545	22.2	LOS B	6.9	49.1	0.65	0.70	0.65	21.9
29	R2	501	13.6	501	13.6	* 0.579	50.6	LOS D	15.8	117.4	0.83	0.77	0.84	6.7
Approach		746	10.6	746	10.6	0.579	41.3	LOS C	15.8	117.4	0.77	0.75	0.77	10.8
SouthWest: Hawkesbury Road														
30	L2	920	6.3	733	5.9	0.551	13.7	LOS A	18.7	134.8	0.42	0.69	0.42	21.5
31	T1	397	1.5	317	1.4	0.518	47.9	LOS D	18.2	129.2	0.90	0.79	0.90	16.1
Approach		1317	4.9	1050 ^N ₁	4.6	0.551	24.1	LOS B	18.7	134.8	0.57	0.72	0.57	18.4
All Vehicles		2488	7.1	2221 ^N ₁	7.9	0.579	35.6	LOS C	18.7	134.8	0.71	0.74	0.71	13.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	29.6	LOS C	0.1	0.1	0.92	0.92	55.3	30.9	0.56

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	61.7	LOS F	0.8	0.8	0.96	0.96	134.9	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

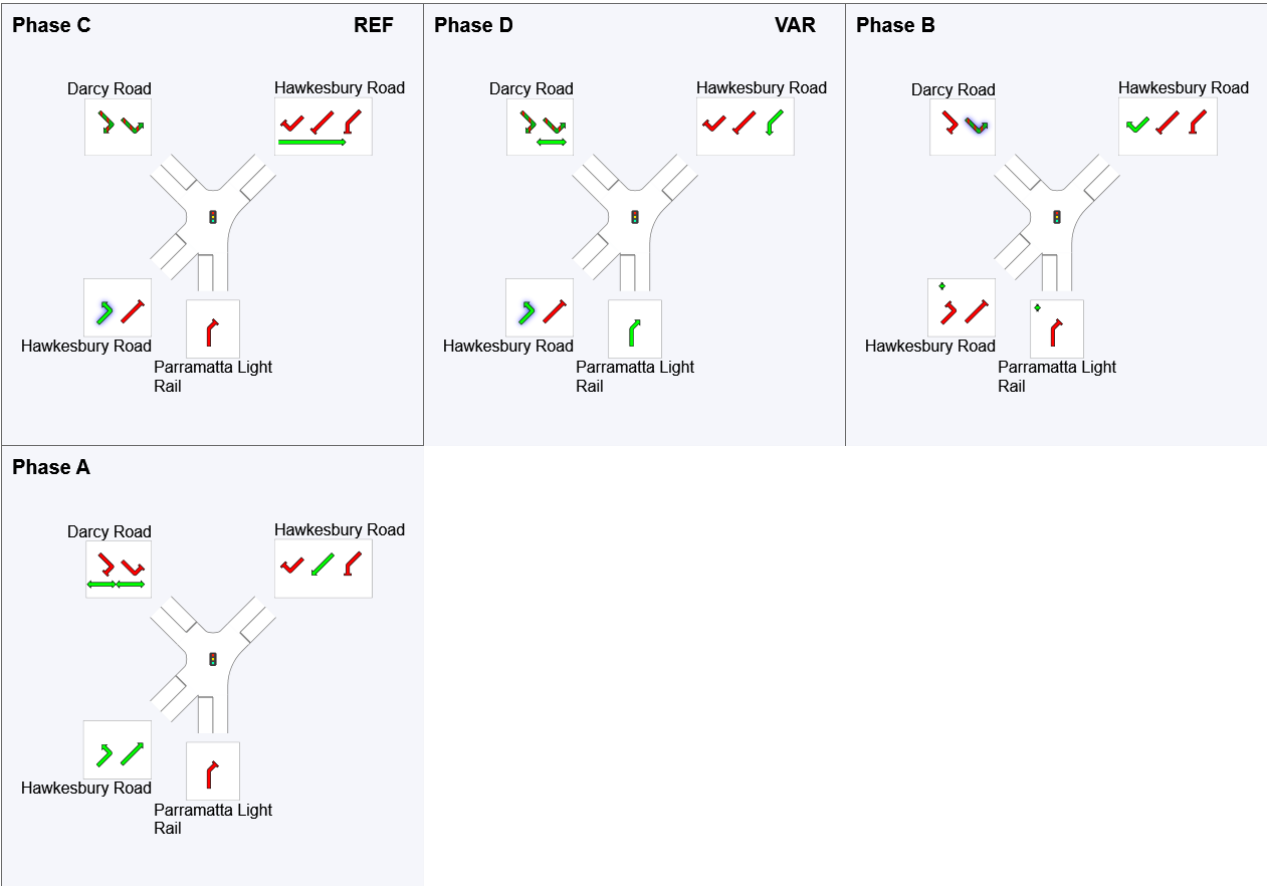
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	45	62	92
Green Time (sec)	39	9	21	37
Phase Time (sec)	47	18	30	45
Phase Split	34%	13%	21%	32%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

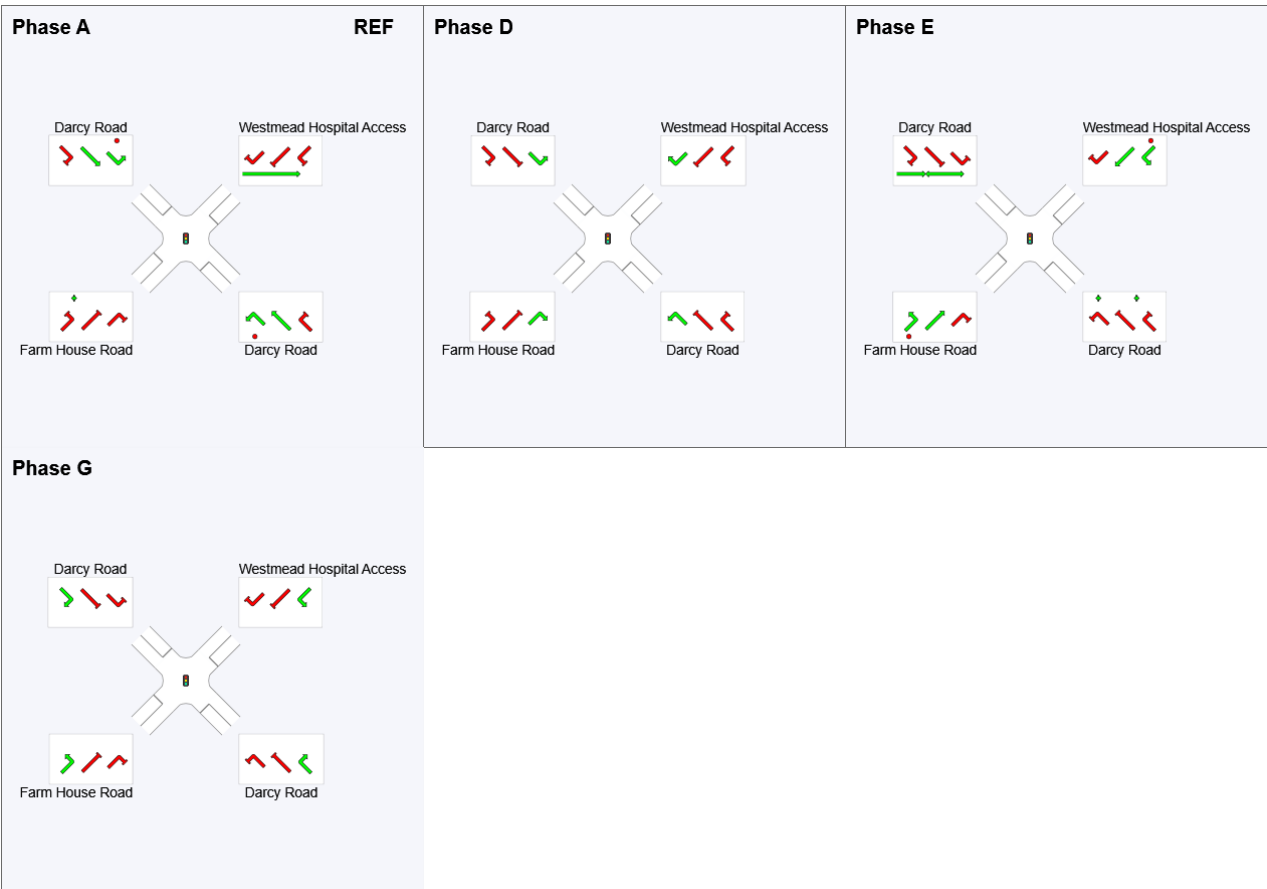
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

▼ Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 With Development + Upgrades AM Peak)]

■ Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	350	0.0	304	0.0	0.477	10.3	LOS A	2.3	16.4	0.71	0.96	0.97	16.7
22	T1	661	10.1	572	9.7	0.292	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1011	6.6	876 ^{N1}	6.4	0.477	3.6	NA	2.3	16.4	0.25	0.33	0.34	24.8
NorthWest: Darcy Road														
28	T1	849	10.1	849	10.1	0.273	0.0	LOS A	2.2	16.0	0.00	0.00	0.00	39.9
Approach		849	10.1	849	10.1	0.273	0.0	NA	2.2	16.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.40	0.61	11.7
Approach		1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.40	0.61	11.7
All Vehicles		1861	8.2	1726 ^{N1}	8.9	0.477	1.8	NA	2.3	16.4	0.13	0.17	0.17	31.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SITE LAYOUT

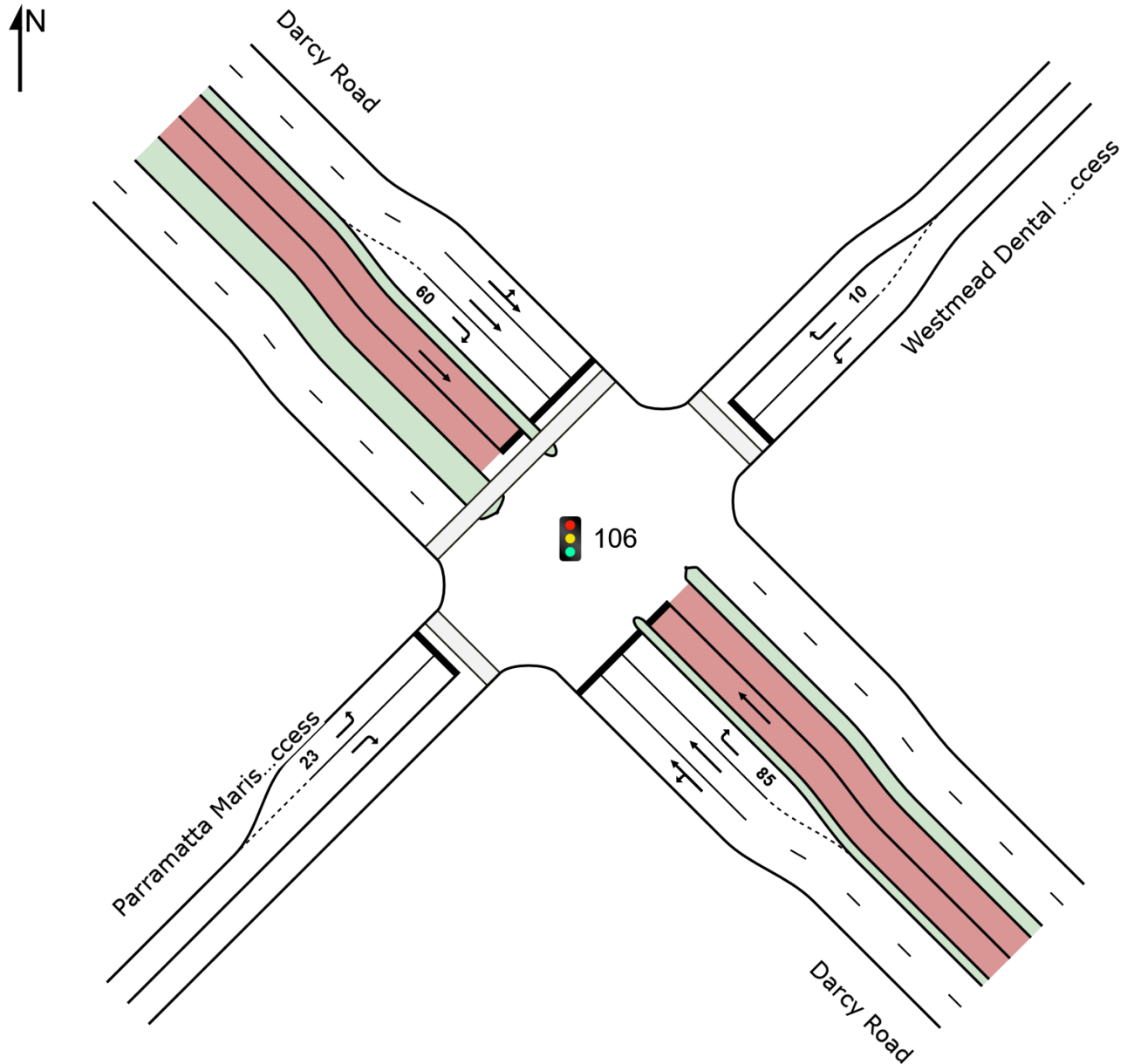
 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development + Upgrades AM Peak)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development + Upgrades AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	0.225	4.1	LOS A	0.5	3.4	0.03	0.04	0.03	27.4
22	T1	607	11.0	537	10.7	0.225	0.7	LOS A	0.5	3.4	0.03	0.03	0.03	37.3
23	R2	45	0.0	40	0.0	* 0.301	76.6	LOS F	2.8	19.6	1.00	0.74	1.00	8.0
Approach		660	10.2	584 ^{N1}	9.9	0.301	5.9	LOS A	2.8	19.6	0.09	0.08	0.09	24.6
NorthEast: Westmead Dental Hospital Access														
24	L2	16	0.0	16	0.0	0.018	0.5	LOS A	0.1	0.6	0.12	0.09	0.12	19.6
26	R2	29	0.0	29	0.0	0.147	59.4	LOS E	1.8	12.6	0.92	0.68	0.92	6.2
Approach		45	0.0	45	0.0	0.147	38.5	LOS C	1.8	12.6	0.64	0.47	0.64	8.2
NorthWest: Darcy Road														
27	L2	77	0.0	77	0.0	* 0.344	8.8	LOS A	4.8	35.3	0.20	0.25	0.20	21.8
28	T1	749	11.5	748	11.5	0.344	4.1	LOS A	4.8	35.3	0.16	0.17	0.16	27.4
29	R2	5	0.0	5	0.0	0.038	73.8	LOS F	0.3	2.4	1.00	0.65	1.00	6.9
Approach		831	10.3	830 ^{N1}	10.4	0.344	5.0	LOS A	4.8	35.3	0.17	0.18	0.17	25.4
SouthWest: Parramatta Marist High School Access														
30	L2	156	0.0	156	0.0	* 0.408	44.4	LOS D	8.6	60.1	0.88	0.71	0.88	5.5
32	R2	84	0.0	84	0.0	0.289	52.6	LOS D	5.0	34.7	0.90	0.71	0.90	5.0
Approach		240	0.0	240	0.0	0.408	47.2	LOS D	8.6	60.1	0.89	0.71	0.89	5.3
All Vehicles		1776	8.6	1699 ^{N1}	9.0	0.408	12.2	LOS A	8.6	60.1	0.26	0.23	0.26	16.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	98.5	41.1	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

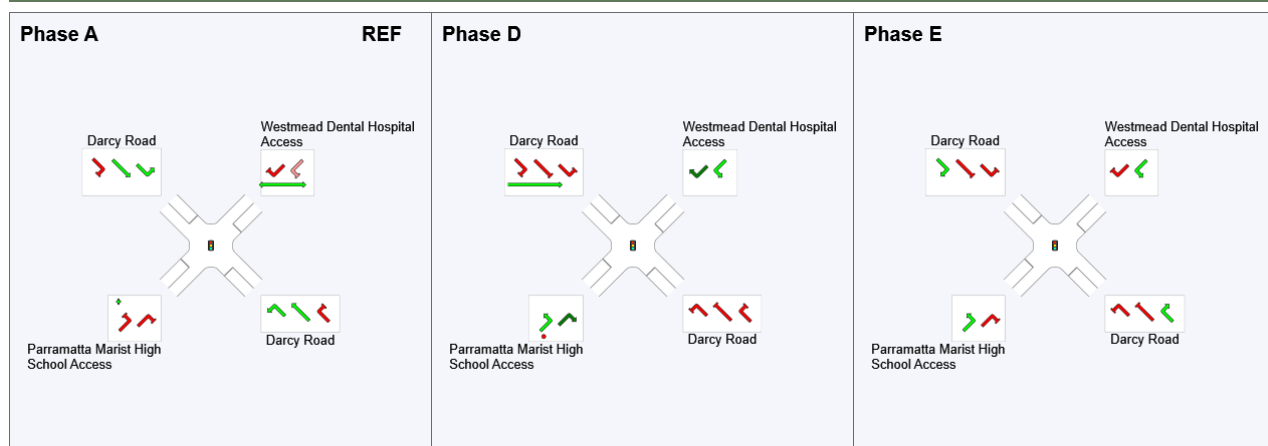
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

▼ Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 With Development + Upgrades AM Peak)]

■ Network: N101 [AM Peak
(Network Folder: 2023 With
Development + Upgrades)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.160	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	793	8.6	738	8.2	0.160	0.0	LOS A	7.6	55.3	0.00	0.00	0.00	39.9
Approach		794	8.6	739 ^{N1}	8.2	0.160	0.0	NA	7.6	55.3	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	831	10.1	830	10.1	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		831	10.1	830 ^{N1}	10.1	0.210	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
Approach		1	0.0	1	0.0	0.001	1.3	LOS A	0.0	0.0	0.37	0.16	0.37	18.6
All Vehicles		1626	9.3	1570 ^{N1}	9.7	0.210	0.0	NA	7.6	55.3	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

■ **Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)**
■ **(Site Folder: 2023 With Development + Upgrades AM Peak)**
■ **Network: N101 [AM Peak**
■ **(Network Folder: 2023 With Development + Upgrades)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2023 With Development + Upgrades AM Peak)

Network: N101 [AM Peak
(Network Folder: 2023 With
Development + Upgrades)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

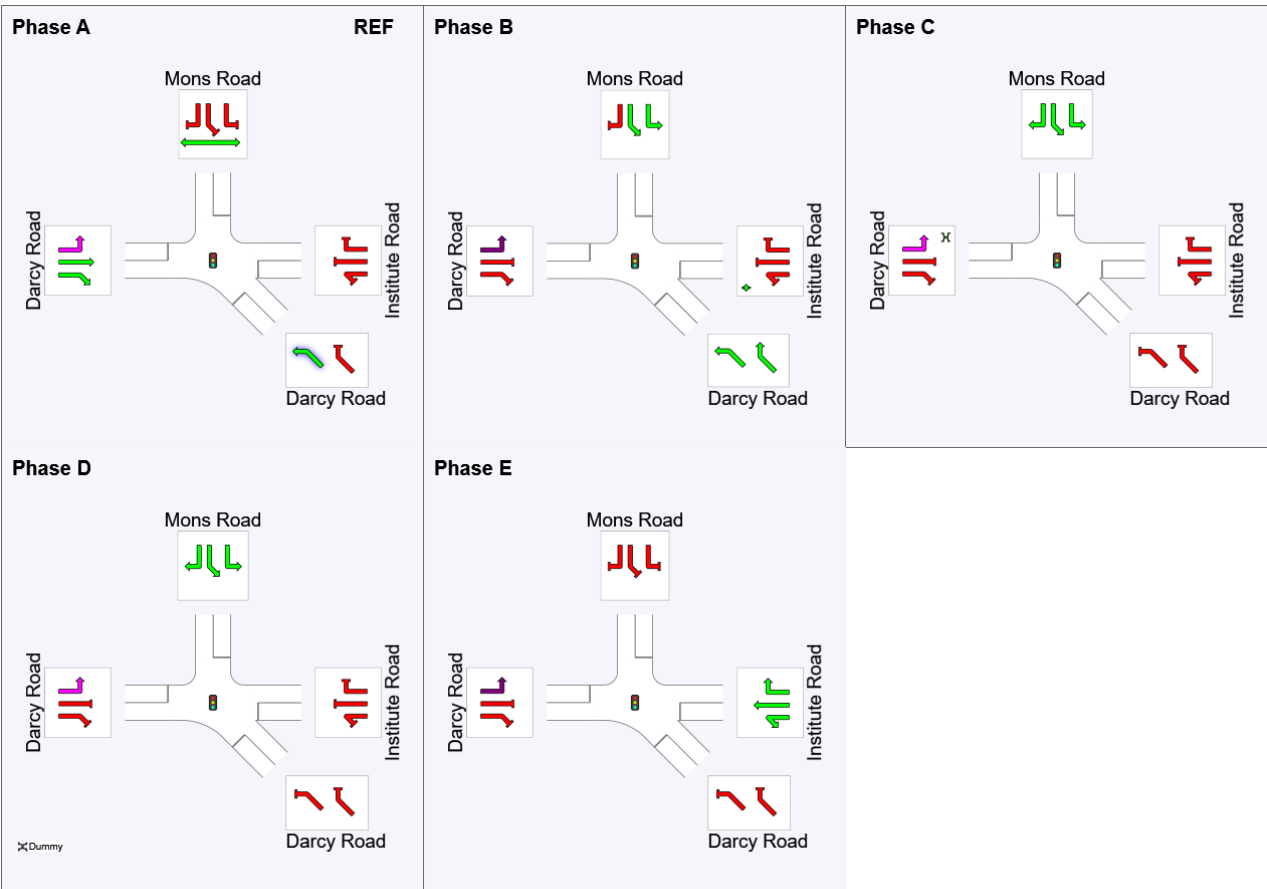
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	48	73	110	124
Green Time (sec)	42	19	31	8	10
Phase Time (sec)	48	25	37	14	16
Phase Split	34%	18%	26%	10%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

SITE LAYOUT

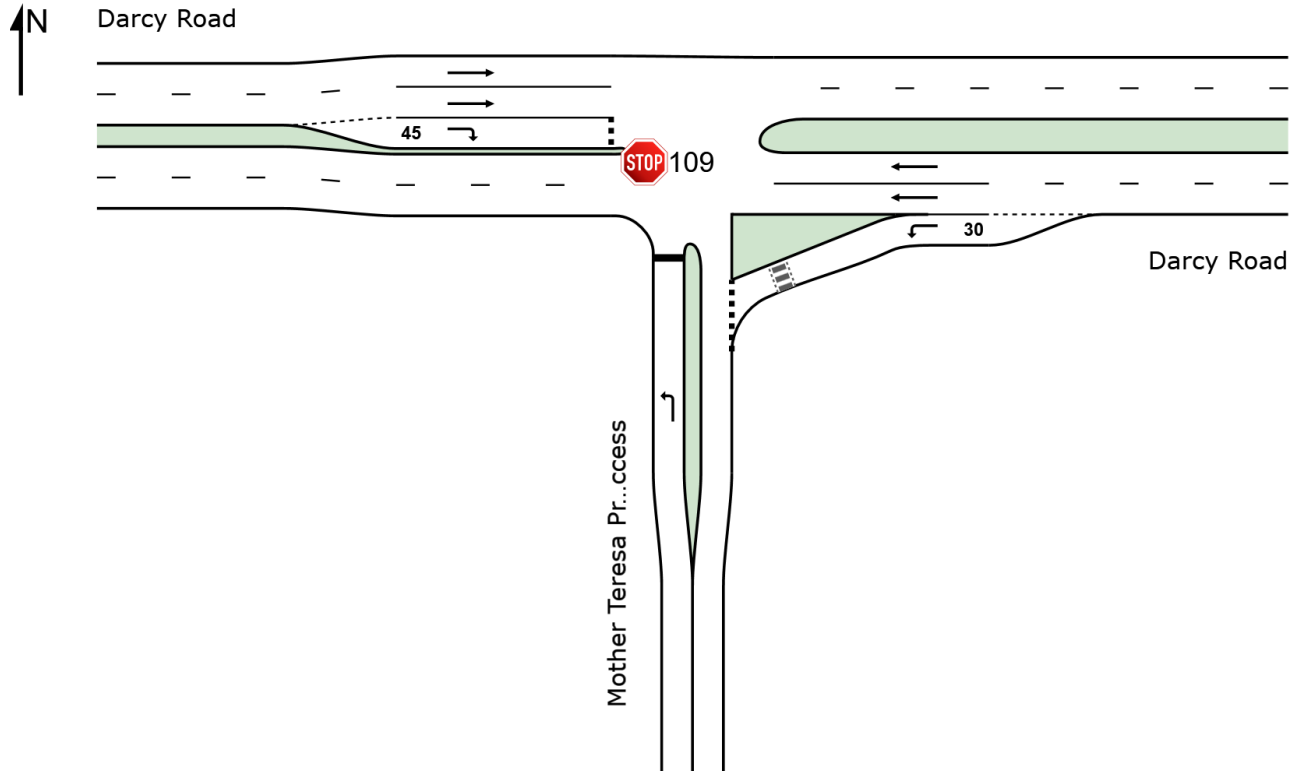
 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 With Development + Upgrades AM Peak)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 With Development + Upgrades AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	250	2.0	250	2.0	0.392	4.6	LOS A	1.5	11.0	0.45	0.94	0.49	9.7
Approach		250	2.0	250	2.0	0.392	4.6	LOS A	1.5	11.0	0.45	0.94	0.49	9.7
East: Darcy Road														
4	L2	80	3.8	78	3.8	0.061	10.3	LOS A	0.2	1.5	0.25	0.75	0.25	16.6
5	T1	613	3.1	601	3.1	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		693	3.2	679 ^{N1}	3.2	0.157	1.2	LOS A	0.2	1.5	0.03	0.09	0.03	33.5
West: Darcy Road														
11	T1	1010	3.1	1008	3.1	0.264	2.1	LOS A	21.9	157.5	0.00	0.36	0.00	37.0
12	R2	193	2.6	193	2.6	0.344	9.9	LOS A	1.0	7.2	0.55	0.87	0.63	29.2
Approach		1203	3.0	1201 ^{N1}	3.0	0.344	3.4	LOS A	21.9	157.5	0.09	0.44	0.10	35.5
All Vehicles		2146	2.9	2130 ^{N1}	3.0	0.392	2.8	NA	21.9	157.5	0.11	0.39	0.12	23.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

■ **Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development + Upgrades AM Peak)]**
■ **Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	67	64.3	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
East: Darcy Road											
P2	Full	40	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40
North: Coles Westmead Access											

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E*

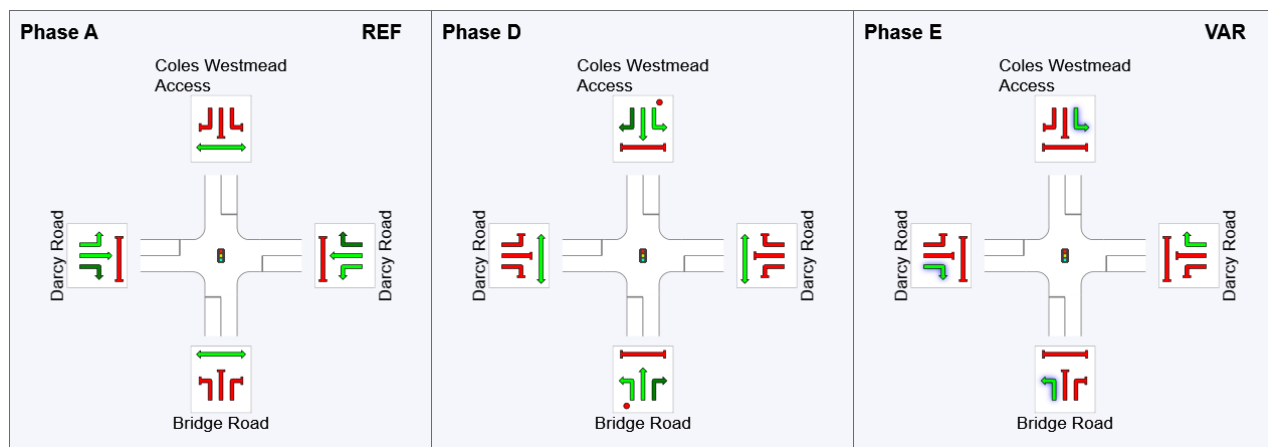
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	121	77	109
Green Time (sec)	89	25	10
Phase Time (sec)	96	27	17
Phase Split	69%	19%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 **Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 With Development + Upgrades AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]**

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	348	0.3	348	0.3	0.525	3.8	LOS A	5.3	37.1	0.30	0.51	0.30	24.9
3	R2	315	0.3	315	0.3	0.525	6.9	LOS A	5.3	37.1	0.30	0.51	0.30	24.9
3u	U	4	0.0	4	0.0	0.525	8.3	LOS A	5.3	37.1	0.30	0.51	0.30	27.9
Approach		667	0.3	667	0.3	0.525	5.3	LOS A	5.3	37.1	0.30	0.51	0.30	25.0
East: Alexandra Avenue														
4	L2	109	0.9	88	1.0	0.232	8.7	LOS A	1.2	8.3	0.60	0.77	0.60	40.8
6	R2	48	2.1	39	2.2	0.232	11.3	LOS A	1.2	8.3	0.60	0.77	0.60	41.5
6u	U	2	0.0	2	0.0	0.232	12.5	LOS A	1.2	8.3	0.60	0.77	0.60	41.5
Approach		159	1.3	129 ^{N1}	1.4	0.232	9.5	LOS A	1.2	8.3	0.60	0.77	0.60	41.0
North: Bridge Road														
7	L2	247	0.4	247	0.4	1.024	61.5	LOS E	46.4	325.6	1.00	2.19	3.45	17.5
8	T1	552	0.2	552	0.2	1.024	61.1	LOS E	46.4	325.6	1.00	2.19	3.45	18.7
9u	U	1	0.0	1	0.0	1.024	65.3	LOS E	46.4	325.6	1.00	2.19	3.45	17.5
Approach		800	0.3	800	0.3	1.024	61.2	LOS E	46.4	325.6	1.00	2.19	3.45	18.3
All Vehicles		1626	0.4	1596 ^{N1}	0.4	1.024	33.7	LOS C	46.4	325.6	0.68	1.37	1.90	20.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2023 With Development + Upgrades)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS	ARRIVAL FLOWS	Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed			
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec	[Veh. veh	Dist] m					km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	43	0.0	43	0.0	0.605	55.4	LOS D	16.8	119.3	0.94	0.81	0.94	10.9
2	T1	487	1.8	487	1.8	0.605	50.8	LOS D	16.8	119.3	0.94	0.80	0.94	10.9
Approach		530	1.7	530	1.7	0.605	51.2	LOS D	16.8	119.3	0.94	0.80	0.94	10.9
East: Alexandra Avenue														
4	L2	29	0.0	29	0.0	0.854	72.2	LOS F	12.7	92.2	1.00	0.98	1.18	13.4
5	T1	215	0.0	215	0.0	* 0.854	67.7	LOS E	12.7	92.2	1.00	0.98	1.18	7.6
6	R2	276	24.3	276	24.3	0.854	74.6	LOS F	16.8	141.8	1.00	0.96	1.22	7.1
Approach		520	12.9	520	12.9	0.854	71.6	LOS F	16.8	141.8	1.00	0.97	1.20	7.7
North: Hawkesbury Road														
7	L2	304	22.0	282	22.1	* 0.626	12.8	LOS A	11.9	88.1	0.40	0.52	0.40	28.1
8	T1	773	1.3	716	1.3	0.626	18.2	LOS B	12.5	88.1	0.66	0.65	0.66	24.2
9	R2	79	0.0	73	0.0	0.626	28.3	LOS B	12.5	88.1	0.82	0.74	0.82	8.5
Approach		1156	6.7	1071 ^N ₁	6.7	0.626	17.5	LOS B	12.5	88.1	0.60	0.62	0.60	24.1
West: Alexandra Avenue														
10	L2	103	0.0	103	0.0	0.147	32.9	LOS C	4.4	30.9	0.67	0.72	0.67	29.3
11	T1	155	0.6	155	0.6	* 0.657	65.1	LOS E	10.4	73.3	1.00	0.82	1.02	23.5
Approach		258	0.4	258	0.4	0.657	52.2	LOS D	10.4	73.3	0.87	0.78	0.88	25.2
All Vehicles		2464	6.3	2379 ^N ₁	6.5	0.854	40.6	LOS C	16.8	141.8	0.80	0.75	0.84	16.1
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	674	11.0	674	11.0	0.374	4.8	LOS A	7.9	57.5	0.30	0.28	0.30	24.0
3	R2	191	0.0	191	0.0	0.374	15.2	LOS B	7.9	57.5	0.72	0.70	0.72	37.3
Approach		865	8.6	865	8.6	0.374	7.1	LOS A	7.9	57.5	0.39	0.37	0.39	32.1
East: Railway Parade														
4	L2	244	0.4	244	0.4	0.461	18.4	LOS B	8.4	58.7	0.62	0.74	0.62	33.4
6	R2	22	0.0	22	0.0	0.111	66.2	LOS E	1.4	9.6	0.94	0.71	0.94	18.0
Approach		266	0.4	266	0.4	0.461	22.4	LOS B	8.4	58.7	0.65	0.73	0.65	31.2
North: Hawkesbury Road														
7	L2	74	0.0	67	0.0	0.142	49.8	LOS D	5.3	47.6	0.83	0.71	0.83	24.3
8	T1	912	8.6	822	8.7	* 0.863	53.6	LOS D	26.5	193.3	0.98	0.92	1.06	8.0
Approach		986	7.9	888 ^{N1}	8.1	0.863	53.3	LOS D	26.5	193.3	0.97	0.90	1.05	9.7
All Vehicles		2117	7.2	2019 ^N ₁	7.6	0.863	29.4	LOS C	26.5	193.3	0.68	0.65	0.71	17.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

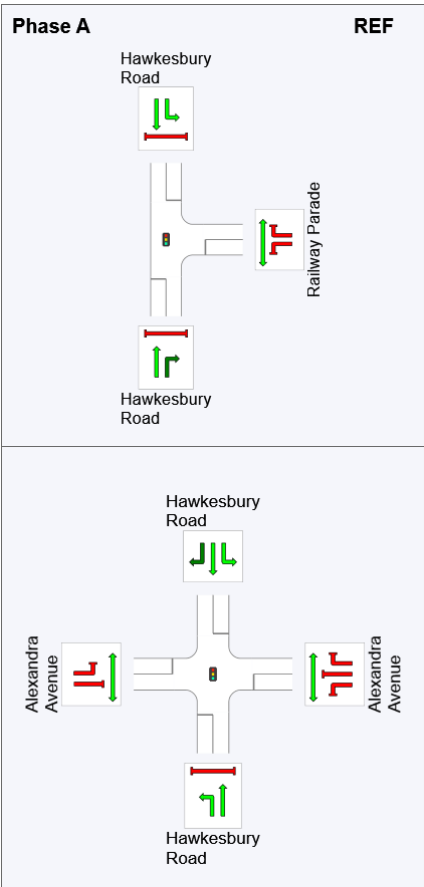
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

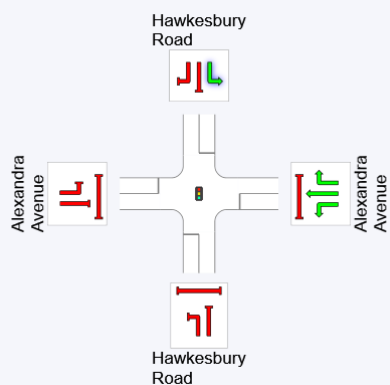
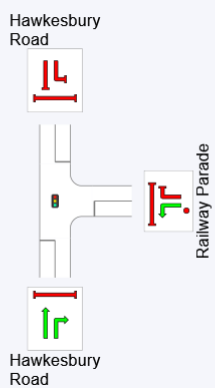
Phase	A	E	D	C
Phase Change Time (sec)	0	40	75	101
Green Time (sec)	34	26	17	33
Phase Time (sec)	43	35	23	39
Phase Split	31%	25%	16%	28%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

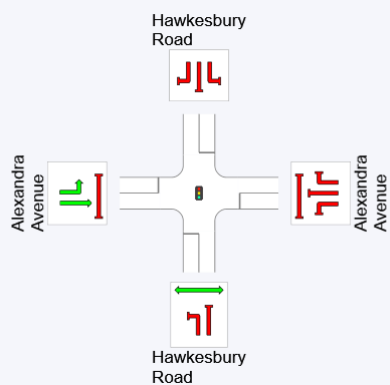
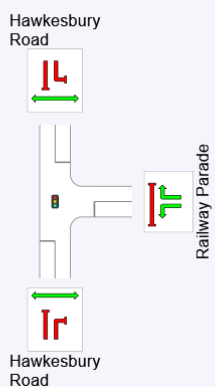
Output Phase Sequence (CCG)

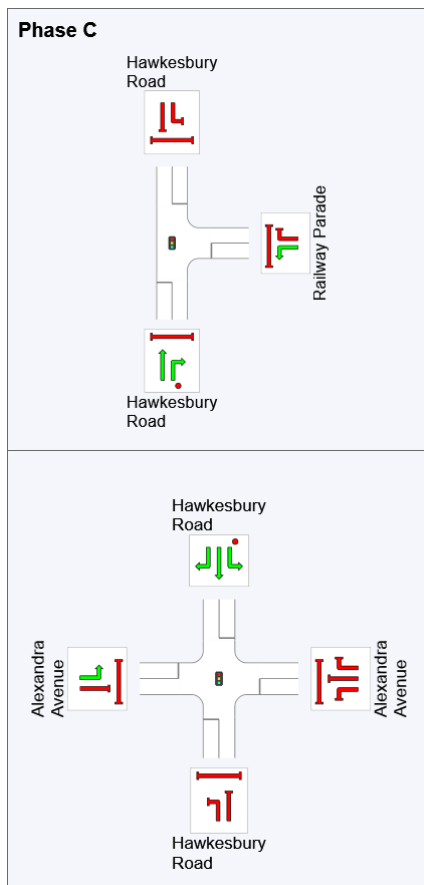


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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■ **Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development + Upgrades PM Peak)]**
■ **Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

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

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	29.4	LOS C	0.1	0.1	0.92	0.92	55.2	30.9	0.56
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road											

P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42
All Pedestrians	580	60.9	LOS F	0.8	0.8	0.96	0.96	124.8	76.7	0.61

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2023 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

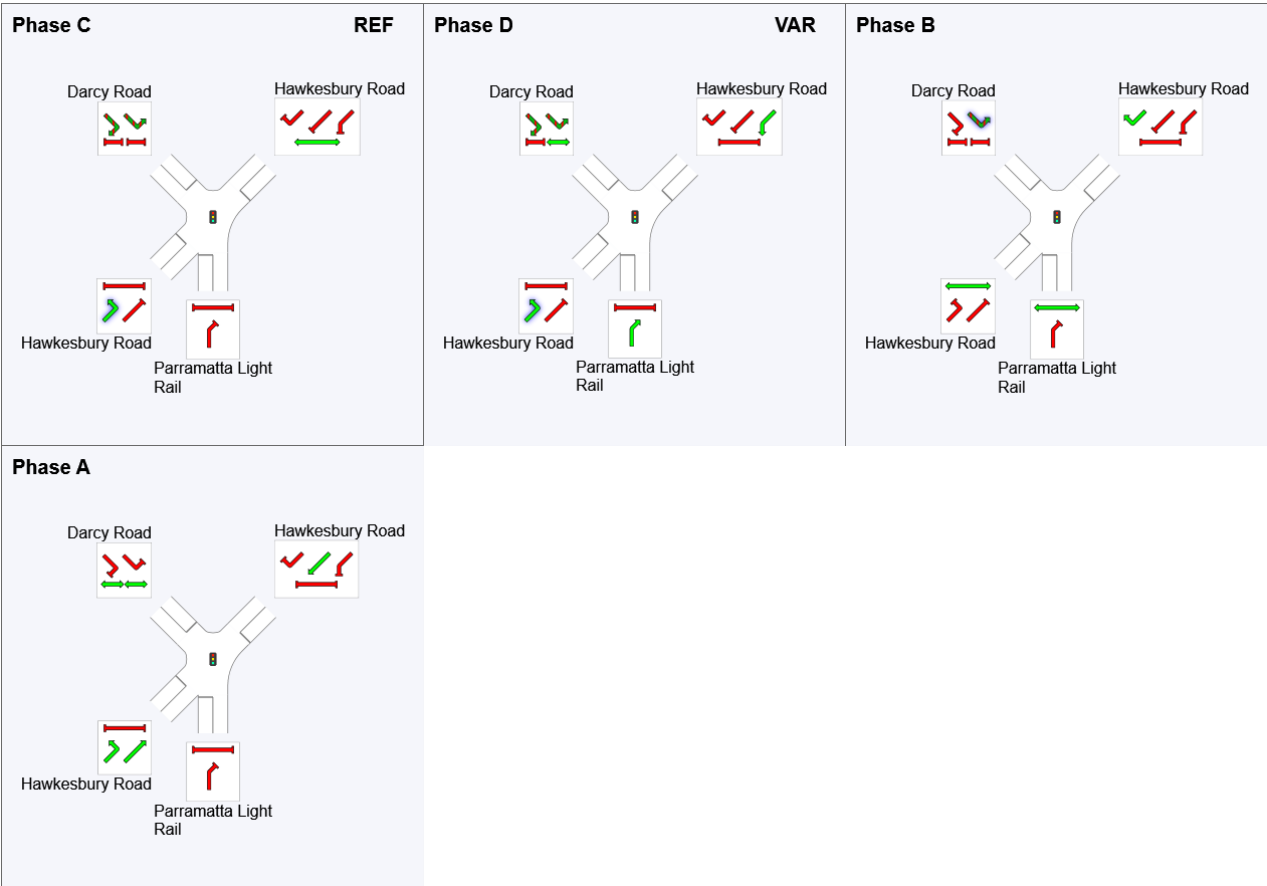
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	48	64	94
Green Time (sec)	42	8	21	35
Phase Time (sec)	50	17	30	43
Phase Split	36%	12%	21%	31%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence

**Phase B****Phase A**

REF: Reference Phase
VAR: Variable Phase



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■ **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development + Upgrades PM Peak)]**
■ **Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

- * Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											
P6	Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road											

P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2023 With Development + Upgrades PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]**

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2023 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	86	0.0	86	0.0	0.268	11.1	LOS A	1.6	11.6	0.61	0.27	0.68	19.1
22	T1	722	10.0	722	10.0	0.268	1.4	LOS A	1.6	11.6	0.16	0.07	0.18	30.9
Approach		808	8.9	808	8.9	0.268	2.4	NA	1.6	11.6	0.21	0.09	0.23	28.3
NorthWest: Darcy Road														
28	T1	735	9.3	735	9.3	0.248	0.0	LOS A	0.1	0.6	0.00	0.00	0.00	39.9
Approach		735	9.3	735	9.3	0.248	0.0	NA	0.1	0.6	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.004	14.4	LOS A	0.0	0.1	0.82	0.67	0.82	6.9
Approach		1	0.0	1	0.0	0.004	14.4	LOS A	0.0	0.1	0.82	0.67	0.82	6.9
All Vehicles		1544	9.1	1544	9.1	0.268	1.3	NA	1.6	11.6	0.11	0.05	0.12	33.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.265	13.1	LOS A	8.4	62.0	0.42	0.36	0.42	20.1
22	T1	687	10.3	687	10.3	0.265	9.6	LOS A	8.4	62.0	0.39	0.34	0.39	20.3
23	R2	34	0.0	34	0.0	* 0.427	80.4	LOS F	2.5	17.2	1.00	0.72	1.00	8.7
Approach		722	9.8	722	9.8	0.427	13.0	LOS A	8.4	62.0	0.42	0.36	0.42	17.9
NorthEast: Westmead Dental Hospital Access														
24	L2	38	0.0	38	0.0	0.045	4.1	LOS A	0.2	1.7	0.14	0.50	0.14	30.3
26	R2	29	0.0	29	0.0	0.143	62.6	LOS E	1.8	12.5	0.92	0.71	0.92	7.1
Approach		67	0.0	67	0.0	0.143	29.4	LOS C	1.8	12.5	0.48	0.59	0.48	12.4
NorthWest: Darcy Road														
27	L2	60	0.0	60	0.0	0.185	12.2	LOS A	7.0	51.3	0.33	0.34	0.33	28.0
28	T1	636	10.7	636	10.7	0.185	9.2	LOS A	8.1	59.7	0.38	0.35	0.38	20.0
29	R2	2	50.0	2	50.0	0.023	76.8	LOS F	0.1	1.4	1.00	0.61	1.00	6.7
Approach		698	9.9	698	9.9	0.185	9.7	LOS A	8.1	59.7	0.37	0.35	0.37	20.8
SouthWest: Parramatta Marist High School Access														
30	L2	115	0.0	115	0.0	* 0.340	48.6	LOS D	6.6	45.9	0.90	0.72	0.90	5.1
32	R2	61	0.0	61	0.0	0.237	53.9	LOS D	3.6	25.4	0.90	0.70	0.90	4.9
Approach		176	0.0	176	0.0	0.340	50.4	LOS D	6.6	45.9	0.90	0.71	0.90	5.0
All Vehicles		1663	8.4	1663	8.4	0.427	16.2	LOS B	8.4	62.0	0.45	0.40	0.45	15.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	90.9	31.9	0.35
All Pedestrians		154	64.3	LOS F	0.3	0.3	0.96	0.96	99.9	42.7	0.43

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

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2023 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

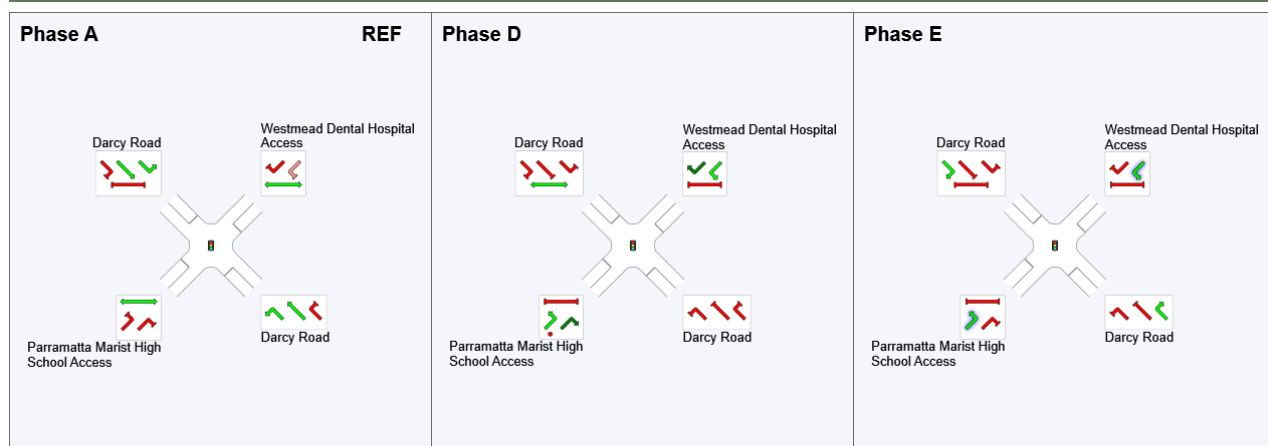
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

▼ Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2023 With Development + Upgrades PM Peak)]

■ Network: N101 [PM Peak
(Network Folder: 2023 With
Development + Upgrades)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.180	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	832	8.8	832	8.8	0.180	0.0	LOS A	3.0	21.8	0.00	0.00	0.00	39.9
Approach		833	8.8	833	8.8	0.180	0.0	NA	3.0	21.8	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	698	9.7	698	9.7	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		698	9.7	698	9.7	0.176	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	0.8	LOS A	0.0	0.0	0.30	0.12	0.30	18.9
Approach		1	0.0	1	0.0	0.002	0.8	LOS A	0.0	0.0	0.30	0.12	0.30	18.9
All Vehicles		1532	9.2	1532	9.2	0.180	0.0	NA	3.0	21.8	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2023 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak
(Network Folder: 2023 With
Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	685	2.3	685	2.3	0.386	27.9	LOS B	12.6	89.8	0.71	0.74	0.71	6.9
23a	R1	147	40.8	147	40.8	* 0.463	61.5	LOS E	7.3	61.7	0.97	0.78	0.97	18.0
Approach		832	9.1	832	9.1	0.463	33.8	LOS C	12.6	89.8	0.75	0.74	0.75	11.5
East: Institute Road														
4b	L3	94	0.0	94	0.0	0.935	81.7	LOS F	12.6	88.0	1.00	1.02	1.31	12.4
5	T1	242	0.4	242	0.4	* 0.935	70.5	LOS F	13.1	92.2	1.00	0.97	1.22	13.3
6	R2	7	0.0	7	0.0	0.935	71.4	LOS F	13.1	92.2	1.00	0.94	1.18	21.5
Approach		343	0.3	343	0.3	0.935	73.6	LOS F	13.1	92.2	1.00	0.98	1.24	13.3
North: Mons Road														
7	L2	3	0.0	3	0.0	0.173	10.7	LOS A	2.0	16.2	0.22	0.39	0.22	36.0
7a	L1	175	33.1	175	33.1	0.173	9.1	LOS A	2.0	16.2	0.22	0.39	0.22	33.2
9	R2	239	3.3	239	3.3	0.473	36.9	LOS C	11.2	80.5	0.73	0.74	0.73	21.8
Approach		417	15.8	417	15.8	0.473	25.0	LOS B	11.2	80.5	0.51	0.59	0.51	25.6
West: Darcy Road														
10	L2	68	1.5	68	1.5	0.524	28.8	LOS C	10.5	74.6	0.66	0.67	0.66	26.3
11	T1	39	0.0	39	0.0	* 0.524	25.6	LOS B	10.5	74.6	0.66	0.67	0.66	24.0
12a	R1	429	2.3	429	2.3	0.524	33.1	LOS C	12.8	91.4	0.73	0.70	0.73	7.0
Approach		536	2.1	536	2.1	0.524	32.0	LOS C	12.8	91.4	0.72	0.69	0.72	12.8
All Vehicles		2128	7.2	2128	7.2	0.935	38.1	LOS C	13.1	92.2	0.74	0.74	0.78	15.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39

All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2023 With Development + Upgrades PM Peak)

Network: N101 [PM Peak
(Network Folder: 2023 With
Development + Upgrades)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

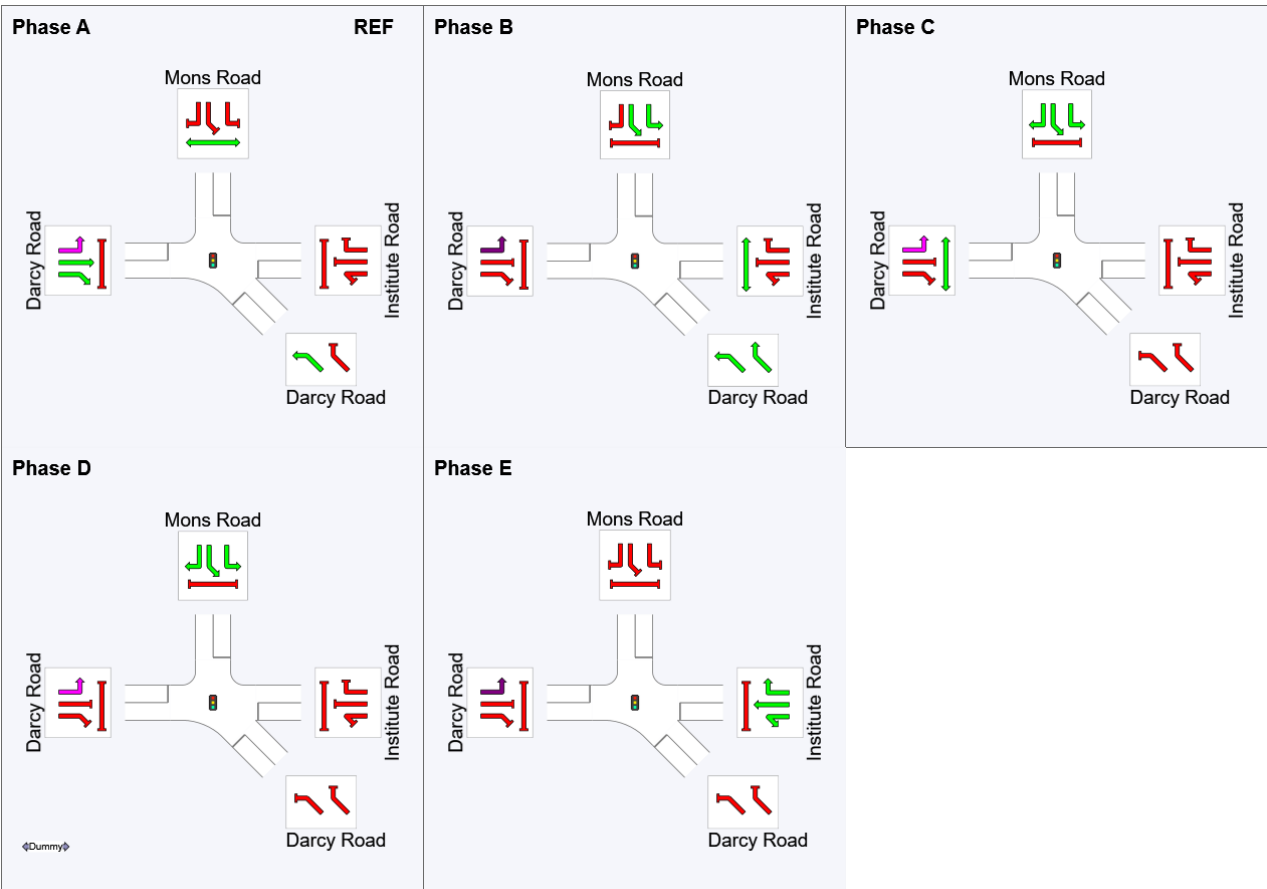
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	73	100	133	8
Green Time (sec)	39	21	27	9	14
Phase Time (sec)	45	27	33	15	20
Phase Split	32%	19%	24%	11%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2023 With Development + Upgrades PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]**

1500 - 1600

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	100	10.0	100	10.0	0.226	6.6	LOS A	0.7	5.1	0.56	0.97	0.56	9.6
Approach		100	10.0	100	10.0	0.226	6.6	LOS A	0.7	5.1	0.56	0.97	0.56	9.6
East: Darcy Road														
4	L2	33	15.2	33	15.2	0.024	9.9	LOS A	0.1	0.7	0.15	0.74	0.15	17.1
5	T1	1132	1.7	1132	1.7	0.293	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1165	2.1	1165	2.1	0.293	0.3	LOS A	0.1	0.7	0.00	0.02	0.00	38.2
West: Darcy Road														
11	T1	536	3.0	536	3.0	0.166	2.1	LOS A	0.6	4.4	0.00	0.36	0.00	37.1
12	R2	52	7.7	52	7.7	0.150	12.2	LOS A	0.3	2.4	0.67	0.91	0.67	27.5
Approach		588	3.4	588	3.4	0.166	3.0	LOS A	0.6	4.4	0.06	0.41	0.06	35.9
All Vehicles		1853	2.9	1853	2.9	0.293	1.5	NA	0.7	5.1	0.05	0.20	0.05	26.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
1	L2	218	1.4	217	1.4	* 0.412	41.4	LOS C	11.1	78.7	0.83	0.78	0.83	25.6
2	T1	28	0.0	28	0.0	0.584	73.3	LOS F	6.4	48.0	1.00	0.79	1.00	16.0
3	R2	66	12.1	66	12.1	0.584	72.9	LOS F	6.4	48.0	1.00	0.79	1.00	15.6
Approach		312	3.5	311 ^{N1}	3.5	0.584	50.9	LOS D	11.1	78.7	0.88	0.78	0.88	22.1
East: Darcy Road														
4	L2	191	6.8	191	6.8	* 0.305	17.8	LOS B	14.2	102.3	0.39	0.44	0.39	29.8
5	T1	1017	1.7	1017	1.7	0.305	14.6	LOS B	16.8	119.0	0.42	0.42	0.42	34.1
6	R2	24	0.0	24	0.0	0.045	12.7	LOS A	0.3	2.4	0.38	0.60	0.38	29.1
Approach		1232	2.4	1232	2.4	0.305	15.0	LOS B	16.8	119.0	0.42	0.42	0.42	33.5
North: Coles Westmead Access														
7	L2	23	0.0	23	0.0	0.060	42.9	LOS D	1.2	8.3	0.83	0.60	0.83	4.3
8	T1	38	0.0	38	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	3.1
9	R2	42	0.0	42	0.0	0.522	67.0	LOS E	5.4	37.8	0.99	0.78	0.99	8.8
Approach		103	0.0	103	0.0	0.522	61.7	LOS E	5.4	37.8	0.96	0.74	0.96	6.0
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.240	15.6	LOS B	9.9	70.2	0.45	0.44	0.45	23.9
11	T1	498	1.8	498	1.8	0.240	10.7	LOS A	9.9	70.2	0.44	0.40	0.44	26.1
12	R2	312	1.9	312	1.9	0.630	15.6	LOS B	7.4	52.6	0.59	0.75	0.59	22.0
Approach		867	1.7	867	1.7	0.630	12.8	LOS A	9.9	70.2	0.49	0.53	0.49	24.3
All Vehicles		2514	2.2	2513 ^{N1}	2.2	0.630	20.6	LOS B	16.8	119.0	0.52	0.52	0.52	27.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2023 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

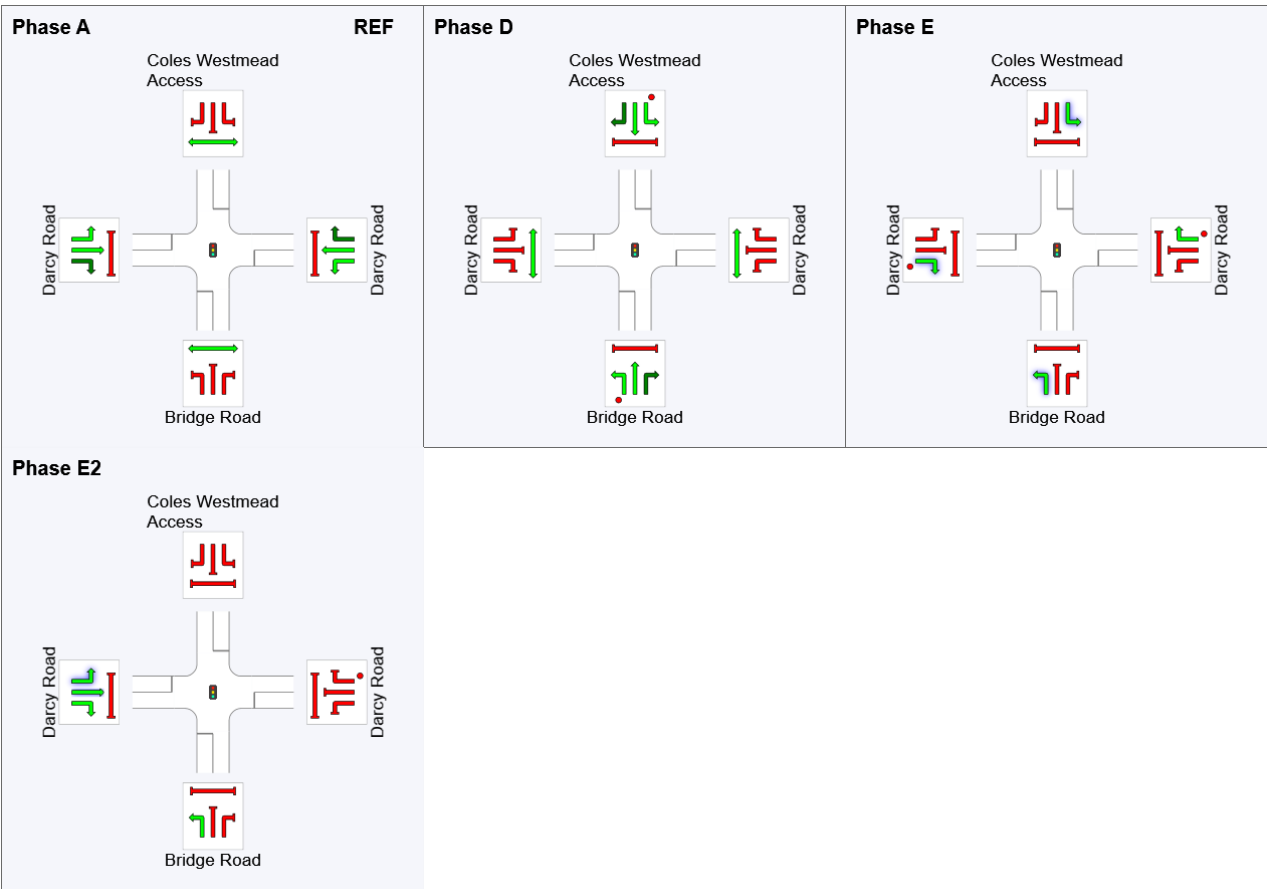
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, E2
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2023 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
2	T1	384	2.9	384	2.9	0.542	5.0	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
3	R2	153	0.7	153	0.7	0.542	8.0	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
3u	U	1	100.0	1	100.0	0.542	10.7	LOS A	4.9	35.2	0.56	0.58	0.56	24.6
Approach		538	2.4	538	2.4	0.542	5.9	LOS A	4.9	35.2	0.56	0.58	0.56	23.6
East: Alexandra Avenue														
4	L2	210	0.5	207	0.5	0.567	12.1	LOS A	4.2	29.7	0.71	0.93	0.87	38.6
6	R2	135	0.0	133	0.0	0.567	14.6	LOS B	4.2	29.7	0.71	0.93	0.87	39.0
6u	U	1	0.0	1	0.0	0.567	16.0	LOS B	4.2	29.7	0.71	0.93	0.87	39.0
Approach		346	0.3	341 ^{N1}	0.3	0.567	13.1	LOS A	4.2	29.7	0.71	0.93	0.87	38.7
North: Bridge Road														
7	L2	91	0.0	91	0.0	0.674	6.6	LOS A	6.5	46.6	0.65	0.62	0.66	41.6
8	T1	546	3.5	546	3.5	0.674	6.2	LOS A	6.5	46.6	0.65	0.62	0.66	41.1
9u	U	1	0.0	1	0.0	0.674	10.4	LOS A	6.5	46.6	0.65	0.62	0.66	41.6
Approach		638	3.0	638	3.0	0.674	6.3	LOS A	6.5	46.6	0.65	0.62	0.66	41.1
All Vehicles		1522	2.2	1517 ^{N1}	2.2	0.674	7.7	LOS A	6.5	46.6	0.63	0.67	0.67	38.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2023 With Development + Upgrades)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	26	3.8	26	3.8	1.364	344.0	LOS F	121.4	854.9	1.00	2.31	2.77	2.0
2	T1	1290	0.5	1290	0.5	* 1.364	339.4	LOS F	121.4	854.9	1.00	2.32	2.77	2.0
Approach		1316	0.6	1316	0.6	1.364	339.5	LOS F	121.4	854.9	1.00	2.32	2.77	2.0
East: Alexandra Avenue														
4	L2	43	0.0	43	0.0	1.337	357.9	LOS F	16.1	119.1	1.00	1.94	2.75	3.2
5	T1	131	0.0	131	0.0	* 1.337	353.4	LOS F	16.1	119.1	1.00	1.94	2.75	1.6
6	R2	422	13.7	422	13.7	1.337	359.4	LOS F	44.8	350.8	1.00	1.82	2.77	1.6
Approach		596	9.7	596	9.7	1.337	358.0	LOS F	44.8	350.8	1.00	1.86	2.76	1.7
North: Hawkesbury Road														
7	L2	439	13.9	436	14.0	1.009	58.7	LOS E	12.1	88.1	0.93	1.09	1.22	12.0
8	T1	520	1.7	515	1.7	1.009	58.7	LOS E	12.1	88.1	1.00	1.13	1.31	11.5
9	R2	70	0.0	69	0.0	1.227	279.5	LOS F	10.6	74.2	1.00	1.33	2.61	0.8
Approach		1029	6.8	1020 ^N ₁	6.8	1.227	73.7	LOS F	12.1	88.1	0.97	1.12	1.36	8.9
West: Alexandra Avenue														
10	L2	324	0.0	264	0.0	* 1.349	386.5	LOS F	48.6	340.2	1.00	1.75	2.93	5.2
11	T1	405	0.2	329	0.2	1.133	197.4	LOS F	42.0	294.4	1.00	1.64	2.10	11.0
Approach		729	0.1	593 ^{N1}	0.1	1.349	281.5	LOS F	48.6	340.2	1.00	1.69	2.47	7.6
All Vehicles		3670	3.7	3525 ^N ₁	3.9	1.364	255.9	LOS F	121.4	854.9	0.99	1.79	2.31	3.7
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1663	3.8	1427	3.9	1.045	106.3	LOS F	12.3	88.1	1.00	1.39	1.59	2.1
3	R2	373	0.3	320	0.3	1.045	101.9	LOS F	12.3	88.1	1.00	1.33	1.57	13.5
Approach		2036	3.1	1747 ^N ₁	3.2	1.045	105.5	LOS F	12.3	88.1	1.00	1.38	1.59	4.7
East: Railway Parade														
4	L2	224	0.9	224	0.9	0.689	41.8	LOS C	18.4	129.8	0.92	0.84	0.94	23.5
6	R2	59	0.0	59	0.0	0.431	68.9	LOS E	4.6	32.1	0.97	0.77	0.97	17.5
Approach		283	0.7	283	0.7	0.689	47.4	LOS D	18.4	129.8	0.93	0.82	0.94	22.0
North: Hawkesbury Road														
7	L2	130	0.0	128	0.0	0.109	19.8	LOS B	4.0	33.6	0.38	0.56	0.38	35.2
8	T1	805	10.7	795	10.8	0.351	16.5	LOS B	28.4	208.9	0.44	0.40	0.44	19.0
Approach		935	9.2	923 ^{N1}	9.3	0.351	16.9	LOS B	28.4	208.9	0.43	0.42	0.43	23.6
All Vehicles		3254	4.7	2953 ^N ₁	5.1	1.045	72.2	LOS F	28.4	208.9	0.82	1.03	1.17	8.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

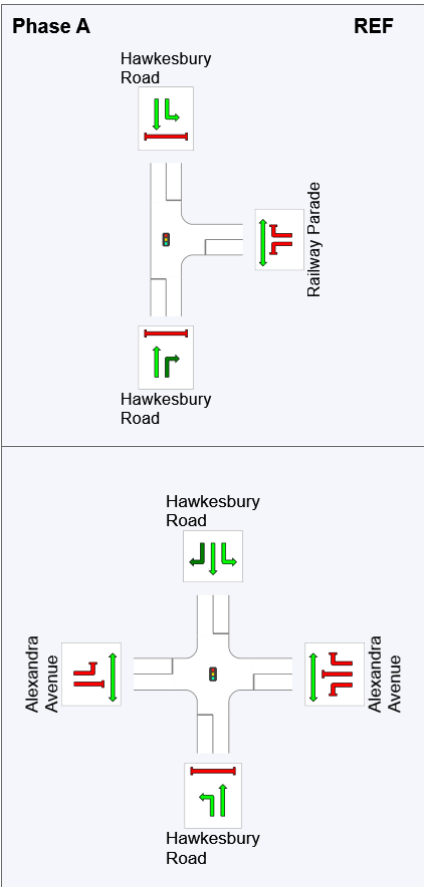
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C*
Output Phase Sequence: A, E, D
(* Variable Phase)

Phase Timing Summary (CCG)

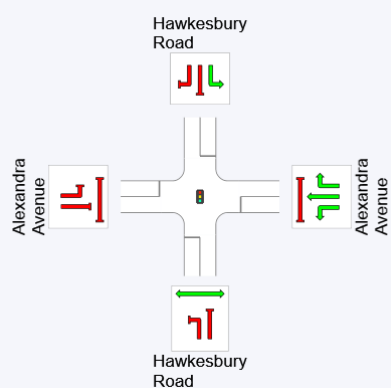
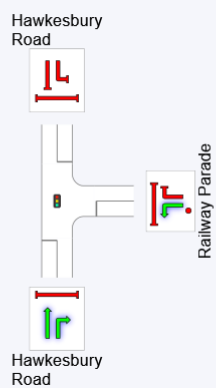
Phase	A	E	D
Phase Change Time (sec)	0	75	112
Green Time (sec)	69	28	19
Phase Time (sec)	78	37	25
Phase Split	56%	26%	18%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

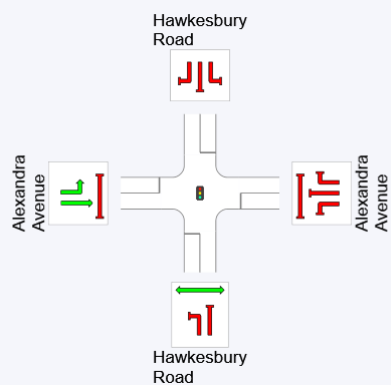
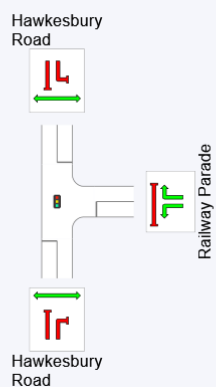
Output Phase Sequence (CCG)



Phase E



Phase D



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

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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 With Development + Upgrades AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.251	84.0	LOS F	0.6	16.3	1.00	0.69	1.00	10.1
25	T1	346	3.5	346	3.5	1.104	182.9	LOS F	45.0	324.4	1.00	1.68	2.02	3.7
26	R2	274	1.8	274	1.8	* 1.243	298.1	LOS F	44.8	318.5	1.00	1.85	2.58	2.2
Approach		628	4.0	628	4.0	1.243	231.9	LOS F	45.0	324.4	1.00	1.74	2.25	2.9
NorthWest: Darcy Road														
27	L2	293	3.8	286	3.8	1.173	16.8	LOS B	5.8	41.2	0.44	0.63	0.46	26.1
29	R2	590	11.5	576	11.7	1.173	167.7	LOS F	19.9	146.9	0.99	1.40	1.90	2.2
Approach		883	8.9	862 ^{N1}	9.1	1.173	117.7	LOS F	19.9	146.9	0.81	1.15	1.42	4.5
SouthWest: Hawkesbury Road														
30	L2	1207	4.8	1024	4.9	* 1.236	274.4	LOS F	29.2	208.9	0.99	1.60	2.37	2.2
31	T1	515	1.2	437	1.2	0.612	33.6	LOS C	21.4	151.4	0.78	0.72	0.78	19.9
Approach		1722	3.7	1461 ^{N1}	3.8	1.236	202.5	LOS F	29.2	208.9	0.92	1.34	1.90	3.3
All Vehicles		3241	5.4	2959 ^{N1}	5.9	1.243	183.7	LOS F	45.0	324.4	0.91	1.36	1.83	3.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	32.2	LOS D	0.1	0.1	0.92	0.92	57.9	30.9	0.53

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	62.0	LOS F	0.8	0.8	0.96	0.96	135.1	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

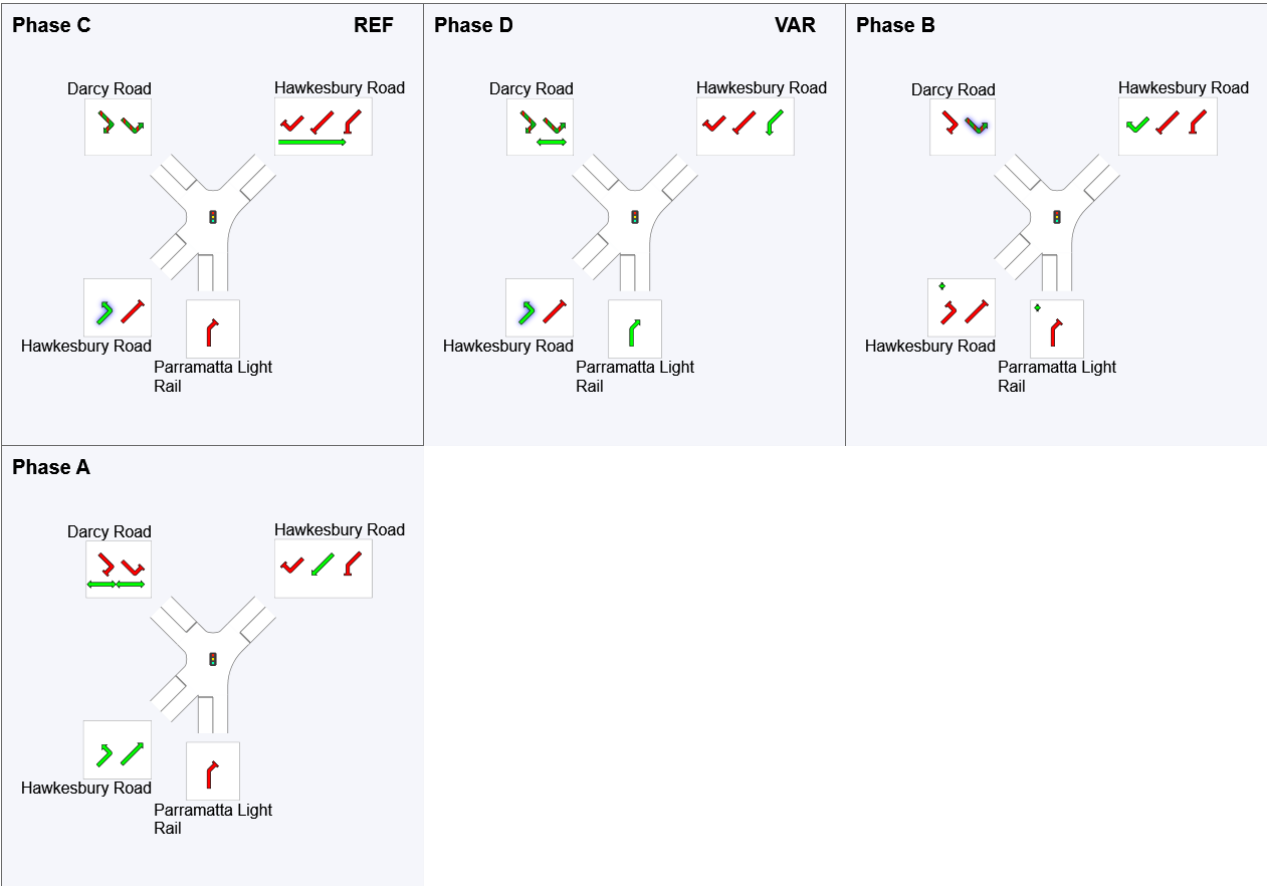
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	34	48	86
Green Time (sec)	28	6	29	43
Phase Time (sec)	36	15	38	51
Phase Split	26%	11%	27%	36%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 With Development + Upgrades AM Peak)]

■ ■ Network: N101 [AM Peak
(Network Folder: 2033 With
Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	6	0.0	* 0.598	28.2	LOS B	20.5	146.9	0.71	0.64	0.71	20.4
22	T1	1341	4.7	967	5.1	0.598	24.9	LOS B	20.5	146.9	0.71	0.64	0.71	10.9
23	R2	132	0.8	95	0.8	* 0.599	74.5	LOS F	6.5	45.6	1.00	0.79	1.02	8.6
Approach		1481	4.3	1068 ^N ₁	4.7	0.599	29.3	LOS C	20.5	146.9	0.73	0.65	0.73	10.3
NorthEast: Westmead Hospital Access														
24	L2	43	0.0	43	0.0	0.221	48.7	LOS D	2.5	17.7	0.88	0.67	0.88	8.0
25	T1	1	0.0	1	0.0	* 0.221	48.7	LOS D	2.5	17.7	0.88	0.67	0.88	12.4
26	R2	75	6.7	75	6.7	1.099	180.7	LOS F	9.1	67.1	1.00	2.00	2.23	3.5
Approach		119	4.2	119	4.2	1.099	131.9	LOS F	9.1	67.1	0.95	1.51	1.73	4.4
NorthWest: Darcy Road														
27	L2	182	0.5	177	0.6	0.732	31.7	LOS C	13.3	96.3	0.79	0.77	0.79	12.0
28	T1	818	10.3	796	10.5	* 0.732	27.3	LOS B	13.3	96.3	0.78	0.73	0.78	7.6
29	R2	7	14.3	7	14.5	0.047	67.9	LOS E	0.5	3.6	0.98	0.66	0.98	10.2
Approach		1007	8.5	980 ^{N1}	8.7	0.732	28.4	LOS B	13.3	96.3	0.78	0.74	0.79	9.2
SouthWest: Farm House Road														
30	L2	12	8.3	12	8.3	0.062	53.0	LOS D	0.9	6.6	0.88	0.69	0.88	9.9
31	T1	4	0.0	4	0.0	0.062	56.0	LOS D	0.9	6.6	0.88	0.69	0.88	12.1
32	R2	22	0.0	22	0.0	0.166	71.3	LOS F	1.5	10.2	0.97	0.70	0.97	8.0
Approach		38	2.6	38	2.6	0.166	63.9	LOS E	1.5	10.2	0.93	0.70	0.93	9.1
All Vehicles		2645	5.9	2204 ^N ₁	7.1	1.099	35.0	LOS C	20.5	146.9	0.77	0.74	0.81	8.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

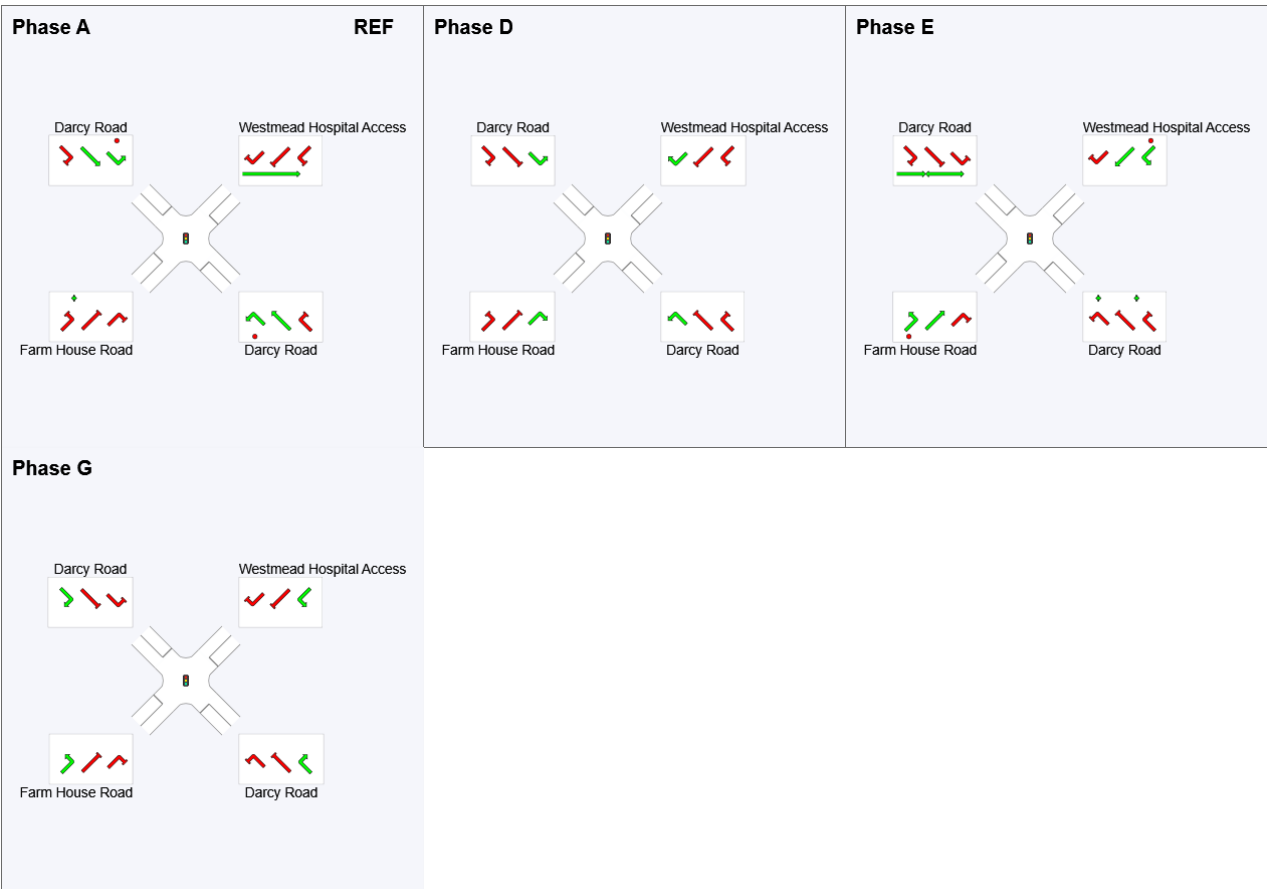
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, D, E, G
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	378	0.0	281	0.0	0.560	11.5	LOS A	4.5	32.3	0.78	0.60	1.17	16.9
22	T1	1050	6.4	787	7.1	0.560	2.1	LOS A	4.5	32.3	0.22	0.17	0.33	27.8
Approach		1428	4.7	1069 ^N ₁	5.2	0.560	4.6	NA	4.5	32.3	0.37	0.28	0.55	22.8
NorthWest: Darcy Road														
28	T1	1007	8.5	977	8.7	0.496	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	39.5
Approach		1007	8.5	977 ^{N1}	8.7	0.496	0.1	NA	0.0	0.0	0.00	0.00	0.00	39.5
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.003	9.0	LOS A	0.0	0.1	0.73	0.55	0.73	9.1
Approach		1	0.0	1	0.0	0.003	9.0	LOS A	0.0	0.1	0.73	0.55	0.73	9.1
All Vehicles		2436	6.3	2046 ^N ₁	7.5	0.560	2.5	NA	4.5	32.3	0.19	0.15	0.29	29.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 With Development + Upgrades AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	6	0.0	* 0.420	5.4	LOS A	2.7	19.6	0.09	0.09	0.09	26.2
22	T1	984	6.8	757	7.6	0.420	1.8	LOS A	19.6	141.8	0.08	0.08	0.08	33.9
23	R2	59	0.0	45	0.0	* 0.339	76.9	LOS F	3.2	22.1	1.00	0.74	1.00	8.0
Approach		1051	6.4	808 ^{N1}	7.1	0.420	6.0	LOS A	19.6	141.8	0.13	0.11	0.13	24.6
NorthEast: Westmead Dental Hospital Access														
24	L2	19	0.0	19	0.0	0.023	0.6	LOS A	0.1	0.8	0.13	0.10	0.13	19.5
26	R2	37	0.0	37	0.0	0.281	62.2	LOS E	2.4	16.7	0.94	0.72	0.94	6.0
Approach		56	0.0	56	0.0	0.281	41.3	LOS C	2.4	16.7	0.67	0.51	0.67	7.9
NorthWest: Darcy Road														
27	L2	85	0.0	82	0.0	0.399	8.8	LOS A	5.8	42.3	0.21	0.25	0.21	21.8
28	T1	904	9.5	874	9.8	0.399	4.1	LOS A	5.8	42.3	0.17	0.17	0.17	27.5
29	R2	5	0.0	5	0.0	0.036	73.7	LOS F	0.3	2.3	1.00	0.65	1.00	6.9
Approach		994	8.7	961 ^{N1}	8.9	0.399	4.9	LOS A	5.8	42.3	0.17	0.18	0.17	25.6
SouthWest: Parramatta Marist High School Access														
30	L2	156	0.0	156	0.0	* 0.408	44.4	LOS D	8.6	60.1	0.88	0.71	0.88	5.5
32	R2	84	0.0	84	0.0	0.290	52.6	LOS D	5.0	34.8	0.90	0.71	0.90	5.0
Approach		240	0.0	240	0.0	0.408	47.2	LOS D	8.6	60.1	0.89	0.71	0.89	5.3
All Vehicles		2341	6.5	2065 ^{N1}	7.4	0.420	11.2	LOS A	19.6	141.8	0.25	0.23	0.25	17.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	98.5	41.1	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

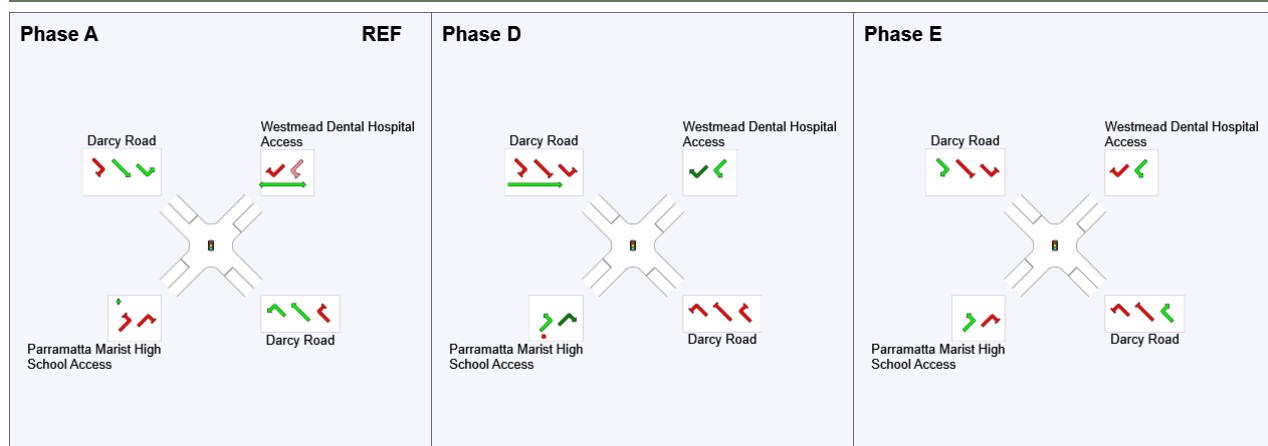
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

▼ Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 With Development + Upgrades AM Peak)]

■ Network: N101 [AM Peak
(Network Folder: 2033 With
Development + Upgrades)]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.199	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1176	5.8	979	6.1	0.199	0.0	LOS A	20.9	150.1	0.00	0.00	0.00	39.9
Approach		1177	5.8	980 ^{N1}	6.1	0.199	0.0	NA	20.9	150.1	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	994	8.5	962	8.7	0.244	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		994	8.5	962 ^{N1}	8.7	0.244	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
Approach		1	0.0	1	0.0	0.002	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
All Vehicles		2172	7.0	1943 ^{N1}	7.8	0.244	0.0	NA	20.9	150.1	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2033 With Development + Upgrades AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2033 With
Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	842	1.0	725	1.0	0.469	21.9	LOS B	12.7	89.8	0.56	0.68	0.56	8.4
23a	R1	334	18.6	291	19.7	* 0.789	63.2	LOS E	11.8	89.8	0.99	0.88	1.06	17.7
Approach		1176	6.0	1017 ^N ₁	6.3	0.789	33.8	LOS C	12.7	89.8	0.68	0.74	0.70	14.1
East: Institute Road														
4b	L3	51	2.0	51	2.0	0.686	77.3	LOS F	6.0	42.7	1.00	0.84	1.11	12.8
5	T1	79	2.5	79	2.5	* 0.686	75.2	LOS F	9.6	68.9	1.00	0.85	1.16	12.7
6	R2	2	0.0	2	0.0	0.686	81.0	LOS F	9.6	68.9	1.00	0.86	1.19	20.3
Approach		132	2.3	132	2.3	0.686	76.1	LOS F	9.6	68.9	1.00	0.85	1.14	12.9
North: Mons Road														
7	L2	7	0.0	7	0.0	0.176	24.8	LOS B	5.2	44.6	0.60	0.61	0.60	30.9
7a	L1	170	44.1	170	44.1	0.176	23.1	LOS B	5.2	44.6	0.59	0.59	0.59	26.4
9	R2	126	10.3	126	10.3	* 0.618	57.2	LOS E	26.5	201.6	0.95	0.82	0.96	17.5
Approach		303	29.0	303	29.0	0.618	37.3	LOS C	26.5	201.6	0.74	0.69	0.74	22.0
West: Darcy Road														
10	L2	196	8.7	187	8.4	0.965	80.0	LOS F	12.7	91.4	1.00	1.17	1.31	15.7
11	T1	223	0.4	214	0.4	* 0.965	76.8	LOS F	12.7	91.4	1.00	1.17	1.31	13.7
12a	R1	772	1.0	740	1.0	0.965	83.3	LOS F	12.9	91.4	1.00	1.16	1.34	3.1
Approach		1191	2.2	1141 ^N ₁	2.1	0.965	81.6	LOS F	12.9	91.4	1.00	1.16	1.33	8.0
All Vehicles		2802	6.7	2593 ^N ₁	7.2	0.965	57.4	LOS E	26.5	201.6	0.85	0.93	1.01	11.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41

West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
 (Site Folder: 2033 With Development + Upgrades AM Peak)

Network: N101 [AM Peak
 (Network Folder: 2033 With
 Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

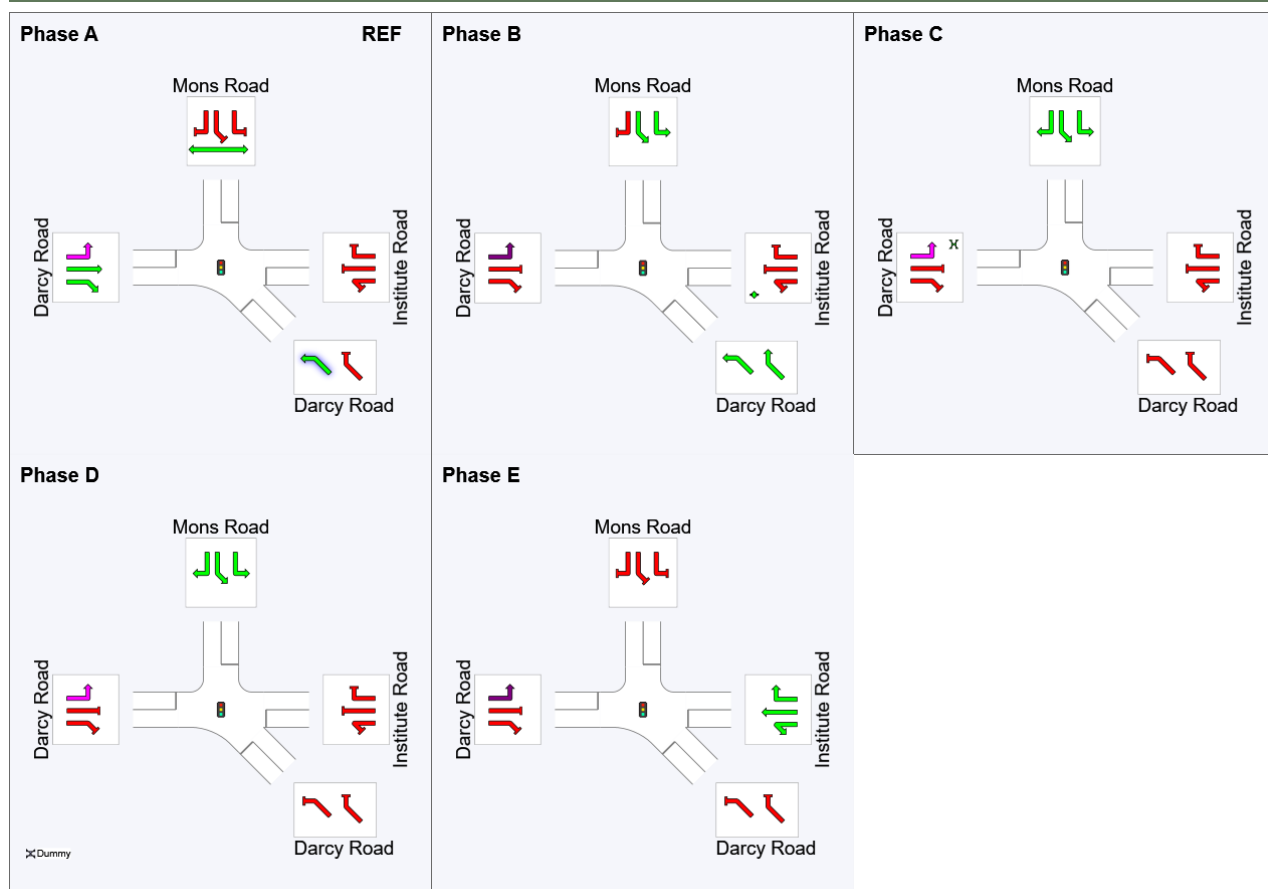
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	50	82	114	124
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 With Development + Upgrades AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]**

0745 - 0845

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	625	0.8	625	0.8	0.928	21.0	LOS B	21.2	149.7	0.64	2.24	2.00	8.8
Approach		625	0.8	625	0.8	0.928	21.0	LOS B	21.2	149.7	0.64	2.24	2.00	8.8
East: Darcy Road														
4	L2	222	1.4	204	1.4	0.204	11.6	LOS A	0.7	5.0	0.44	0.84	0.44	15.3
5	T1	824	2.3	758	2.4	0.263	0.0	LOS A	12.8	91.4	0.00	0.00	0.00	39.9
Approach		1046	2.1	962 ^{N1}	2.2	0.263	2.5	LOS A	12.8	91.4	0.09	0.18	0.09	28.7
West: Darcy Road														
11	T1	1191	2.6	1142	2.5	0.389	4.0	LOS A	37.5	268.0	0.21	0.28	0.28	34.7
12	R2	457	1.1	438	1.1	1.139	157.7	LOS F	42.7	301.7	1.00	4.56	12.57	5.8
Approach		1648	2.2	1580 ^{N1}	2.1	1.139	46.7	LOS D	42.7	301.7	0.43	1.47	3.69	14.5
All Vehicles		3319	1.9	3167 ^{N1}	2.0	1.139	28.2	NA	42.7	301.7	0.37	1.23	2.26	12.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 With Development + Upgrades AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E2*

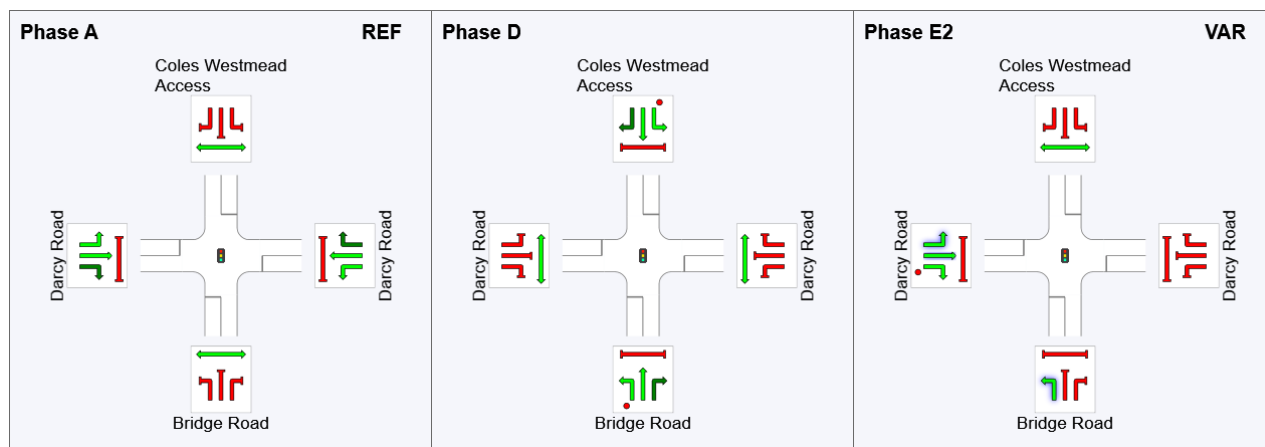
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E2
Phase Change Time (sec)	121	34	63
Green Time (sec)	46	22	52
Phase Time (sec)	53	28	59
Phase Split	38%	20%	42%

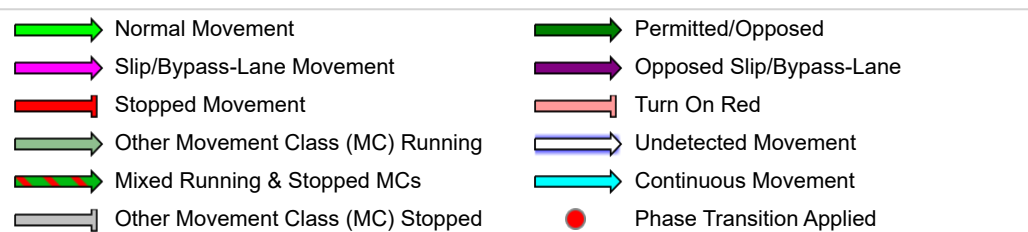
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified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

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



MOVEMENT SUMMARY

 **Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 With Development + Upgrades AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]**

0745 - 0845

Site Category: (None)

Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	504	0.2	504	0.2	0.680	4.1	LOS A	9.2	64.6	0.44	0.49	0.44	24.2
3	R2	354	0.3	354	0.3	0.680	7.2	LOS A	9.2	64.6	0.44	0.49	0.44	24.2
3u	U	5	0.0	5	0.0	0.680	8.5	LOS A	9.2	64.6	0.44	0.49	0.44	27.4
Approach		863	0.2	863	0.2	0.680	5.4	LOS A	9.2	64.6	0.44	0.49	0.44	24.2
East: Alexandra Avenue														
4	L2	132	0.8	114	0.8	0.282	8.6	LOS A	1.5	10.3	0.60	0.77	0.60	40.9
6	R2	54	1.9	47	2.0	0.282	11.2	LOS A	1.5	10.3	0.60	0.77	0.60	41.6
6u	U	2	0.0	2	0.0	0.282	12.4	LOS A	1.5	10.3	0.60	0.77	0.60	41.6
Approach		188	1.1	162 ^{N1}	1.2	0.282	9.4	LOS A	1.5	10.3	0.60	0.77	0.60	41.1
North: Bridge Road														
7	L2	364	0.3	281	0.2	1.229	223.6	LOS F	126.3	885.3	1.00	5.03	9.10	6.4
8	T1	818	0.1	631	0.1	1.229	223.2	LOS F	126.3	885.3	1.00	5.03	9.10	7.1
9u	U	1	0.0	1	0.0	1.229	227.4	LOS F	126.3	885.3	1.00	5.03	9.10	6.4
Approach		1183	0.2	912 ^{N1}	0.2	1.229	223.4	LOS F	126.3	885.3	1.00	5.03	9.10	6.9
All Vehicles		2234	0.3	1937 ^{N1}	0.3	1.229	108.3	LOS F	126.3	885.3	0.72	2.65	4.53	8.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2033 With Development + Upgrades)]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	0	0	0	0	10
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	54	0.0	54	0.0	1.072	166.3	LOS F	35.6	251.8	1.00	1.54	1.91	4.0
2	T1	667	1.3	667	1.3	* 1.072	157.0	LOS F	50.2	355.7	1.00	1.54	1.86	4.1
Approach		721	1.2	721	1.2	1.072	157.7	LOS F	50.2	355.7	1.00	1.54	1.86	4.1
East: Alexandra Avenue														
4	L2	33	0.0	33	0.0	1.057	149.5	LOS F	13.0	94.0	1.00	1.43	1.80	7.2
5	T1	245	0.0	245	0.0	* 1.057	145.1	LOS F	13.0	94.0	1.00	1.43	1.80	3.8
6	R2	326	20.6	326	20.6	1.057	153.0	LOS F	30.3	249.5	1.00	1.31	1.84	3.6
Approach		604	11.1	604	11.1	1.057	149.6	LOS F	30.3	249.5	1.00	1.37	1.82	3.9
North: Hawkesbury Road														
7	L2	370	18.1	299	17.5	0.794	17.3	LOS B	12.1	88.1	0.61	0.73	0.61	24.9
8	T1	942	1.1	767	1.0	0.794	33.9	LOS C	12.5	88.1	0.82	0.83	0.83	17.1
9	R2	96	0.0	78	0.0	0.794	61.4	LOS E	12.5	88.1	1.00	0.93	1.02	4.0
Approach		1408	5.5	1145 ^N ₁	5.2	0.794	31.4	LOS C	12.5	88.1	0.78	0.81	0.79	17.2
West: Alexandra Avenue														
10	L2	136	0.0	135	0.0	0.327	39.3	LOS C	6.7	46.7	0.77	0.76	0.77	27.1
11	T1	211	0.5	209	0.5	* 0.885	76.8	LOS F	15.9	111.5	1.00	1.03	1.30	21.4
Approach		347	0.3	344 ^{N1}	0.3	0.885	62.1	LOS E	15.9	111.5	0.91	0.92	1.09	23.1
All Vehicles		3080	5.0	2813 ^N ₁	5.5	1.072	92.9	LOS F	50.2	355.7	0.90	1.13	1.32	8.6
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	889	8.3	888	8.3	0.489	6.1	LOS A	11.8	88.1	0.37	0.36	0.37	21.3
3	R2	239	0.0	239	0.0	* 0.489	14.2	LOS A	9.0	64.7	0.65	0.67	0.65	38.0
Approach		1128	6.6	1127 ^N ₁	6.6	0.489	7.8	LOS A	11.8	88.1	0.43	0.42	0.43	30.7
East: Railway Parade														
4	L2	298	0.3	298	0.3	0.587	21.4	LOS B	11.7	82.4	0.71	0.77	0.71	31.7
6	R2	34	0.0	34	0.0	0.176	67.0	LOS E	2.2	15.1	0.95	0.73	0.95	17.8
Approach		332	0.3	332	0.3	0.587	26.1	LOS B	11.7	82.4	0.73	0.77	0.73	29.4
North: Hawkesbury Road														
7	L2	89	0.0	68	0.0	0.122	47.3	LOS D	4.7	40.8	0.77	0.69	0.77	24.9
8	T1	1110	7.0	845	7.2	0.816	42.8	LOS D	25.4	184.0	0.94	0.85	0.97	9.6
Approach		1199	6.5	913 ^{N1}	6.6	0.816	43.1	LOS D	25.4	184.0	0.92	0.83	0.96	11.5
All Vehicles		2659	5.8	2372 ^N ₁	6.5	0.816	23.9	LOS B	25.4	184.0	0.66	0.63	0.68	20.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

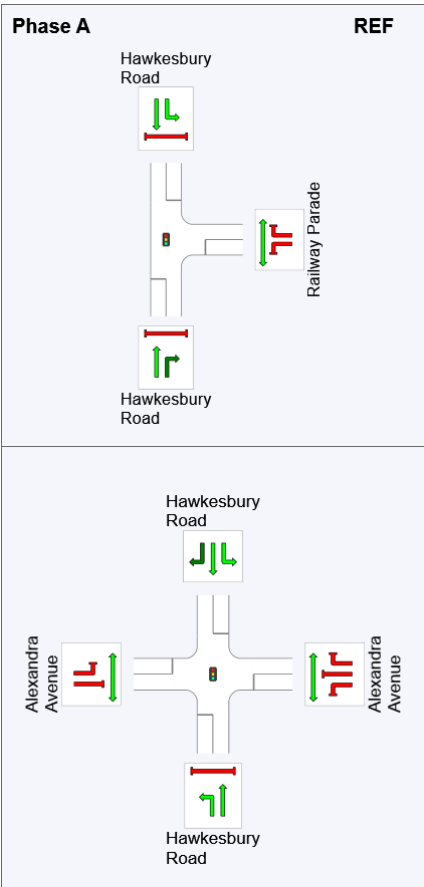
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

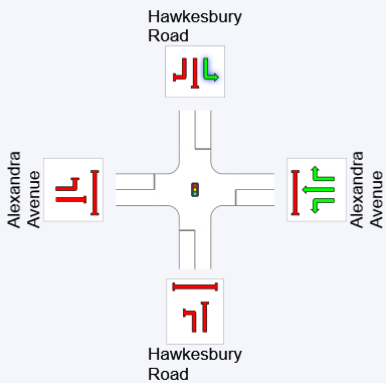
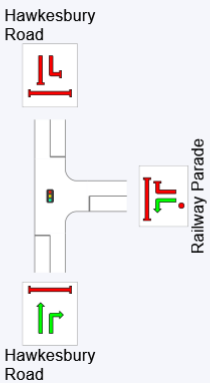
Phase	A	E	D	C
Phase Change Time (sec)	0	43	80	106
Green Time (sec)	37	28	17	28
Phase Time (sec)	46	37	23	34
Phase Split	33%	26%	16%	24%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

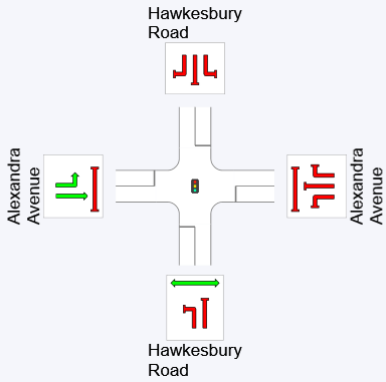
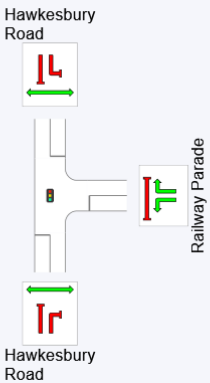
Output Phase Sequence (CCG)

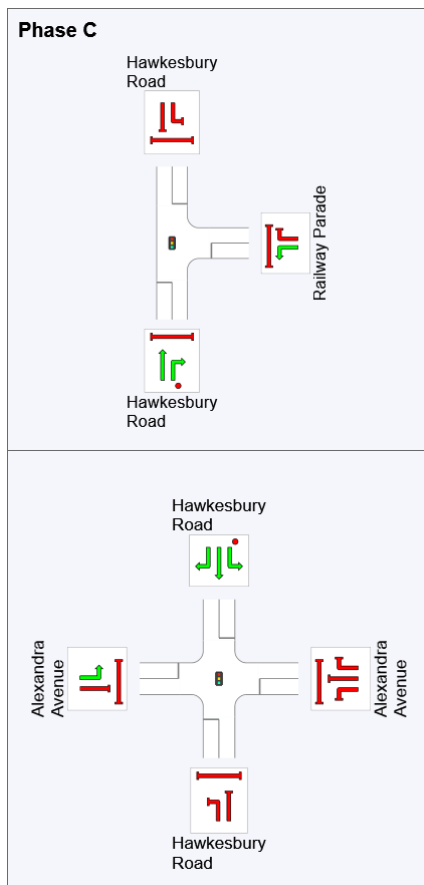


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	80.5	LOS F	0.6	15.6	0.99	0.68	0.99	10.4
25	T1	537	2.4	537	2.4	* 1.320	332.1	LOS F	90.1	643.5	0.97	2.18	2.64	2.1
26	R2	353	2.5	353	2.5	* 1.305	329.3	LOS F	59.2	423.4	1.00	1.88	2.64	2.1
Approach		898	3.3	898	3.3	1.320	328.8	LOS F	90.1	643.5	0.98	2.04	2.63	2.1
NorthWest: Darcy Road														
27	L2	208	4.8	196	5.0	1.325	26.7	LOS B	6.4	83.7	0.54	0.68	0.58	23.3
29	R2	663	9.5	625	9.8	* 1.325	316.2	LOS F	20.1	146.9	0.97	1.82	2.56	1.2
Approach		871	8.4	821 ^{N1}	8.7	1.325	247.1	LOS F	20.1	146.9	0.86	1.55	2.09	2.1
SouthWest: Hawkesbury Road														
30	L2	606	11.2	605	11.2	0.480	14.1	LOS A	14.2	104.9	0.40	0.68	0.40	21.2
31	T1	316	2.5	316	2.5	0.404	45.6	LOS D	18.1	129.2	0.91	0.79	0.91	16.6
Approach		922	8.2	921 ^{N1}	8.3	0.480	24.9	LOS B	18.1	129.2	0.57	0.71	0.57	18.4
All Vehicles		2699	6.9	2648 ^{N1}	7.1	1.325	197.0	LOS F	90.1	643.5	0.80	1.42	1.74	3.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.2	LOS D	0.1	0.1	0.92	0.92	55.9	30.9	0.55
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43

SouthWest: Hawkesbury Road											
P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42	
All Pedestrians	580	61.0	LOS F	0.8	0.8	0.96	0.96	124.9	76.7	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

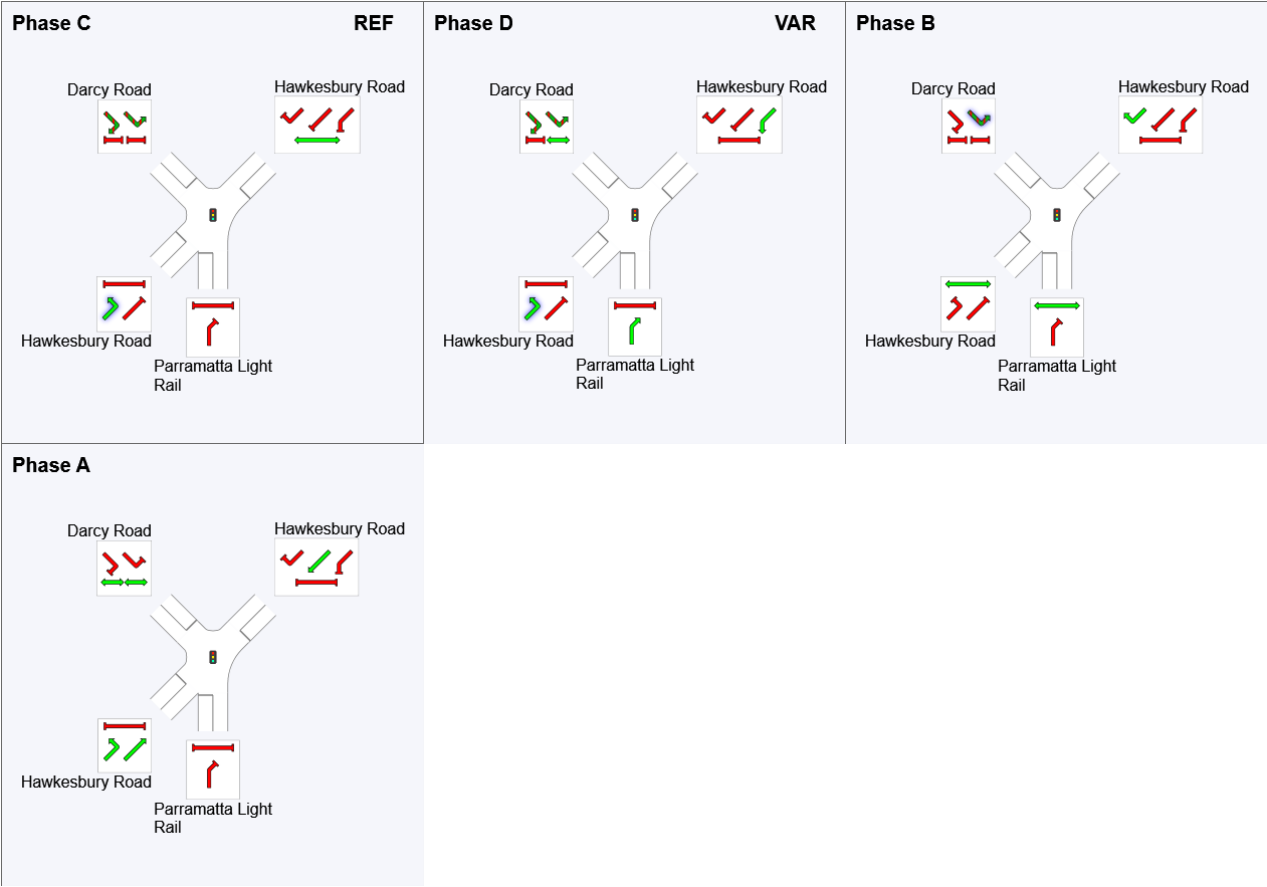
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: Variable Phasing
Reference Phase: Phase C
Input Phase Sequence: C, D*, B, A, F*
Output Phase Sequence: C, D*, B, A
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	43	57	91
Green Time (sec)	37	6	25	38
Phase Time (sec)	45	15	34	46
Phase Split	32%	11%	24%	33%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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P6 Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

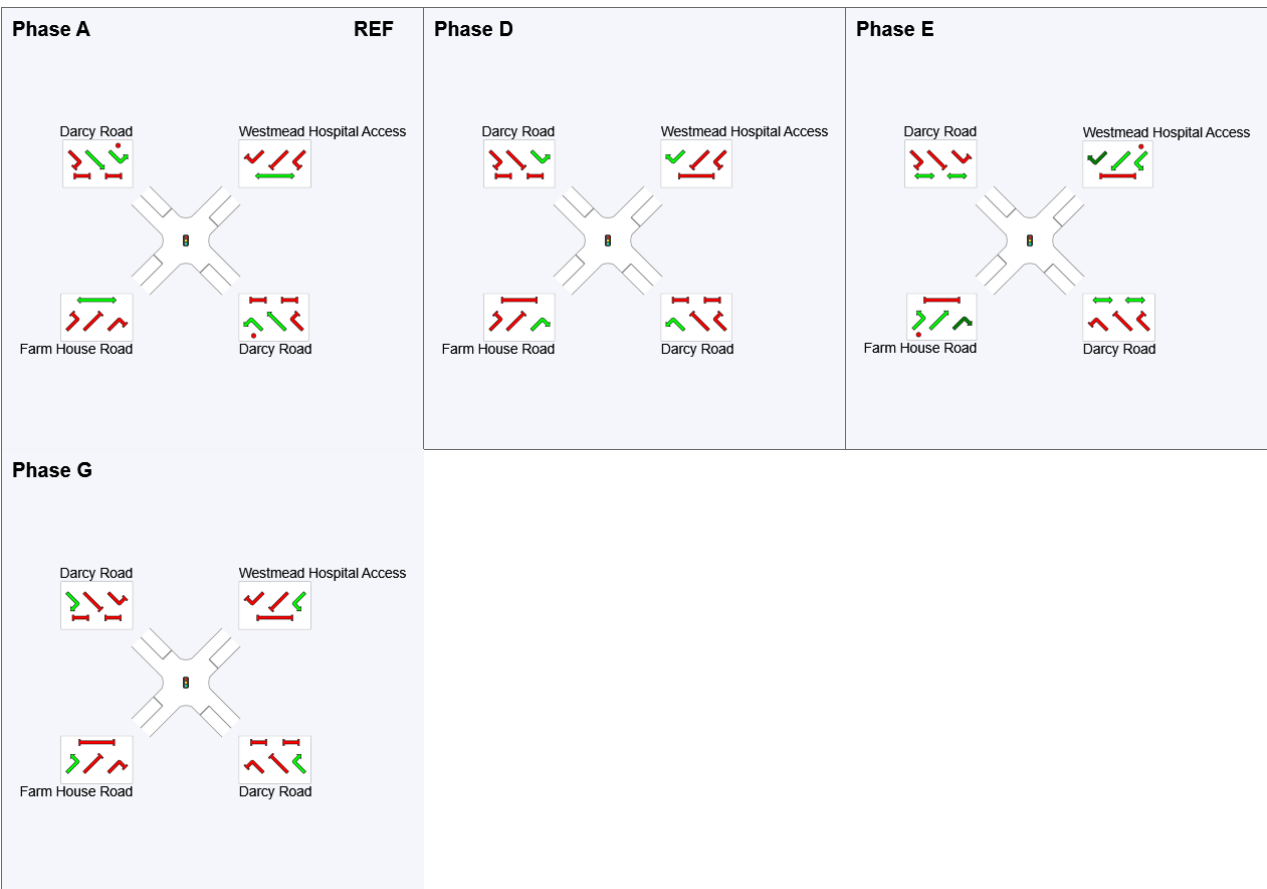
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	86	0.0	80	0.0	0.318	11.8	LOS A	1.9	14.0	0.51	0.17	0.61	20.4
22	T1	998	7.2	934	7.5	0.318	1.4	LOS A	1.9	14.0	0.16	0.05	0.19	30.7
Approach		1084	6.6	1014 ^N ₁	6.9	0.318	2.2	NA	1.9	14.0	0.19	0.06	0.23	29.0
NorthWest: Darcy Road														
28	T1	873	7.8	813	8.1	0.206	0.0	LOS A	18.9	137.0	0.00	0.00	0.00	39.9
Approach		873	7.8	813 ^{N1}	8.1	0.206	0.0	NA	18.9	137.0	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.005	19.2	LOS B	0.0	0.1	0.86	0.74	0.86	5.6
Approach		1	0.0	1	0.0	0.005	19.2	LOS B	0.0	0.1	0.86	0.74	0.86	5.6
All Vehicles		1958	7.2	1828 ^N ₁	7.7	0.318	1.3	NA	18.9	137.0	0.11	0.04	0.13	34.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.345	14.6	LOS B	12.7	92.3	0.48	0.43	0.48	19.3
22	T1	952	7.5	893	7.8	0.345	10.3	LOS A	12.7	92.3	0.42	0.37	0.42	19.7
23	R2	45	0.0	42	0.0	* 0.528	81.0	LOS F	3.1	21.4	1.00	0.74	1.01	8.6
Approach		998	7.1	936 ^{N1}	7.4	0.528	13.5	LOS A	12.7	92.3	0.44	0.39	0.45	17.5
NorthEast: Westmead Dental Hospital Access														
24	L2	46	0.0	46	0.0	0.084	4.7	LOS A	0.4	2.9	0.18	0.52	0.18	29.4
26	R2	37	0.0	37	0.0	0.193	64.2	LOS E	2.3	16.3	0.94	0.73	0.94	6.9
Approach		83	0.0	83	0.0	0.193	31.2	LOS C	2.3	16.3	0.52	0.61	0.52	11.9
NorthWest: Darcy Road														
27	L2	66	0.0	60	0.0	0.277	11.9	LOS A	8.9	64.8	0.33	0.33	0.33	28.4
28	T1	757	9.0	697	9.5	0.277	9.4	LOS A	8.9	64.8	0.38	0.36	0.38	19.8
29	R2	2	50.0	2	50.9	0.021	73.3	LOS F	0.1	1.2	0.95	0.60	0.95	7.0
Approach		825	8.4	759 ^{N1}	8.8	0.277	9.8	LOS A	8.9	64.8	0.38	0.36	0.38	20.7
SouthWest: Parramatta Marist High School Access														
30	L2	131	0.0	131	0.0	* 0.431	49.1	LOS D	7.5	52.8	0.91	0.73	0.91	5.1
32	R2	70	0.0	70	0.0	0.397	56.8	LOS E	4.4	30.7	0.93	0.74	0.93	4.7
Approach		201	0.0	201	0.0	0.431	51.8	LOS D	7.5	52.8	0.92	0.73	0.92	4.9
All Vehicles		2107	6.6	1979 ^{N1}	7.1	0.528	16.7	LOS B	12.7	92.3	0.47	0.42	0.47	14.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	90.9	31.9	0.35

All Pedestrians	154	64.3	LOS F	0.3	0.3	0.96	0.96	99.9	42.7	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

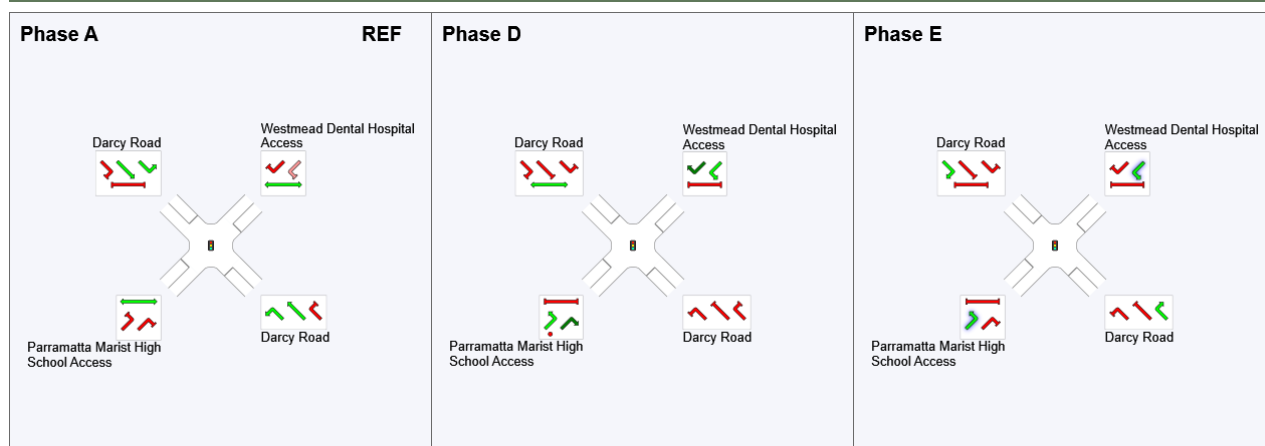
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033 With
Development + Upgrades)]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.246	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1119	6.5	1061	6.7	0.246	0.0	LOS A	7.3	52.5	0.00	0.00	0.00	39.9
Approach		1120	6.5	1062 ^N ₁	6.7	0.246	0.0	NA	7.3	52.5	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	825	8.2	759	8.7	0.192	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		825	8.2	759 ^{N1}	8.7	0.192	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
Approach		1	0.0	1	0.0	0.002	1.1	LOS A	0.0	0.0	0.35	0.15	0.35	18.7
All Vehicles		1946	7.2	1822 ^N ₁	7.7	0.246	0.0	NA	7.3	52.5	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 With Development + Upgrades PM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2033 With Development + Upgrades PM Peak)

Network: N101 [PM Peak
(Network Folder: 2033 With
Development + Upgrades)]

1500 - 1600
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

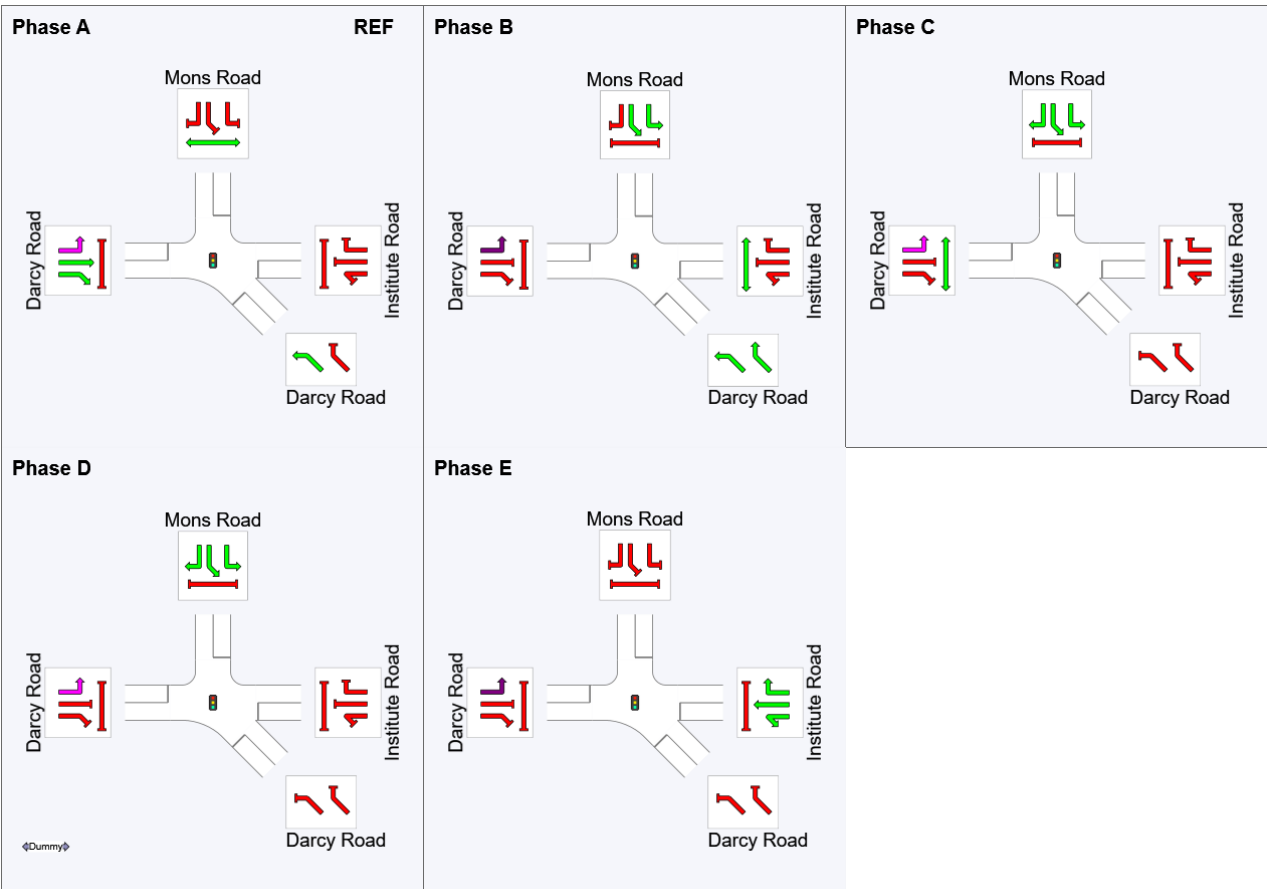
Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: Variable Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	78	110	2	12
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access (Site Folder: 2033 With Development + Upgrades PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]**

1500 - 1600

Site Category: (None)

Stop (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Mother Teresa Primary School Access														
1	L2	240	4.2	240	4.2	0.579	11.8	LOS A	2.9	21.2	0.67	1.46	1.14	9.3
Approach		240	4.2	240	4.2	0.579	11.8	LOS A	2.9	21.2	0.67	1.46	1.14	9.3
East: Darcy Road														
4	L2	75	6.7	68	7.1	0.050	10.0	LOS A	0.2	1.3	0.20	0.74	0.20	16.8
5	T1	1427	1.3	1295	1.4	0.335	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1502	1.6	1364 ^{N1}	1.7	0.335	0.5	LOS A	0.2	1.3	0.01	0.04	0.01	36.9
West: Darcy Road														
11	T1	645	2.5	606	2.1	0.162	2.1	LOS A	3.1	22.3	0.00	0.36	0.00	37.1
12	R2	130	3.1	122	2.7	0.429	17.1	LOS B	1.1	8.0	0.77	1.01	0.99	24.4
Approach		775	2.6	728 ^{N1}	2.2	0.429	4.6	LOS A	3.1	22.3	0.13	0.47	0.17	34.1
All Vehicles		2517	2.1	2331 ^{N1}	2.3	0.579	3.0	NA	3.1	22.3	0.12	0.32	0.17	21.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Bridge Road														
1	L2	229	1.3	227	1.3	* 0.460	41.6	LOS C	11.6	82.5	0.84	0.78	0.84	25.5
2	T1	29	0.0	29	0.0	* 1.886	852.0	LOS F	34.3	252.9	1.00	2.10	4.21	2.0
3	R2	100	8.0	99	8.1	1.886	851.6	LOS F	34.3	252.9	1.00	2.10	4.21	1.8
Approach		358	3.1	354 ^{N1}	3.1	1.886	333.6	LOS F	34.3	252.9	0.90	1.26	2.05	5.2
East: Darcy Road														
4	L2	321	4.0	297	4.3	* 0.381	20.5	LOS B	21.4	153.2	0.47	0.53	0.47	27.4
5	T1	1317	1.3	1216	1.4	0.381	14.0	LOS A	21.4	153.2	0.42	0.42	0.42	34.5
6	R2	28	0.0	26	0.0	0.056	12.9	LOS A	0.4	2.6	0.39	0.61	0.39	28.9
Approach		1666	1.8	1539 ^{N1}	1.9	0.381	15.2	LOS B	21.4	153.2	0.43	0.44	0.43	33.2
North: Coles Westmead Access														
7	L2	26	0.0	26	0.0	0.068	43.0	LOS D	1.3	9.4	0.83	0.61	0.83	4.3
8	T1	45	0.0	45	0.0	1.036	131.7	LOS F	8.7	60.9	1.00	1.60	1.93	1.7
9	R2	42	0.0	42	0.0	1.036	131.7	LOS F	8.7	60.9	1.00	1.60	1.93	5.1
Approach		113	0.0	113	0.0	1.036	111.3	LOS F	8.7	60.9	0.96	1.37	1.68	3.5
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.320	16.3	LOS B	14.2	100.2	0.48	0.46	0.48	23.5
11	T1	649	1.4	649	1.4	0.320	11.2	LOS A	14.2	100.2	0.46	0.42	0.46	25.5
12	R2	368	1.6	368	1.6	0.935	66.6	LOS E	24.9	176.5	0.82	1.05	1.21	7.8
Approach		1074	1.4	1074	1.4	0.935	30.5	LOS C	24.9	176.5	0.59	0.64	0.72	14.3
All Vehicles		3211	1.7	3080 ^{N1}	1.8	1.886	60.7	LOS E	34.3	252.9	0.56	0.64	0.76	14.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 With Development + Upgrades PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, E2

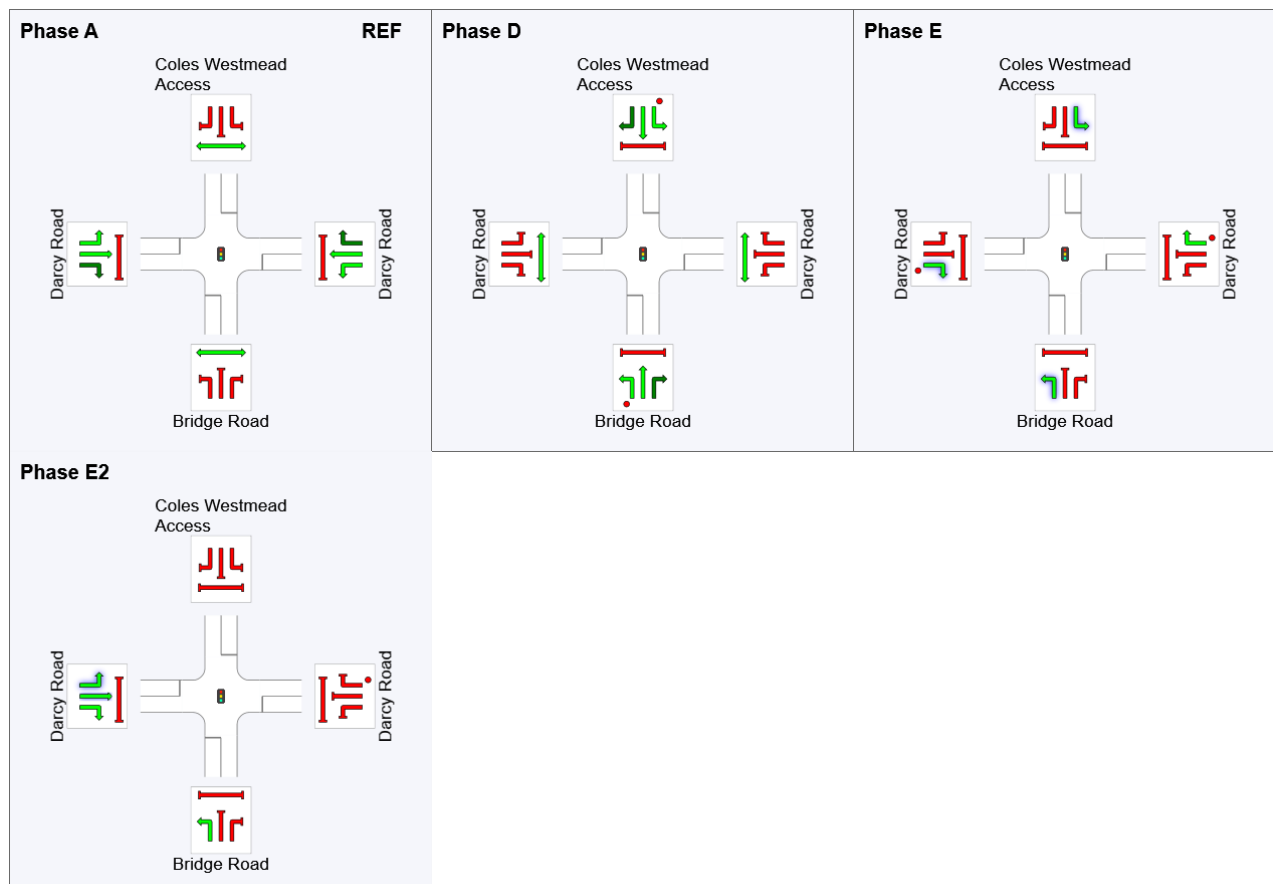
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 With Development + Upgrades PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	467	2.4	467	2.4	0.656	5.4	LOS A	7.0	49.9	0.71	0.62	0.71	22.6
3	R2	172	0.6	172	0.6	0.656	8.5	LOS A	7.0	49.9	0.71	0.62	0.71	22.6
3u	U	1	100.0	1	100.0	0.656	11.6	LOS A	7.0	49.9	0.71	0.62	0.71	23.9
Approach		640	2.0	640	2.0	0.656	6.2	LOS A	7.0	49.9	0.71	0.62	0.71	22.6
East: Alexandra Avenue														
4	L2	253	0.4	242	0.4	0.869	30.3	LOS C	11.0	76.9	0.93	1.34	1.79	30.3
6	R2	152	0.0	145	0.0	0.869	32.8	LOS C	11.0	76.9	0.93	1.34	1.79	29.9
6u	U	1	0.0	1	0.0	0.869	34.2	LOS C	11.0	76.9	0.93	1.34	1.79	29.9
Approach		406	0.2	388 ^{N1}	0.3	0.869	31.3	LOS C	11.0	76.9	0.93	1.34	1.79	30.1
North: Bridge Road														
7	L2	136	0.0	132	0.0	0.894	13.7	LOS A	19.4	138.5	0.98	0.87	1.24	35.5
8	T1	725	2.6	705	2.7	0.894	13.4	LOS A	19.4	138.5	0.98	0.87	1.24	35.8
9u	U	1	0.0	1	0.0	0.894	17.5	LOS B	19.4	138.5	0.98	0.87	1.24	35.5
Approach		862	2.2	838 ^{N1}	2.2	0.894	13.5	LOS A	19.4	138.5	0.98	0.87	1.24	35.8
All Vehicles		1908	1.7	1867 ^{N1}	1.8	0.894	14.7	LOS B	19.4	138.5	0.88	0.88	1.17	32.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2033 With Development + Upgrades)]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	0	0	0	15	28
Program / User	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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Appendix I: Future Year Sensitivity Analysis SIDRA Modelling Results



CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	26	3.8	26	3.8	1.268	258.4	LOS F	102.3	720.4	1.00	2.04	2.42	2.7
2	T1	1233	0.6	1233	0.6	* 1.268	253.7	LOS F	102.3	720.4	1.00	2.05	2.42	2.7
Approach		1259	0.6	1259	0.6	1.268	253.8	LOS F	102.3	720.4	1.00	2.05	2.42	2.7
East: Alexandra Avenue														
4	L2	43	0.0	43	0.0	1.268	298.7	LOS F	17.6	131.0	1.00	1.79	2.51	3.8
5	T1	131	0.0	131	0.0	* 1.268	294.2	LOS F	17.6	131.0	1.00	1.79	2.51	1.9
6	R2	394	14.7	394	14.7	1.268	300.4	LOS F	38.6	303.9	1.00	1.69	2.53	1.9
Approach		568	10.2	568	10.2	1.268	298.9	LOS F	38.6	303.9	1.00	1.72	2.52	2.0
North: Hawkesbury Road														
7	L2	439	13.9	424	14.3	0.953	42.1	LOS C	12.1	88.1	0.88	0.97	1.04	14.9
8	T1	520	1.7	500	1.8	0.953	40.9	LOS C	12.1	88.1	0.95	1.00	1.12	14.9
9	R2	70	0.0	67	0.0	1.190	248.9	LOS F	9.6	67.3	1.00	1.29	2.49	0.9
Approach		1029	6.8	992 ^{N1}	7.0	1.190	55.6	LOS D	12.1	88.1	0.92	1.01	1.18	11.1
West: Alexandra Avenue														
10	L2	170	0.0	154	0.0	0.880	83.7	LOS F	14.8	103.5	1.00	0.98	1.35	17.9
11	T1	389	0.3	352	0.2	* 1.187	239.9	LOS F	49.7	348.7	1.00	1.80	2.30	9.4
Approach		559	0.2	505 ^{N1}	0.2	1.187	192.4	LOS F	49.7	348.7	1.00	1.55	2.01	10.7
All Vehicles		3415	4.0	3324 ^{N1}	4.1	1.268	193.0	LOS F	102.3	720.4	0.98	1.61	2.01	4.8
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1433	4.4	1420	4.4	1.121	164.2	LOS F	12.3	88.1	1.00	1.65	1.93	1.4
3	R2	365	0.3	362	0.3	1.121	159.1	LOS F	12.3	88.1	1.00	1.54	1.91	9.9
Approach		1798	3.6	1782 ^{N1}	3.6	1.121	163.2	LOS F	12.3	88.1	1.00	1.63	1.93	3.4
East: Railway Parade														
4	L2	224	0.9	224	0.9	0.688	42.8	LOS D	16.6	117.0	0.92	0.83	0.94	23.2
6	R2	50	0.0	50	0.0	0.443	71.4	LOS F	3.4	23.8	0.98	0.77	0.98	17.1
Approach		274	0.7	274	0.7	0.688	48.0	LOS D	16.6	117.0	0.93	0.82	0.95	21.8
North: Hawkesbury Road														
7	L2	130	0.0	123	0.0	0.104	20.5	LOS B	4.1	35.2	0.40	0.57	0.40	34.9
8	T1	805	10.7	767	11.1	0.305	17.2	LOS B	28.4	208.9	0.46	0.42	0.46	18.4
Approach		935	9.2	891 ^{N1}	9.6	0.305	17.7	LOS B	28.4	208.9	0.46	0.44	0.46	23.0
All Vehicles		3007	5.1	2947 ^{N1}	5.2	1.121	108.5	LOS F	28.4	208.9	0.83	1.19	1.39	6.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

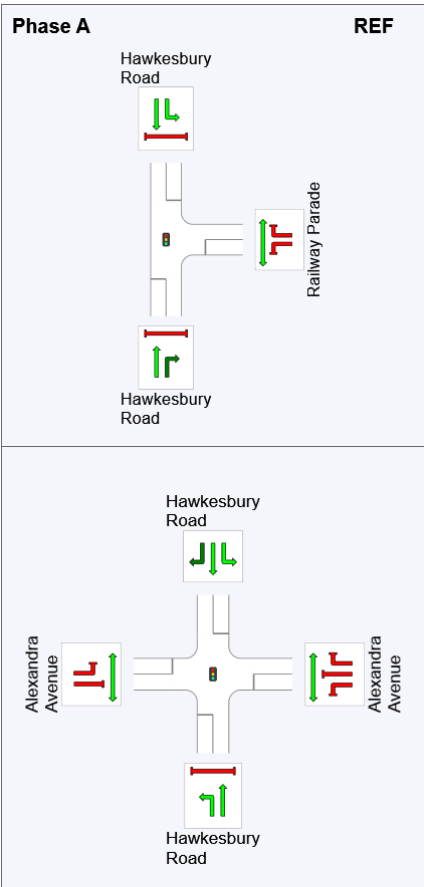
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C*
Output Phase Sequence: A, E, D
(* Variable Phase)

Phase Timing Summary (CCG)

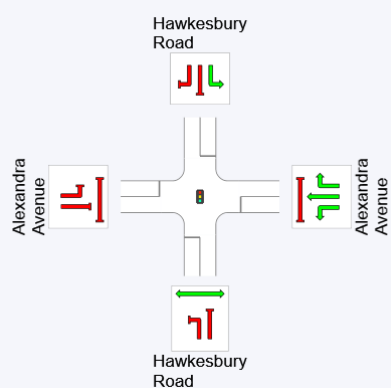
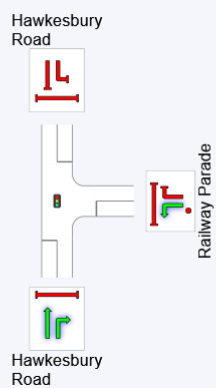
Phase	A	E	D
Phase Change Time (sec)	0	77	114
Green Time (sec)	71	28	17
Phase Time (sec)	80	37	23
Phase Split	57%	26%	16%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

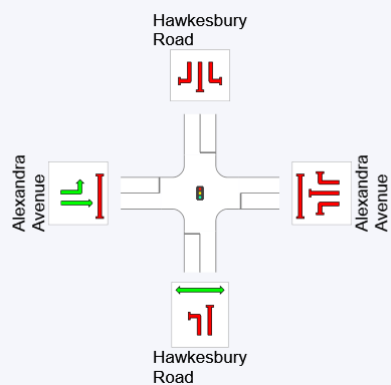
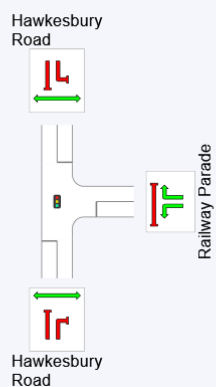
Output Phase Sequence (CCG)



Phase E



Phase D



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

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.251	84.0	LOS F	0.6	16.3	1.00	0.69	1.00	10.1
25	T1	346	3.5	346	3.5	0.942	77.3	LOS F	27.4	197.2	0.94	1.11	1.32	7.9
26	R2	265	1.9	265	1.9	* 1.087	175.3	LOS F	32.8	233.3	1.00	1.48	1.98	3.7
Approach		619	4.0	619	4.0	1.087	119.3	LOS F	32.8	233.3	0.96	1.26	1.60	5.4
NorthWest: Darcy Road														
27	L2	293	3.8	269	4.0	0.831	13.0	LOS A	4.8	34.3	0.39	0.61	0.39	27.1
29	R2	590	11.5	545	12.3	0.923	59.4	LOS E	19.8	146.9	0.93	0.94	1.15	5.8
Approach		883	8.9	815 ^{N1}	9.6	0.923	44.0	LOS D	19.8	146.9	0.75	0.83	0.90	10.3
SouthWest: Hawkesbury Road														
30	L2	975	5.9	896	6.0	* 1.089	154.3	LOS F	29.0	208.9	0.99	1.30	1.77	3.5
31	T1	507	1.2	466	1.2	0.702	37.0	LOS C	25.0	176.8	0.85	0.77	0.85	18.8
Approach		1482	4.3	1362 ^{N1}	4.3	1.089	114.2	LOS F	29.0	208.9	0.94	1.12	1.45	5.7
All Vehicles		2992	5.9	2803 ^{N1}	6.3	1.089	94.9	LOS F	32.8	233.3	0.89	1.07	1.32	6.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	32.2	LOS D	0.1	0.1	0.92	0.92	57.9	30.9	0.53

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	62.0	LOS F	0.8	0.8	0.96	0.96	135.1	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

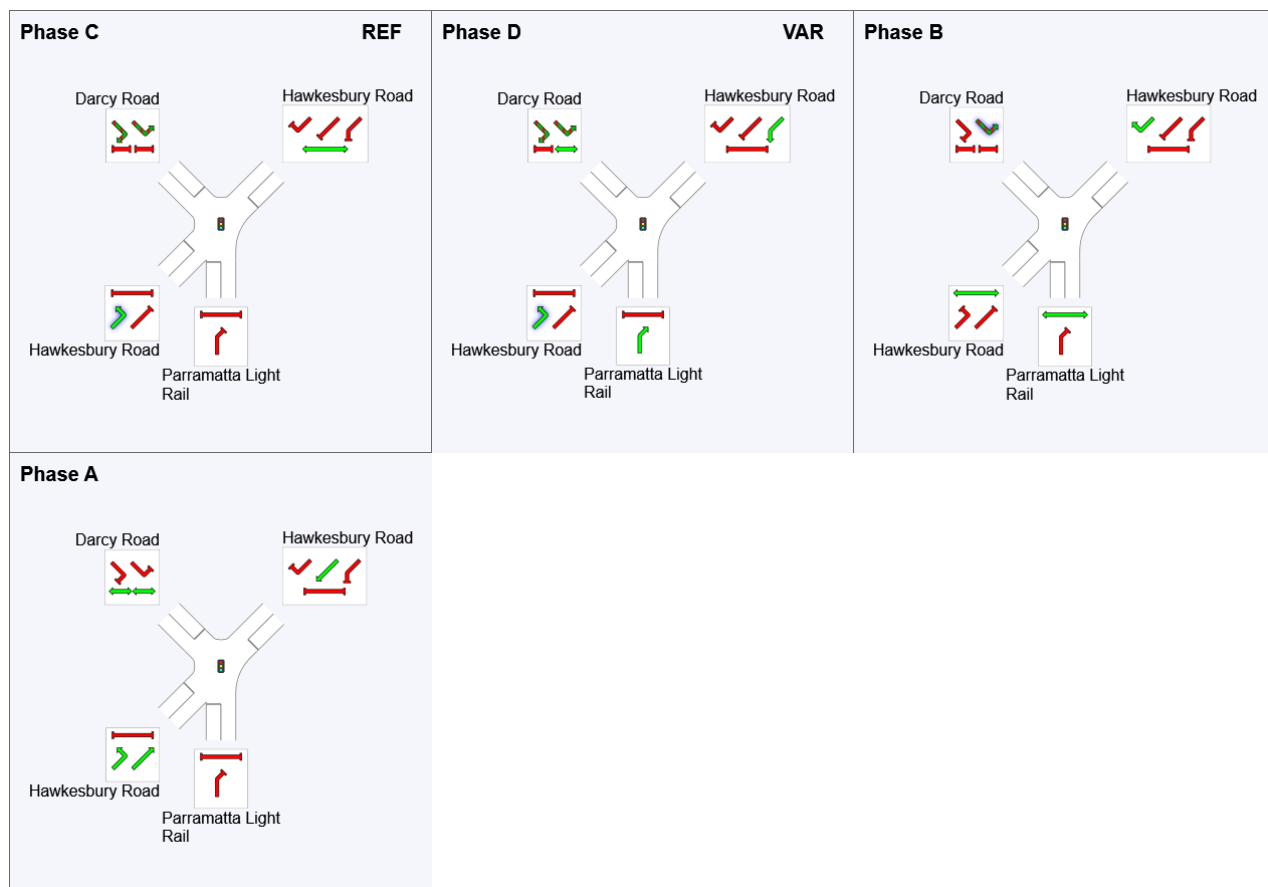
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	34	48	89
Green Time (sec)	28	6	32	40
Phase Time (sec)	36	15	41	48
Phase Split	26%	11%	29%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	0.474	26.0	LOS B	18.7	134.1	0.64	0.57	0.64	21.3
22	T1	1100	5.7	954	5.9	0.474	22.5	LOS B	18.7	134.1	0.64	0.57	0.64	11.7
23	R2	132	0.8	114	0.8	0.722	76.8	LOS F	8.1	56.7	1.00	0.84	1.12	8.5
Approach		1240	5.2	1076 ^N	5.3	0.722	28.3	LOS B	18.7	134.1	0.67	0.60	0.69	10.7
NorthEast: Westmead Hospital Access														
24	L2	43	0.0	43	0.0	0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	8.1
25	T1	1	0.0	1	0.0	0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	12.4
26	R2	75	6.7	75	6.7	0.881	81.5	LOS F	5.7	42.1	1.00	1.25	1.49	6.2
Approach		119	4.2	119	4.2	0.881	69.2	LOS E	5.7	42.1	0.95	1.03	1.26	6.8
NorthWest: Darcy Road														
27	L2	182	0.5	165	0.6	* 0.635	29.5	LOS C	13.2	96.3	0.73	0.72	0.73	12.3
28	T1	818	10.3	750	11.1	0.635	24.4	LOS B	13.2	96.3	0.71	0.66	0.71	8.2
29	R2	137	0.7	124	0.8	* 1.073	156.3	LOS F	13.7	96.3	1.00	1.34	1.93	5.0
Approach		1137	7.6	1039 ^N	8.2	1.073	41.0	LOS C	13.7	96.3	0.74	0.75	0.86	8.0
SouthWest: Farm House Road														
30	L2	142	0.7	142	0.7	0.413	52.3	LOS D	8.5	60.0	0.92	0.78	0.92	10.0
31	T1	4	0.0	4	0.0	* 0.413	55.3	LOS D	8.5	60.0	0.92	0.78	0.92	12.2
32	R2	22	0.0	22	0.0	0.166	71.3	LOS F	1.5	10.2	0.97	0.70	0.97	8.0
Approach		168	0.6	168	0.6	0.413	54.8	LOS D	8.5	60.0	0.93	0.77	0.93	9.8
All Vehicles		2664	5.9	2402 ^N	6.5	1.073	37.7	LOS C	18.7	134.1	0.74	0.70	0.81	8.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41

NorthEast: Westmead Hospital Access											
P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35	
NorthWest: Darcy Road											
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40	
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32	
SouthWest: Farm House Road											
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35	
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]**

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

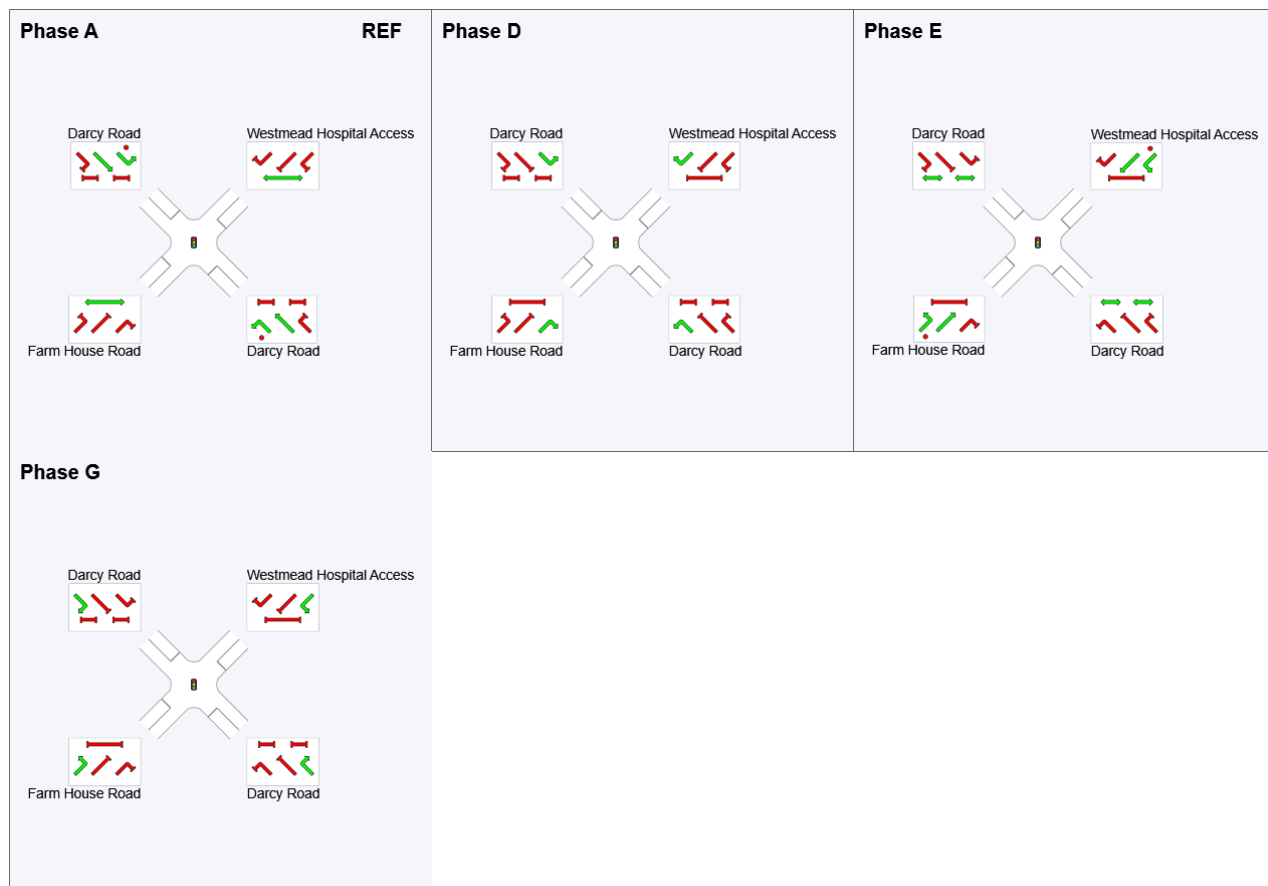
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	327	0.0	294	0.0	0.456	10.1	LOS A	2.2	15.5	0.70	0.95	0.94	16.9
22	T1	990	6.8	892	6.9	0.455	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		1317	5.1	1186 ^N ₁	5.2	0.456	2.5	NA	2.2	15.5	0.17	0.23	0.23	27.6
NorthWest: Darcy Road														
28	T1	1137	7.6	1039 ^N ₁	8.2	0.351	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		1137	7.6	1039 ^N ₁	8.2	0.351	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.41	0.61	11.6
Approach		1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.0	0.61	0.41	0.61	11.6
All Vehicles		2455	6.2	2226 ^N ₁	6.9	0.456	1.4	NA	2.2	15.5	0.09	0.13	0.12	33.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 **Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]**

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	0.354	8.6	LOS A	4.9	35.4	0.19	0.18	0.19	23.3
22	T1	923	7.3	849	7.5	0.354	4.9	LOS A	4.9	35.4	0.18	0.17	0.18	26.8
23	R2	59	0.0	54	0.0	* 0.408	77.4	LOS F	3.8	26.7	1.00	0.75	1.00	7.9
Approach		990	6.8	910 ^{N1}	7.0	0.408	9.2	LOS A	4.9	35.4	0.23	0.20	0.23	20.7
NorthEast: Westmead Dental Hospital Access														
24	L2	19	0.0	19	0.0	0.023	0.6	LOS A	0.1	0.8	0.13	0.10	0.13	19.5
26	R2	37	0.0	37	0.0	0.188	59.9	LOS E	2.3	16.1	0.93	0.70	0.93	6.2
Approach		56	0.0	56	0.0	0.188	39.8	LOS C	2.3	16.1	0.66	0.49	0.66	8.0
NorthWest: Darcy Road														
27	L2	85	0.0	76	0.0	* 0.422	8.5	LOS A	6.0	43.3	0.20	0.24	0.20	22.0
28	T1	1034	8.3	936	9.1	0.422	4.0	LOS A	6.0	43.3	0.16	0.17	0.16	27.8
29	R2	5	0.0	4	0.0	0.034	73.7	LOS F	0.3	2.1	1.00	0.65	1.00	6.9
Approach		1124	7.7	1017 ^{N1}	8.4	0.422	4.6	LOS A	6.0	43.3	0.17	0.18	0.17	26.1
SouthWest: Parramatta Marist High School Access														
30	L2	156	0.0	156	0.0	* 0.408	44.4	LOS D	8.6	60.1	0.88	0.71	0.88	5.5
32	R2	84	0.0	84	0.0	0.290	52.6	LOS D	5.0	34.8	0.90	0.71	0.90	5.0
Approach		240	0.0	240	0.0	0.408	47.2	LOS D	8.6	60.1	0.89	0.71	0.89	5.3
All Vehicles		2410	6.3	2223 ^{N1}	6.9	0.422	12.0	LOS A	8.6	60.1	0.28	0.25	0.28	17.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	98.5	41.1	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

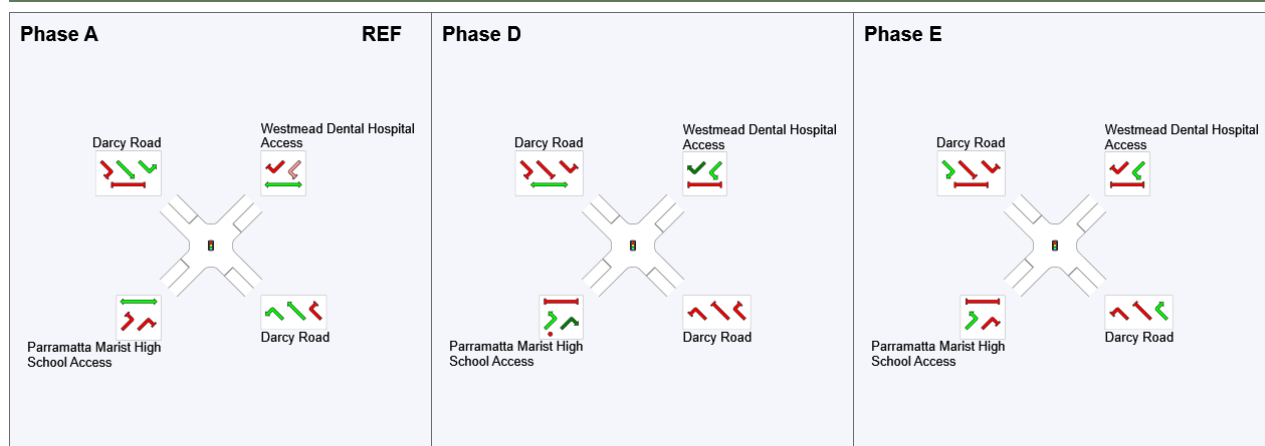
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.216	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1116	6.1	1061	6.2	0.216	0.0	LOS A	10.0	72.4	0.00	0.00	0.00	39.9
Approach		1117	6.1	1062 ^N ₁	6.2	0.216	0.0	NA	10.0	72.4	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	1124	7.5	1017	8.2	0.258	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1124	7.5	1017 ^N ₁	8.2	0.258	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.2	LOS A	0.0	0.0	0.36	0.16	0.36	18.7
Approach		1	0.0	1	0.0	0.002	1.2	LOS A	0.0	0.0	0.36	0.16	0.36	18.7
All Vehicles		2242	6.8	2080 ^N ₁	7.3	0.258	0.0	NA	10.0	72.4	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	781	1.0	760	1.0	0.492	21.9	LOS B	12.7	89.8	0.57	0.69	0.57	8.4
23a	R1	334	18.6	326	18.8	* 0.891	70.7	LOS F	11.8	89.8	0.99	0.97	1.18	16.6
Approach		1115	6.3	1086 ^N ₁	6.3	0.891	36.5	LOS C	12.7	89.8	0.70	0.77	0.75	13.7
East: Institute Road														
4b	L3	51	2.0	51	2.0	0.686	77.3	LOS F	6.0	42.7	1.00	0.84	1.11	12.8
5	T1	79	2.5	79	2.5	* 0.686	75.2	LOS F	6.0	42.7	1.00	0.85	1.16	12.7
6	R2	2	0.0	2	0.0	0.686	81.0	LOS F	3.6	25.5	1.00	0.86	1.19	20.3
Approach		132	2.3	132	2.3	0.686	76.1	LOS F	6.0	42.7	1.00	0.85	1.14	12.9
North: Mons Road														
7	L2	7	0.0	7	0.0	0.176	24.8	LOS B	5.2	44.6	0.60	0.61	0.60	30.9
7a	L1	170	44.1	170	44.1	0.176	23.1	LOS B	5.2	44.6	0.59	0.59	0.59	26.4
9	R2	126	10.3	126	10.3	* 0.618	57.2	LOS E	8.0	61.1	0.95	0.82	0.96	17.5
Approach		303	29.0	303	29.0	0.618	37.3	LOS C	8.0	61.1	0.74	0.69	0.74	22.0
West: Darcy Road														
10	L2	196	8.7	193	8.6	1.120	165.9	LOS F	12.7	91.4	1.00	1.49	1.91	8.5
11	T1	223	0.4	220	0.4	* 1.120	162.7	LOS F	12.7	91.4	1.00	1.49	1.91	7.2
12a	R1	902	0.9	890	0.9	1.120	173.5	LOS F	13.0	91.4	1.00	1.58	1.91	1.5
Approach		1321	2.0	1304 ^N ₁	1.9	1.120	170.6	LOS F	13.0	91.4	1.00	1.55	1.91	3.8
All Vehicles		2871	6.5	2825 ^N ₁	6.6	1.120	100.3	LOS F	13.0	91.4	0.86	1.13	1.30	7.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41

West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
 (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak
 (Network Folder: 2033
 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

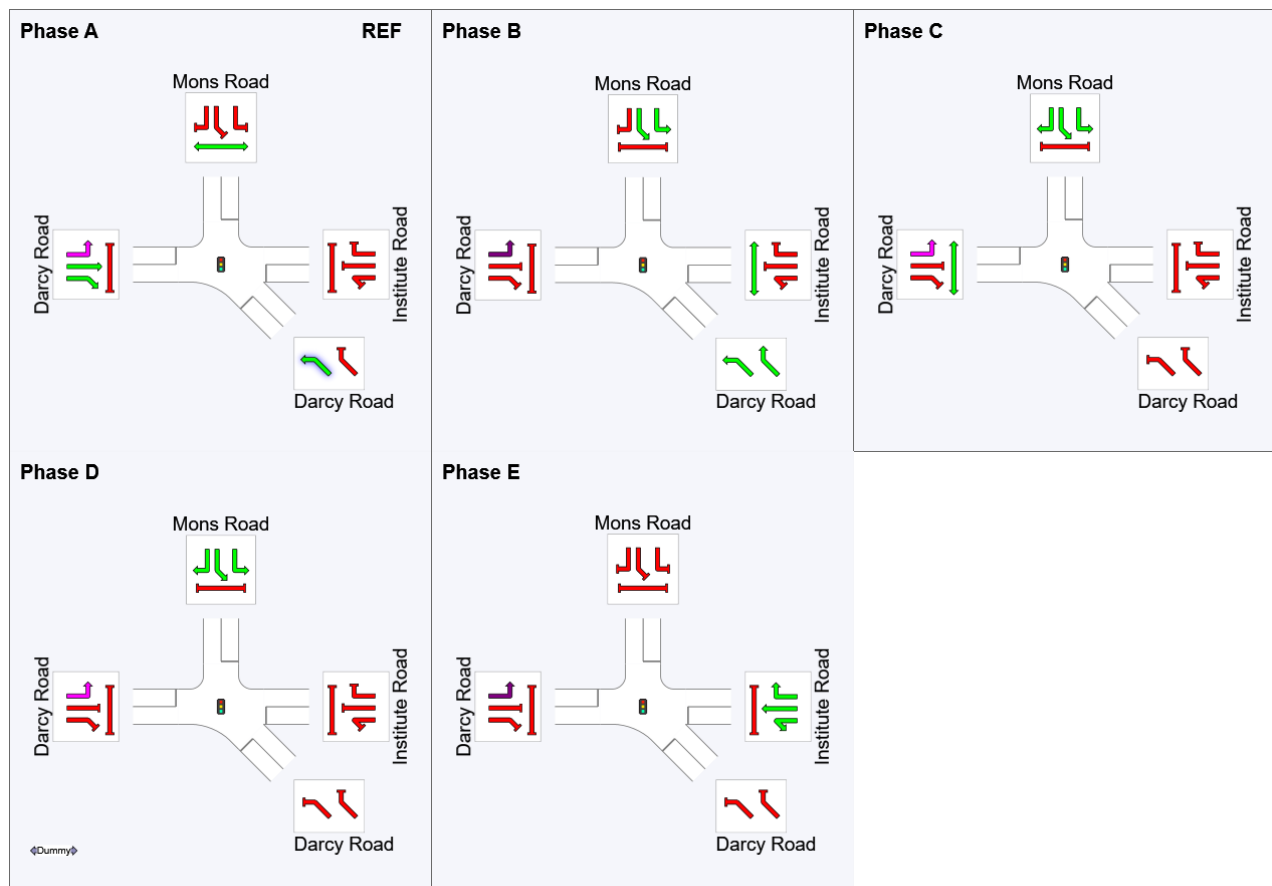
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	50	82	114	124
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



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SITE LAYOUT

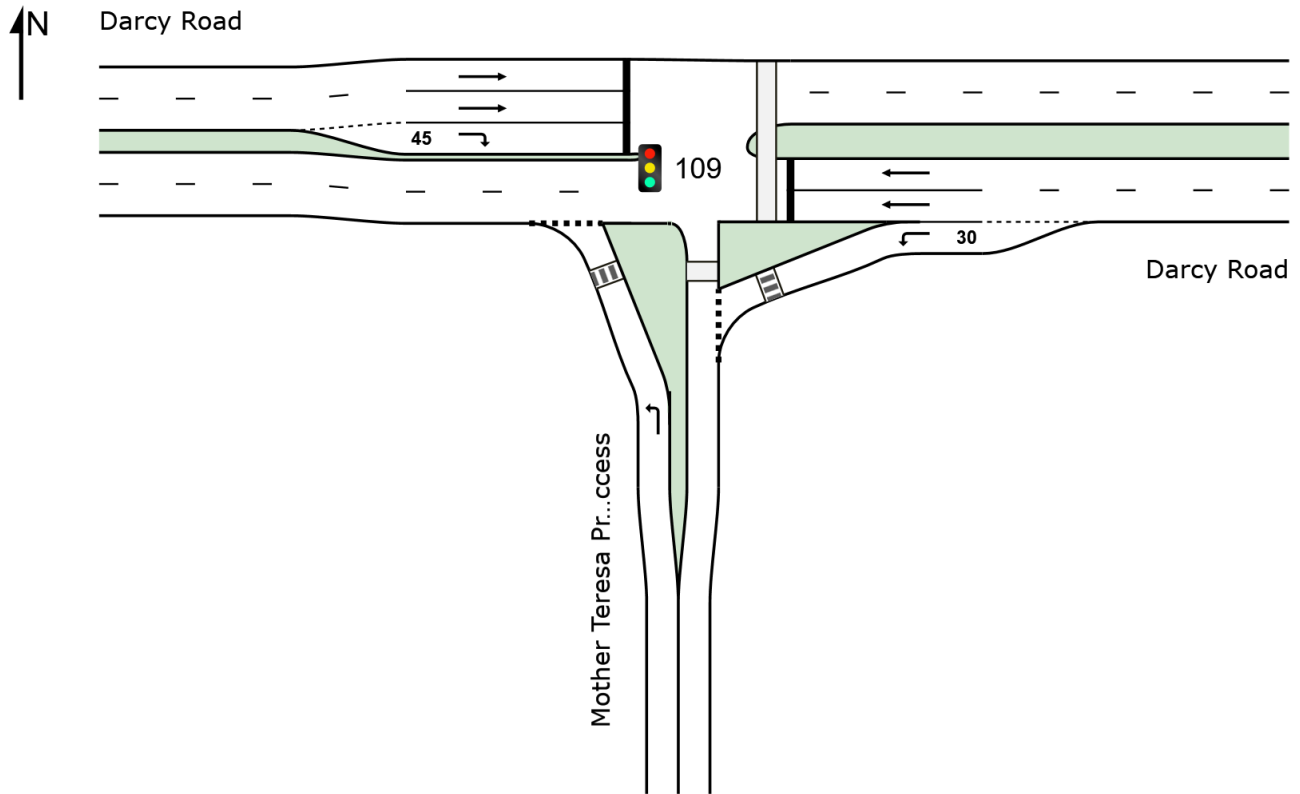
 **Site: 109 [Darcy Road / Mother Teresa Primary School Access**
(Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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MOVEMENT SUMMARY

 Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mother Teresa Primary School Access														
1	L2	466	1.1	466	1.1	0.812	30.0	LOS C	24.4	172.1	0.91	1.08	0.97	8.3
Approach		466	1.1	466	1.1	0.812	30.0	LOS C	24.4	172.1	0.91	1.08	0.97	8.3
East: Darcy Road														
4	L2	162	1.9	161	1.9	0.219	28.1	LOS B	6.2	44.4	0.78	0.82	0.78	8.1
5	T1	824	2.3	821	2.3	0.647	11.5	LOS A	12.8	91.4	0.43	0.39	0.43	13.6
Approach		986	2.2	982 ^{N1}	2.2	0.647	14.2	LOS A	12.8	91.4	0.49	0.46	0.49	12.1
West: Darcy Road														
11	T1	1321	2.3	1305	2.3	* 0.968	61.9	LOS E	64.9	463.5	0.63	0.88	1.00	12.0
12	R2	345	1.4	341	1.4	0.672	25.8	LOS B	17.2	122.2	0.88	0.92	0.88	20.4
Approach		1666	2.2	1645 ^{N1}	2.1	0.968	54.4	LOS D	64.9	463.5	0.68	0.89	0.97	13.1
All Vehicles		3118	2.0	3094 ^{N1}	2.0	0.968	38.0	LOS C	64.9	463.5	0.66	0.78	0.82	11.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Mother Teresa Primary School Access											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	86.8	27.1	0.31
East: Darcy Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	96.6	38.8	0.40
All Pedestrians		100	64.3	LOS F	0.2	0.2	0.96	0.96	91.7	33.0	0.36

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Convert Function Default

Reference Phase: Phase A

Input Phase Sequence: A, B, B1

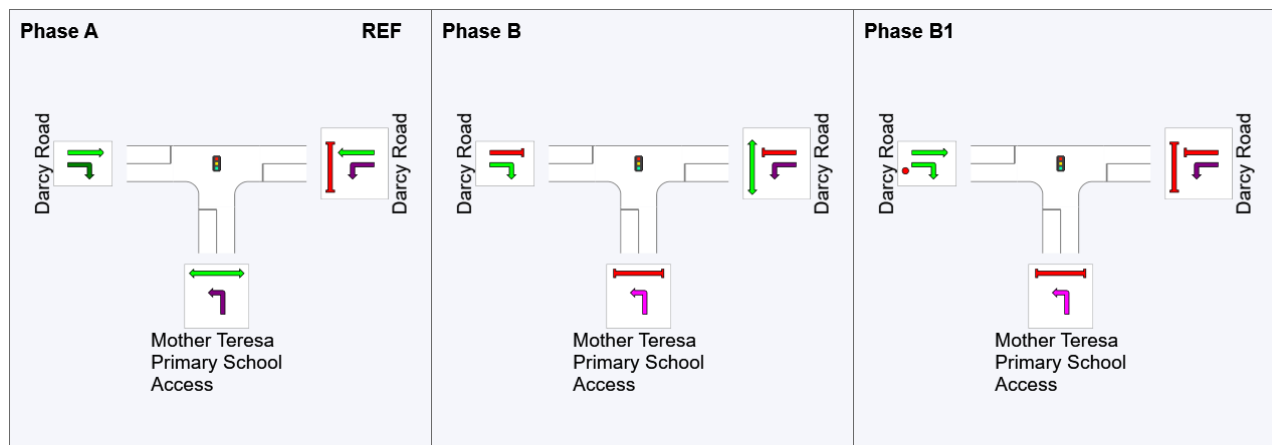
Output Phase Sequence: A, B, B1

Phase Timing Summary

Phase	A	B	B1
Phase Change Time (sec)	135	85	108
Green Time (sec)	84	17	22
Phase Time (sec)	90	22	28
Phase Split	64%	16%	20%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing - Copy

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E*

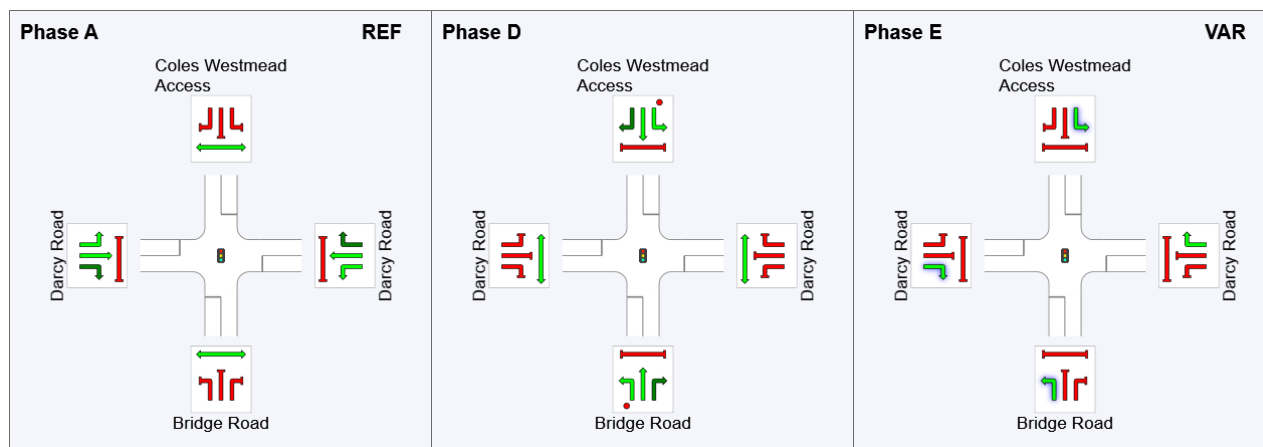
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	121	71	109
Green Time (sec)	83	31	10
Phase Time (sec)	90	33	17
Phase Split	64%	24%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Sensitivity Analysis (50%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	491	0.2	491	0.2	0.682	4.2	LOS A	9.1	64.1	0.48	0.50	0.48	23.9
3	R2	349	0.3	349	0.3	0.682	7.3	LOS A	9.1	64.1	0.48	0.50	0.48	23.9
3u	U	5	0.0	5	0.0	0.682	8.6	LOS A	9.1	64.1	0.48	0.50	0.48	27.2
Approach		845	0.2	845	0.2	0.682	5.5	LOS A	9.1	64.1	0.48	0.50	0.48	23.9
East: Alexandra Avenue														
4	L2	132	0.8	130	0.8	0.359	9.6	LOS A	1.9	13.7	0.67	0.83	0.67	40.3
6	R2	54	1.9	53	1.9	0.359	12.2	LOS A	1.9	13.7	0.67	0.83	0.67	40.9
6u	U	2	0.0	2	0.0	0.359	13.4	LOS A	1.9	13.7	0.67	0.83	0.67	40.9
Approach		188	1.1	186 ^{N1}	1.1	0.359	10.4	LOS A	1.9	13.7	0.67	0.83	0.67	40.4
North: Bridge Road														
7	L2	204	0.5	178	0.5	1.181	182.4	LOS F	104.9	735.6	1.00	4.37	7.77	7.6
8	T1	800	0.1	696	0.1	1.181	182.0	LOS F	104.9	735.6	1.00	4.37	7.77	8.4
9u	U	1	0.0	1	0.0	1.181	186.2	LOS F	104.9	735.6	1.00	4.37	7.77	7.6
Approach		1005	0.2	875 ^{N1}	0.2	1.181	182.0	LOS F	104.9	735.6	1.00	4.37	7.77	8.3
All Vehicles		2038	0.3	1906 ^{N1}	0.3	1.181	87.0	LOS F	104.9	735.6	0.74	2.31	3.84	10.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	109	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	-5	0	0	0	0	10
Program / User	U	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	54	0.0	54	0.0	* 0.885	72.4	LOS F	27.0	190.6	1.00	1.03	1.22	8.6
2	T1	660	1.4	660	1.4	0.885	67.6	LOS E	27.2	192.3	1.00	1.04	1.22	8.7
Approach		714	1.3	714	1.3	0.885	68.0	LOS E	27.2	192.3	1.00	1.04	1.22	8.7
East: Alexandra Avenue														
4	L2	33	0.0	33	0.0	0.917	80.8	LOS F	12.8	92.8	1.00	1.07	1.30	12.2
5	T1	245	0.0	245	0.0	* 0.917	76.4	LOS F	12.8	92.8	1.00	1.07	1.30	6.8
6	R2	321	20.9	321	20.9	0.917	84.3	LOS F	21.1	174.3	1.00	1.04	1.35	6.4
Approach		599	11.2	599	11.2	0.917	80.9	LOS F	21.1	174.3	1.00	1.06	1.33	6.9
North: Hawkesbury Road														
7	L2	366	18.3	294	17.5	0.766	16.5	LOS B	12.1	88.1	0.57	0.68	0.57	25.4
8	T1	937	1.1	760	1.0	0.766	29.5	LOS C	12.5	88.1	0.81	0.80	0.81	18.6
9	R2	96	0.0	78	0.0	0.766	50.0	LOS D	12.5	88.1	1.00	0.91	1.01	4.9
Approach		1399	5.5	1132 ^N ₁	5.2	0.766	27.5	LOS B	12.5	88.1	0.76	0.77	0.77	18.7
West: Alexandra Avenue														
10	L2	98	0.0	97	0.0	0.168	36.0	LOS C	4.4	30.7	0.71	0.73	0.71	28.2
11	T1	205	0.5	202	0.5	* 0.858	73.8	LOS F	15.0	105.3	1.00	0.99	1.25	21.9
Approach		303	0.3	299 ^{N1}	0.3	0.858	61.6	LOS E	15.0	105.3	0.91	0.90	1.07	23.4
All Vehicles		3015	5.1	2744 ^N ₁	5.6	0.917	53.4	LOS D	27.2	192.3	0.89	0.92	1.04	13.3
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	842	8.8	841	8.8	0.470	4.5	LOS A	8.6	62.2	0.28	0.28	0.28	24.6
3	R2	236	0.0	236	0.0	* 0.470	14.4	LOS A	8.6	62.2	0.65	0.67	0.65	37.9
Approach		1078	6.9	1077 ^N ₁	6.9	0.470	6.7	LOS A	8.6	62.2	0.36	0.36	0.36	32.6
East: Railway Parade														
4	L2	298	0.3	298	0.3	0.572	20.1	LOS B	11.3	79.0	0.69	0.77	0.69	32.4
6	R2	31	0.0	31	0.0	0.162	66.9	LOS E	2.0	13.7	0.94	0.72	0.94	17.9
Approach		329	0.3	329	0.3	0.572	24.6	LOS B	11.3	79.0	0.71	0.76	0.71	30.1
North: Hawkesbury Road														
7	L2	87	0.0	66	0.0	0.126	48.9	LOS D	4.8	41.7	0.81	0.70	0.81	24.5
8	T1	1101	7.1	831	7.2	0.850	51.3	LOS D	26.4	191.3	0.97	0.90	1.04	8.3
Approach		1188	6.6	897 ^{N1}	6.6	0.850	51.1	LOS D	26.4	191.3	0.96	0.88	1.02	10.0
All Vehicles		2595	5.9	2303 ^N ₁	6.6	0.850	26.6	LOS B	26.4	191.3	0.65	0.62	0.67	19.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

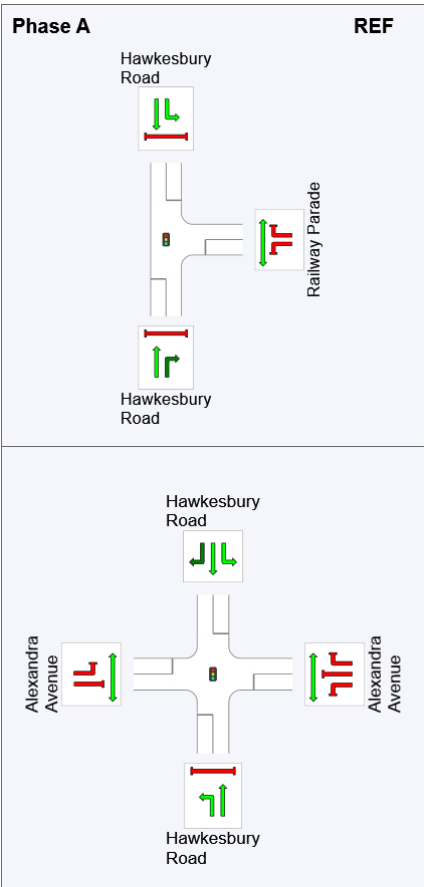
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

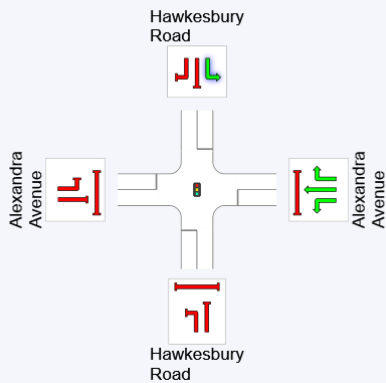
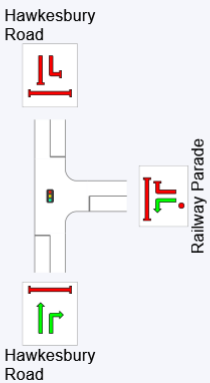
Phase	A	E	D	C
Phase Change Time (sec)	0	41	79	105
Green Time (sec)	35	29	17	29
Phase Time (sec)	44	38	23	35
Phase Split	31%	27%	16%	25%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

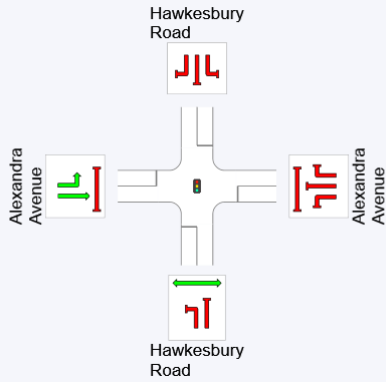
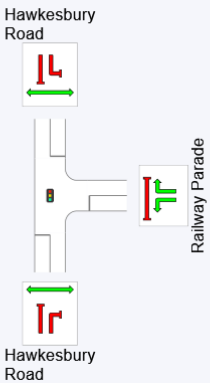
Output Phase Sequence (CCG)

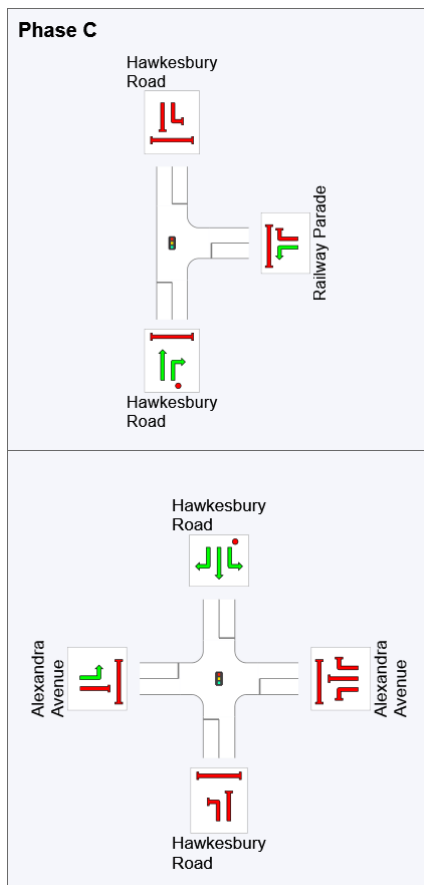


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	80.5	LOS F	0.6	15.6	0.99	0.68	0.99	10.4
25	T1	537	2.4	537	2.4	* 1.304	318.3	LOS F	88.5	632.3	0.98	2.14	2.60	2.2
26	R2	351	2.6	351	2.6	* 1.287	314.5	LOS F	57.1	408.6	1.00	1.83	2.57	2.1
Approach		896	3.3	896	3.3	1.304	314.7	LOS F	88.5	632.3	0.99	2.01	2.57	2.2
NorthWest: Darcy Road														
27	L2	206	4.9	191	5.1	1.390	26.0	LOS B	6.9	89.9	0.52	0.67	0.57	24.5
29	R2	651	9.7	605	10.2	* 1.390	301.7	LOS F	20.0	146.9	0.93	1.77	2.47	1.3
Approach		857	8.5	796 ^{N1}	8.9	1.390	235.6	LOS F	20.0	146.9	0.83	1.51	2.02	2.2
SouthWest: Hawkesbury Road														
30	L2	559	12.2	559	12.2	0.379	13.2	LOS A	12.1	89.4	0.37	0.66	0.37	22.0
31	T1	314	2.5	314	2.6	0.391	47.4	LOS D	18.6	133.4	0.94	0.81	0.94	16.2
Approach		873	8.7	872 ^{N1}	8.7	0.391	25.5	LOS B	18.6	133.4	0.58	0.71	0.58	18.3
All Vehicles		2634	7.1	2572 ^{N1}	7.3	1.390	191.4	LOS F	88.5	632.3	0.80	1.41	1.72	3.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.0	LOS D	0.1	0.1	0.92	0.92	55.8	30.9	0.55
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43

SouthWest: Hawkesbury Road											
P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42	
All Pedestrians	580	61.0	LOS F	0.8	0.8	0.96	0.96	124.9	76.7	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

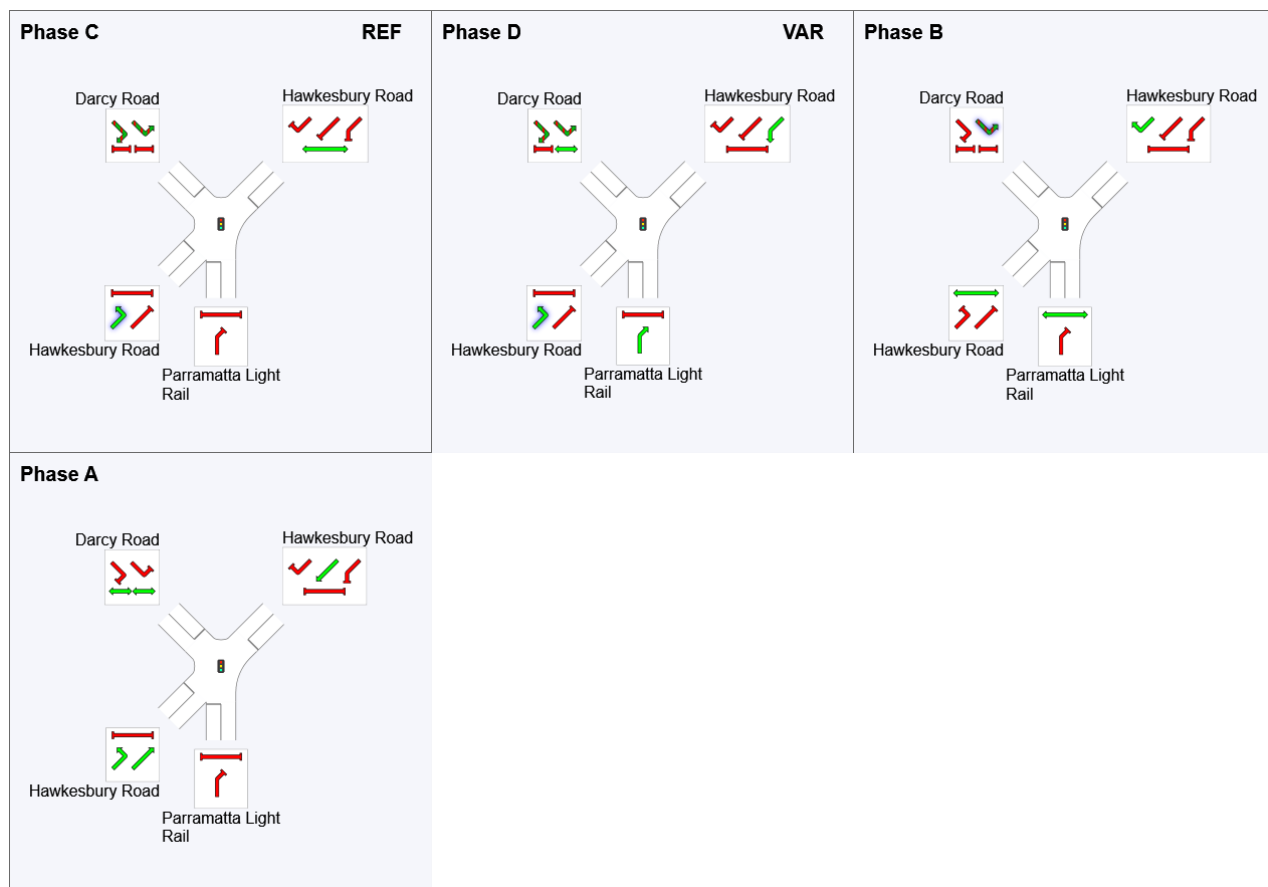
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	44	58	90
Green Time (sec)	38	6	23	39
Phase Time (sec)	46	15	32	47
Phase Split	33%	11%	23%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (50% PM Peak)]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

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

* Critical Movement (Signal Timing)

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

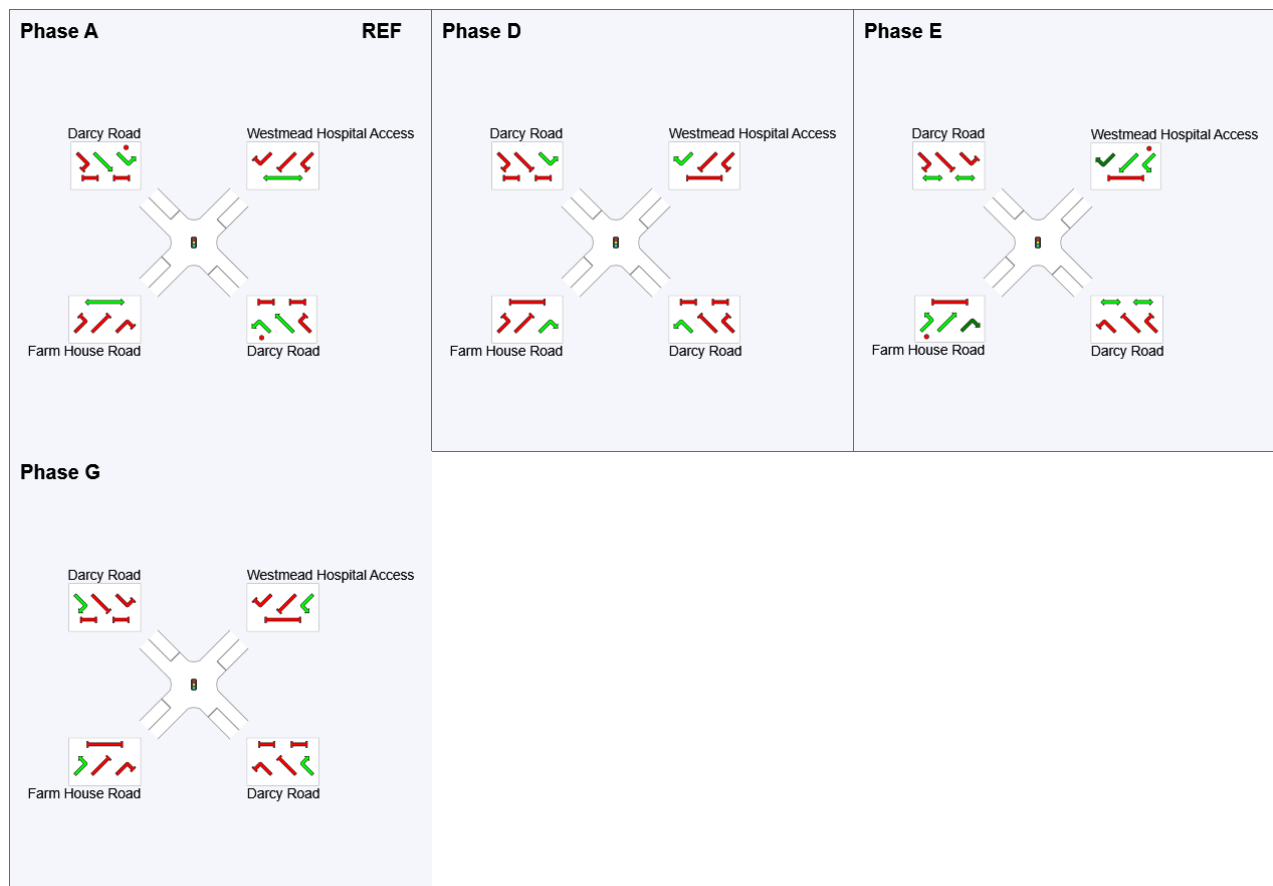
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

▼ Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

■ Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	86	0.0	80	0.0	0.313	11.7	LOS A	1.9	13.8	0.51	0.17	0.61	20.3
22	T1	980	7.3	918	7.6	0.313	1.4	LOS A	1.9	13.8	0.16	0.05	0.19	30.6
Approach		1066	6.8	998 ^{N1}	7.0	0.313	2.3	NA	1.9	13.8	0.19	0.06	0.23	29.0
NorthWest: Darcy Road														
28	T1	892	7.6	813	8.1	0.205	0.0	LOS A	17.5	126.9	0.00	0.00	0.00	39.9
Approach		892	7.6	813 ^{N1}	8.1	0.205	0.0	NA	17.5	126.9	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.005	18.8	LOS B	0.0	0.1	0.85	0.74	0.85	5.7
Approach		1	0.0	1	0.0	0.005	18.8	LOS B	0.0	0.1	0.85	0.74	0.85	5.7
All Vehicles		1959	7.1	1812 ^{N1}	7.7	0.313	1.3	NA	17.5	126.9	0.11	0.04	0.13	34.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.341	14.3	LOS A	12.2	88.6	0.46	0.41	0.46	19.5
22	T1	936	7.6	881	7.9	0.341	10.4	LOS A	12.2	88.6	0.45	0.40	0.45	19.6
23	R2	45	0.0	42	0.0	* 0.531	81.0	LOS F	3.1	21.5	1.00	0.74	1.01	8.6
Approach		982	7.2	924 ^{N1}	7.5	0.531	13.6	LOS A	12.2	88.6	0.47	0.41	0.47	17.4
NorthEast: Westmead Dental Hospital Access														
24	L2	46	0.0	46	0.0	0.084	5.3	LOS A	0.5	3.7	0.22	0.53	0.22	28.3
26	R2	37	0.0	37	0.0	0.177	62.0	LOS E	2.3	16.0	0.92	0.73	0.92	7.1
Approach		83	0.0	83	0.0	0.177	30.6	LOS C	2.3	16.0	0.53	0.62	0.53	12.1
NorthWest: Darcy Road														
27	L2	66	0.0	61	0.0	0.283	14.4	LOS A	14.3	103.9	0.50	0.48	0.50	26.2
28	T1	789	8.6	736	9.2	0.283	12.0	LOS A	14.3	103.9	0.54	0.49	0.54	17.5
29	R2	2	50.0	2	51.9	0.022	76.8	LOS F	0.1	1.3	1.00	0.61	1.00	6.7
Approach		857	8.1	799 ^{N1}	8.6	0.283	12.4	LOS A	14.3	103.9	0.53	0.49	0.53	18.3
SouthWest: Parramatta Marist High School Access														
30	L2	106	0.0	106	0.0	* 0.302	48.3	LOS D	6.0	42.0	0.90	0.71	0.90	5.1
32	R2	56	0.0	56	0.0	0.306	55.6	LOS D	3.4	24.0	0.91	0.72	0.91	4.8
Approach		162	0.0	162	0.0	0.306	50.8	LOS D	6.0	42.0	0.90	0.71	0.90	5.0
All Vehicles		2084	6.7	1969 ^{N1}	7.1	0.531	16.9	LOS B	14.3	103.9	0.53	0.47	0.53	14.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	90.9	31.9	0.35

All Pedestrians	154	64.3	LOS F	0.3	0.3	0.96	0.96	99.9	42.7	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

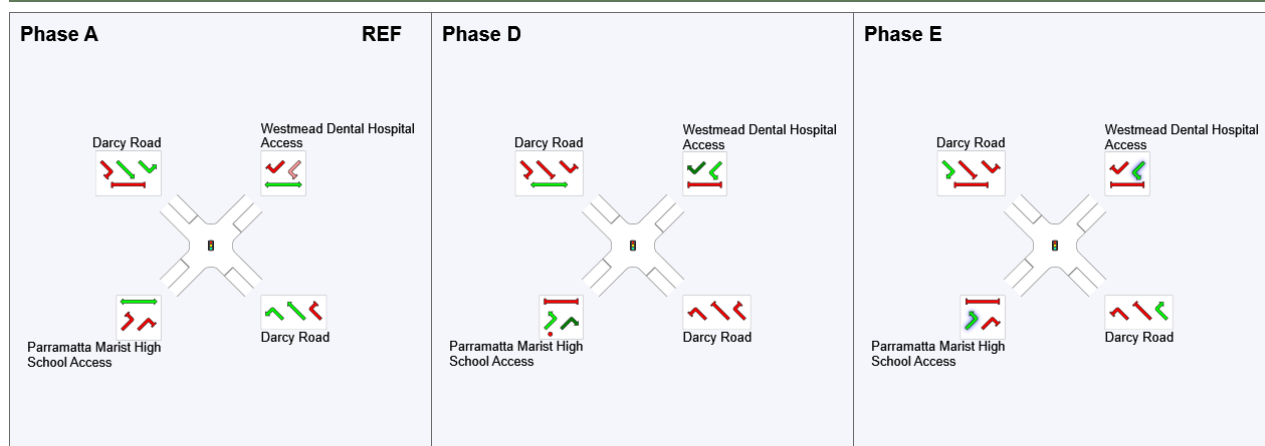
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.308	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1078	6.8	1020	7.0	0.308	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1079	6.8	1021 ^N ₁	7.0	0.308	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
NorthWest: Darcy Road														
28	T1	857	7.9	798	8.5	0.210	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		857	7.9	798 ^{N1}	8.5	0.210	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.4	LOS A	0.0	0.0	0.39	0.18	0.39	18.6
Approach		1	0.0	1	0.0	0.002	1.4	LOS A	0.0	0.0	0.39	0.18	0.39	18.6
All Vehicles		1937	7.3	1820 ^N ₁	7.7	0.308	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

**Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]**

■ ■ Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance															
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed	
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h	
SouthEast: Darcy Road															
21a	L1	900	1.8	851	1.8	* 0.831	42.9	LOS D	12.6	89.8	0.93	0.94	1.03	4.8	
23a	R1	178	33.7	170	34.5	0.440	60.4	LOS E	9.0	73.4	1.00	0.80	1.00	18.2	
Approach		1078	7.1	1022 ^N ₁	7.3	0.831	45.8	LOS D	12.6	89.8	0.94	0.92	1.03	8.9	
East: Institute Road															
4b	L3	104	0.0	104	0.0	2.543	1427.9	LOS F	68.9	483.0	1.00	2.92	4.97	0.9	
5	T1	282	0.4	282	0.4	* 2.543	1421.6	LOS F	68.9	483.0	1.00	2.82	4.95	0.9	
6	R2	7	0.0	7	0.0	2.543	1424.0	LOS F	58.2	408.5	1.00	2.76	4.94	2.0	
Approach		393	0.3	393	0.3	2.543	1423.4	LOS F	68.9	483.0	1.00	2.85	4.95	1.0	
North: Mons Road															
7	L2	3	0.0	3	0.0	0.195	11.4	LOS A	2.5	19.5	0.24	0.40	0.24	35.7	
7a	L1	193	30.1	193	30.1	0.195	9.8	LOS A	2.5	19.5	0.23	0.40	0.23	32.8	
9	R2	278	2.9	278	2.9	* 1.343	362.3	LOS F	50.4	361.2	1.00	1.88	2.79	4.2	
Approach		474	13.9	474	13.9	1.343	216.6	LOS F	50.4	361.2	0.68	1.27	1.74	6.7	
West: Darcy Road															
10	L2	75	1.3	75	1.3	0.604	28.6	LOS C	12.9	91.4	0.69	0.70	0.69	26.4	
11	T1	43	0.0	43	0.0	0.604	25.4	LOS B	12.9	91.4	0.69	0.70	0.69	24.0	
12a	R1	560	1.8	560	1.8	0.604	31.9	LOS C	12.9	91.4	0.75	0.72	0.75	7.2	
Approach		678	1.6	677 ^N ₁	1.6	0.604	31.2	LOS C	12.9	91.4	0.74	0.72	0.74	12.4	
All Vehicles		2623	5.9	2566 ^N ₁	6.0	2.543	284.5	LOS F	68.9	483.0	0.85	1.22	1.68	2.9	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- * Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
 (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak
 (Network Folder: 2033
 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

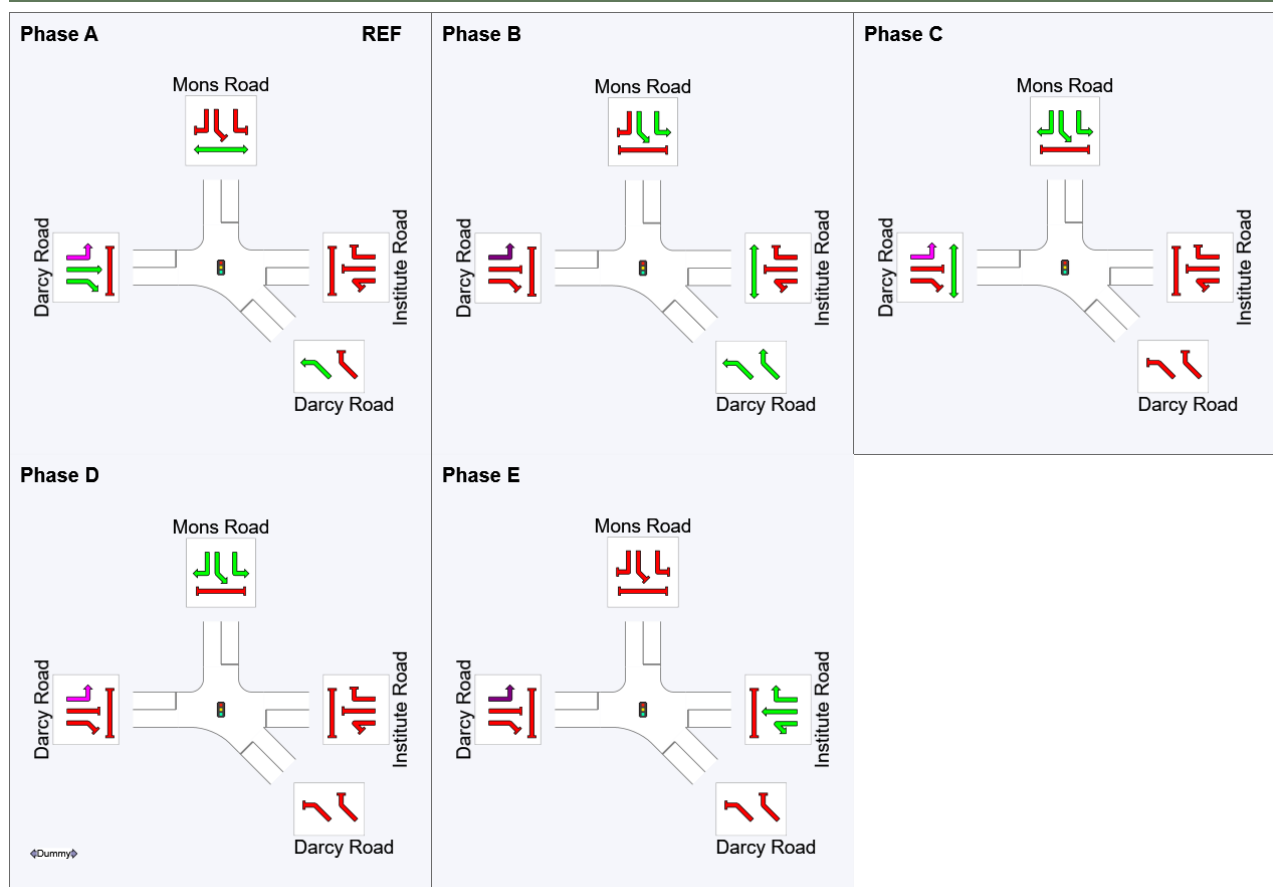
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	78	110	2	12
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 109 [Darcy Road / Mother Teresa Primary School Access**
(Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

 **Network: N101 [PM Peak**
(Network Folder: 2033
Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mother Teresa Primary School Access														
1	L2	182	5.5	182	5.5	0.345	4.9	LOS A	4.4	32.6	0.42	0.37	0.42	9.7
Approach		182	5.5	182	5.5	0.345	4.9	LOS A	4.4	32.6	0.42	0.37	0.42	9.7
East: Darcy Road														
4	L2	58	8.6	48	9.4	0.039	10.2	LOS A	0.2	1.5	0.09	0.80	0.09	16.7
5	T1	1403	1.4	1158	1.5	0.514	11.8	LOS A	12.9	91.4	0.42	0.38	0.42	13.4
Approach		1461	1.6	1207 ^N ₁	1.8	0.514	11.7	LOS A	12.9	91.4	0.41	0.40	0.41	13.6
West: Darcy Road														
11	T1	678	2.4	677	2.4	* 0.441	4.3	LOS A	6.9	49.2	0.29	0.27	0.29	34.4
12	R2	98	4.1	98	4.1	0.207	10.1	LOS A	1.8	12.8	0.31	0.78	0.31	29.1
Approach		776	2.6	775 ^{N1}	2.6	0.441	5.0	LOS A	6.9	49.2	0.30	0.33	0.30	33.6
All Vehicles		2419	2.2	2164 ^N ₁	2.5	0.514	8.7	LOS A	12.9	91.4	0.37	0.37	0.37	18.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
South: Mother Teresa Primary School Access											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	86.8	27.1	0.31
East: Darcy Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	96.6	38.8	0.40
All Pedestrians		100	64.3	LOS F	0.2	0.2	0.96	0.96	91.7	33.0	0.36

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Convert Function Default

Reference Phase: Phase A

Input Phase Sequence: A, B, B1

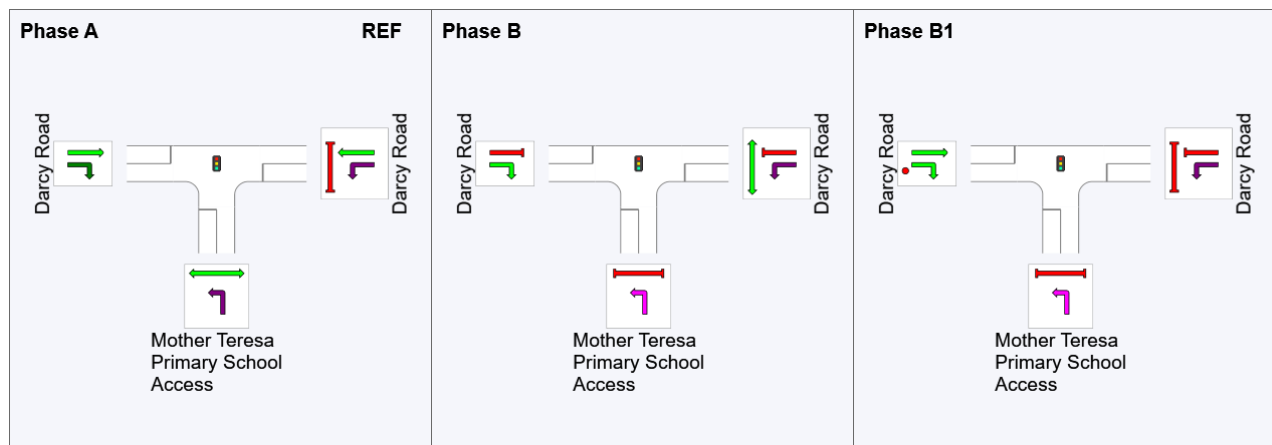
Output Phase Sequence: A, B, B1

Phase Timing Summary

Phase	A	B	B1
Phase Change Time (sec)	135	85	108
Green Time (sec)	84	17	22
Phase Time (sec)	90	22	28
Phase Split	64%	16%	20%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
1	L2	229	1.3	227	1.3	* 0.439	41.6	LOS C	11.6	82.4	0.84	0.78	0.84	25.5
2	T1	29	0.0	29	0.0	* 0.745	76.9	LOS F	8.3	61.3	1.00	0.86	1.15	15.5
3	R2	88	9.1	87	9.2	0.745	76.5	LOS F	8.3	61.3	1.00	0.86	1.15	15.1
Approach		346	3.2	342 ^{N1}	3.2	0.745	53.4	LOS D	11.6	82.4	0.89	0.81	0.94	21.4
East: Darcy Road														
4	L2	287	4.5	246	5.0	* 0.336	17.1	LOS B	15.1	108.4	0.37	0.46	0.37	30.1
5	T1	1270	1.3	1086	1.5	0.336	8.9	LOS A	15.1	108.4	0.29	0.31	0.29	38.7
6	R2	28	0.0	24	0.0	0.052	12.1	LOS A	0.3	2.2	0.35	0.60	0.35	29.5
Approach		1585	1.9	1356 ^{N1}	2.1	0.336	10.5	LOS A	15.1	108.4	0.31	0.34	0.31	37.1
North: Coles Westmead Access														
7	L2	26	0.0	26	0.0	0.068	43.0	LOS D	1.3	9.4	0.83	0.61	0.83	4.3
8	T1	45	0.0	45	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	3.1
9	R2	42	0.0	42	0.0	0.573	67.3	LOS E	5.9	41.3	1.00	0.78	1.00	8.8
Approach		113	0.0	113	0.0	0.573	61.7	LOS E	5.9	41.3	0.96	0.74	0.96	5.8
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.329	16.4	LOS B	14.7	103.7	0.49	0.47	0.49	23.5
11	T1	661	1.4	661	1.4	0.329	11.3	LOS A	14.7	103.7	0.47	0.43	0.47	25.5
12	R2	335	1.8	335	1.8	0.716	17.0	LOS B	8.7	61.7	0.65	0.79	0.65	21.0
Approach		1053	1.4	1053	1.4	0.716	13.4	LOS A	14.7	103.7	0.52	0.54	0.52	23.7
All Vehicles		3097	1.8	2865 ^{N1}	2.0	0.745	18.7	LOS B	15.1	108.4	0.48	0.49	0.49	27.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, E2

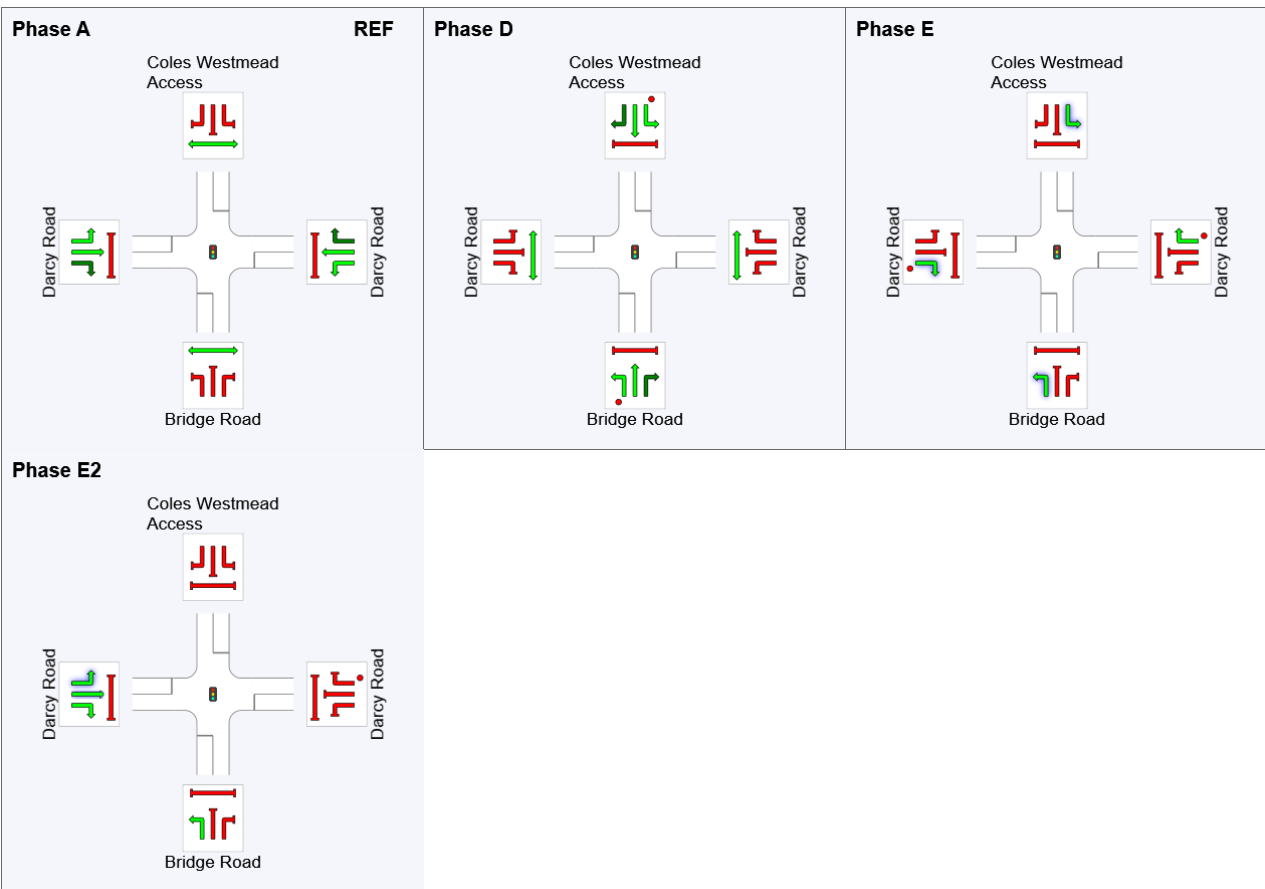
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Sensitivity Analysis (50%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	454	2.4	454	2.4	0.641	5.4	LOS A	6.7	47.8	0.69	0.62	0.69	22.8
3	R2	172	0.6	172	0.6	0.641	8.4	LOS A	6.7	47.8	0.69	0.62	0.69	22.8
3u	U	1	100.0	1	100.0	0.641	11.5	LOS A	6.7	47.8	0.69	0.62	0.69	24.0
Approach		627	2.1	627	2.1	0.641	6.2	LOS A	6.7	47.8	0.69	0.62	0.69	22.8
East: Alexandra Avenue														
4	L2	253	0.4	242	0.4	0.791	22.1	LOS B	8.5	59.3	0.88	1.19	1.44	33.6
6	R2	152	0.0	145	0.0	0.791	24.6	LOS B	8.5	59.3	0.88	1.19	1.44	33.4
6u	U	1	0.0	1	0.0	0.791	25.9	LOS B	8.5	59.3	0.88	1.19	1.44	33.4
Approach		406	0.2	388 ^{N1}	0.3	0.791	23.0	LOS B	8.5	59.3	0.88	1.19	1.44	33.5
North: Bridge Road														
7	L2	93	0.0	89	0.0	0.817	10.2	LOS A	12.9	91.8	0.87	0.77	1.00	38.5
8	T1	702	2.7	669	2.7	0.817	9.9	LOS A	12.9	91.8	0.87	0.77	1.00	38.4
9u	U	1	0.0	1	0.0	0.817	14.0	LOS A	12.9	91.8	0.87	0.77	1.00	38.5
Approach		796	2.4	759 ^{N1}	2.4	0.817	9.9	LOS A	12.9	91.8	0.87	0.77	1.00	38.4
All Vehicles		1829	1.8	1774 ^{N1}	1.9	0.817	11.5	LOS A	12.9	91.8	0.81	0.81	0.98	34.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (50%))]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	109	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	-5	0	0	0	15	28
Program / User	U	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	26	3.8	26	3.8	1.290	278.2	LOS F	107.5	757.1	1.00	2.11	2.51	2.5
2	T1	1255	0.6	1255	0.6	* 1.290	273.5	LOS F	107.5	757.1	1.00	2.12	2.51	2.5
Approach		1281	0.6	1281	0.6	1.290	273.6	LOS F	107.5	757.1	1.00	2.11	2.51	2.5
East: Alexandra Avenue														
4	L2	43	0.0	43	0.0	1.300	326.1	LOS F	14.4	107.0	1.00	1.86	2.62	3.5
5	T1	131	0.0	131	0.0	* 1.300	321.6	LOS F	14.4	107.0	1.00	1.86	2.62	1.8
6	R2	407	14.3	407	14.3	1.300	327.7	LOS F	41.5	325.6	1.00	1.76	2.64	1.7
Approach		581	10.0	581	10.0	1.300	326.2	LOS F	41.5	325.6	1.00	1.79	2.64	1.9
North: Hawkesbury Road														
7	L2	439	13.9	424	14.3	0.951	41.7	LOS C	12.1	88.1	0.88	0.96	1.04	15.0
8	T1	520	1.7	500	1.8	0.951	40.5	LOS C	12.1	88.1	0.94	1.00	1.11	15.0
9	R2	70	0.0	67	0.0	1.188	247.6	LOS F	9.6	66.9	1.00	1.28	2.48	0.9
Approach		1029	6.8	990 ^{N1}	7.0	1.188	55.1	LOS D	12.1	88.1	0.92	1.00	1.17	11.2
West: Alexandra Avenue														
10	L2	183	0.0	166	0.0	0.951	99.1	LOS F	14.3	100.1	1.00	1.08	1.54	16.0
11	T1	401	0.2	364	0.2	* 1.235	280.4	LOS F	56.1	393.5	1.00	1.94	2.48	8.2
Approach		584	0.2	530 ^{N1}	0.2	1.235	223.6	LOS F	56.1	393.5	1.00	1.67	2.19	9.5
All Vehicles		3475	3.9	3383 ^{N1}	4.0	1.300	210.8	LOS F	107.5	757.1	0.98	1.66	2.09	4.4
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	1474	4.3	1266	4.2	0.975	58.2	LOS E	12.3	88.1	0.93	1.17	1.24	3.8
3	R2	370	0.3	318	0.3	0.975	62.3	LOS E	12.3	88.1	0.98	1.27	1.28	20.2
Approach		1844	3.5	1584 ^{N1}	3.4	0.975	59.0	LOS E	12.3	88.1	0.94	1.19	1.25	8.5
East: Railway Parade														
4	L2	224	0.9	224	0.9	0.688	42.8	LOS D	18.0	127.2	0.92	0.83	0.94	23.2
6	R2	56	0.0	56	0.0	0.484	71.7	LOS F	3.8	26.7	0.98	0.77	0.98	17.1
Approach		280	0.7	280	0.7	0.688	48.6	LOS D	18.0	127.2	0.93	0.82	0.95	21.7
North: Hawkesbury Road														
7	L2	130	0.0	123	0.0	0.103	20.3	LOS B	4.1	34.7	0.40	0.57	0.40	35.0
8	T1	805	10.7	766	11.1	0.304	17.0	LOS B	28.4	208.9	0.46	0.41	0.46	18.6
Approach		935	9.2	889 ^{N1}	9.6	0.304	17.4	LOS B	28.4	208.9	0.45	0.43	0.45	23.2
All Vehicles		3059	5.0	2753 ^{N1}	5.5	0.975	44.5	LOS D	28.4	208.9	0.78	0.91	0.96	13.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

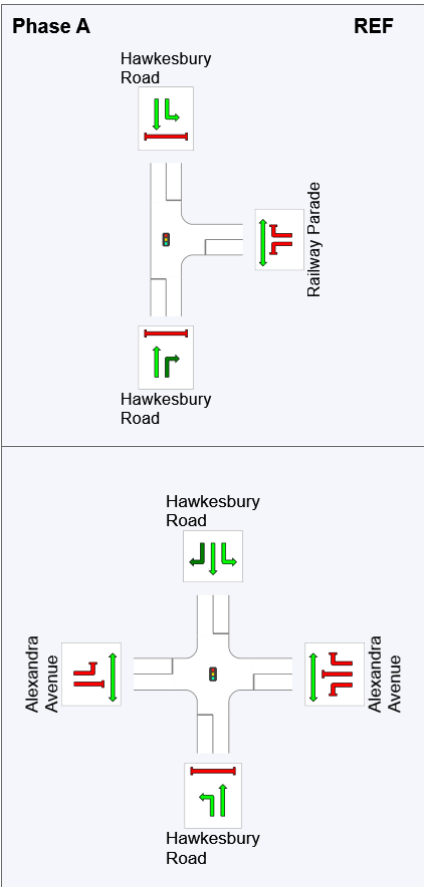
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C*
Output Phase Sequence: A, E, D
(* Variable Phase)

Phase Timing Summary (CCG)

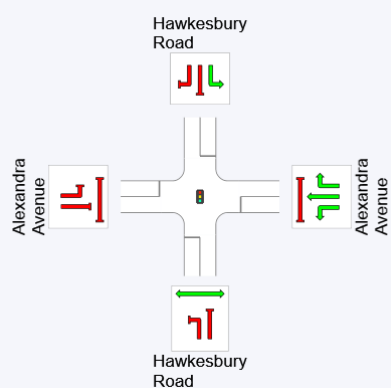
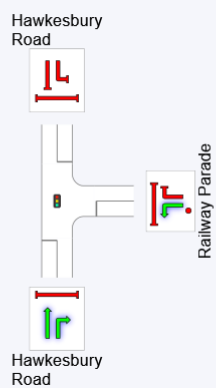
Phase	A	E	D
Phase Change Time (sec)	0	77	114
Green Time (sec)	71	28	17
Phase Time (sec)	80	37	23
Phase Split	57%	26%	16%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

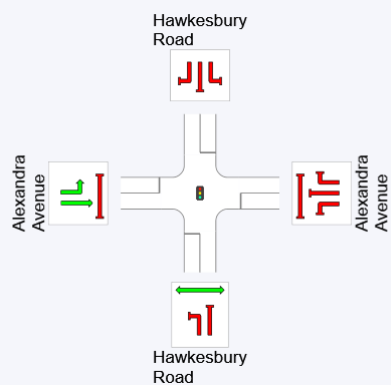
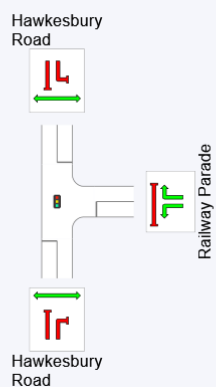
Output Phase Sequence (CCG)



Phase E



Phase D



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

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MOVEMENT SUMMARY

 Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.251	84.0	LOS F	0.6	16.3	1.00	0.69	1.00	10.1
25	T1	346	3.5	346	3.5	0.935	74.5	LOS F	26.9	193.6	0.93	1.08	1.29	8.1
26	R2	271	1.8	271	1.8	* 1.113	194.2	LOS F	35.4	251.8	1.00	1.54	2.08	3.4
Approach		625	4.0	625	4.0	1.113	126.5	LOS F	35.4	251.8	0.96	1.28	1.63	5.1
NorthWest: Darcy Road														
27	L2	293	3.8	268	4.1	0.838	12.9	LOS A	4.7	33.7	0.38	0.60	0.39	27.2
29	R2	590	11.5	544	12.4	0.963	60.5	LOS E	19.8	146.9	0.93	0.93	1.13	5.7
Approach		883	8.9	812 ^{N1}	9.6	0.963	44.8	LOS D	19.8	146.9	0.75	0.83	0.89	10.2
SouthWest: Hawkesbury Road														
30	L2	1017	5.7	903	5.7	* 1.100	162.8	LOS F	29.1	208.9	0.99	1.32	1.82	3.3
31	T1	513	1.2	456	1.2	0.670	35.2	LOS C	23.5	166.2	0.82	0.75	0.82	19.4
Approach		1530	4.2	1359 ^{N1}	4.2	1.100	120.0	LOS F	29.1	208.9	0.93	1.13	1.48	5.5
All Vehicles		3046	5.8	2804 ^{N1}	6.3	1.113	99.6	LOS F	35.4	251.8	0.88	1.07	1.34	6.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped	Dist]			sec	m	m/sec
					ped	m					
South: Parramatta Light Rail											
P1	Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	238.5	208.6	0.87
NorthEast: Hawkesbury Road											
P6	Full	191	64.6	LOS F	0.7	0.7	0.96	0.96	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	32.5	LOS D	0.1	0.1	0.92	0.92	58.2	30.9	0.53

P72 Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43
SouthWest: Hawkesbury Road										
P8 Full	208	64.7	LOS F	0.8	0.8	0.97	0.97	98.9	41.1	0.42
All Pedestrians	727	62.0	LOS F	0.8	0.8	0.96	0.96	135.1	87.7	0.65

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]**

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

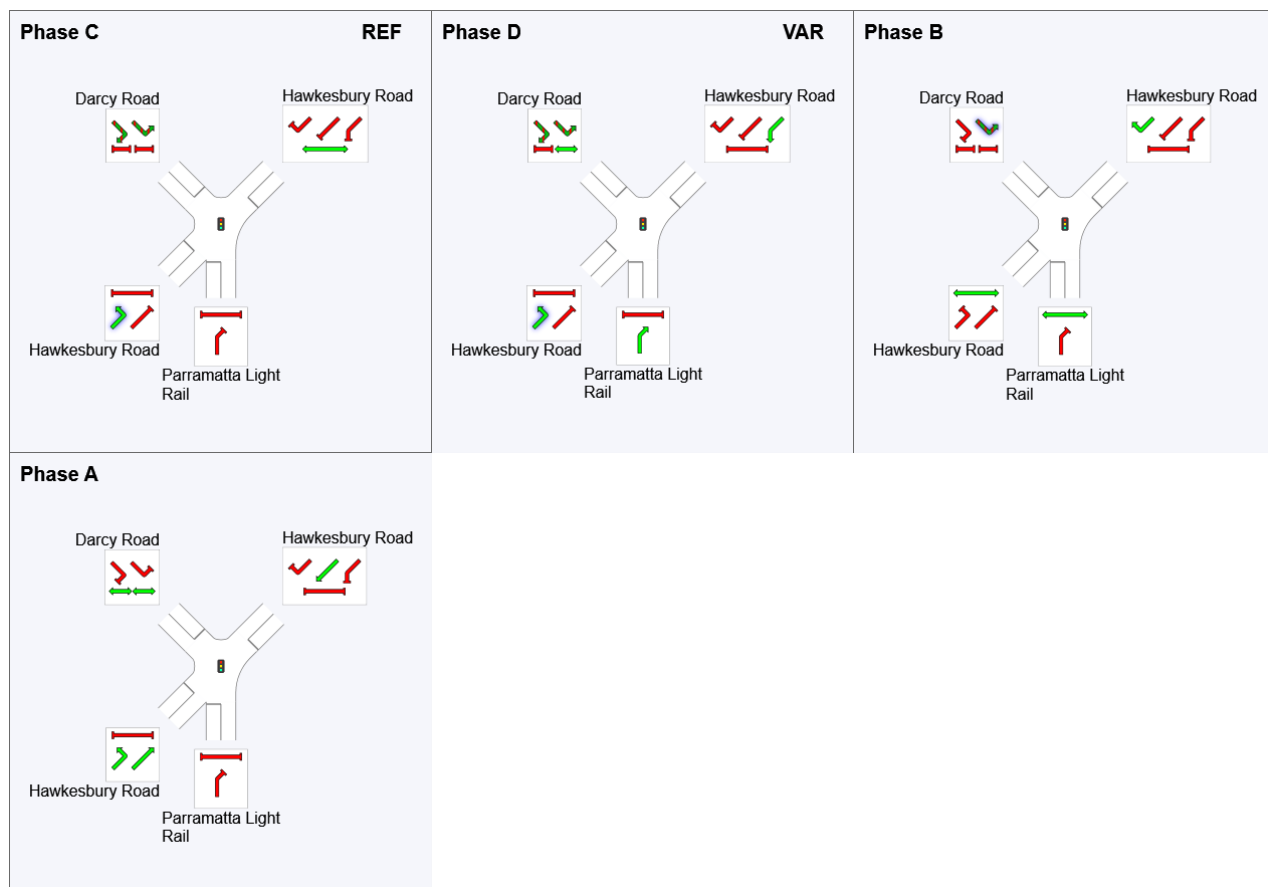
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	33	47	88
Green Time (sec)	27	6	32	41
Phase Time (sec)	35	15	41	49
Phase Split	25%	11%	29%	35%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]**

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	0.475	26.0	LOS B	18.7	134.4	0.64	0.57	0.64	21.3
22	T1	1149	5.5	956	5.7	0.475	22.5	LOS B	18.7	134.4	0.64	0.57	0.64	11.7
23	R2	132	0.8	110	0.8	0.692	76.1	LOS F	7.7	53.9	1.00	0.83	1.09	8.5
Approach		1289	5.0	1072 ^N ₁	5.2	0.692	28.0	LOS B	18.7	134.4	0.67	0.59	0.68	10.7
NorthEast: Westmead Hospital Access														
24	L2	43	0.0	43	0.0	0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	8.1
25	T1	1	0.0	1	0.0	0.197	48.2	LOS D	2.5	17.6	0.87	0.67	0.87	12.4
26	R2	75	6.7	75	6.7	0.881	81.5	LOS F	5.7	42.1	1.00	1.25	1.49	6.2
Approach		119	4.2	119	4.2	0.881	69.2	LOS E	5.7	42.1	0.95	1.03	1.26	6.8
NorthWest: Darcy Road														
27	L2	182	0.5	165	0.6	* 0.634	29.5	LOS C	13.2	96.3	0.73	0.72	0.73	12.3
28	T1	818	10.3	747	11.1	0.634	24.3	LOS B	13.2	96.3	0.70	0.66	0.70	8.3
29	R2	141	0.7	128	0.8	* 1.098	174.5	LOS F	13.7	96.3	1.00	1.40	2.02	4.5
Approach		1141	7.5	1040 ^N ₁	8.2	1.098	43.6	LOS D	13.7	96.3	0.74	0.76	0.87	7.6
SouthWest: Farm House Road														
30	L2	147	0.7	147	0.7	0.427	52.5	LOS D	8.8	62.2	0.92	0.78	0.92	10.0
31	T1	4	0.0	4	0.0	* 0.427	55.5	LOS D	8.8	62.2	0.92	0.78	0.92	12.1
32	R2	22	0.0	22	0.0	0.166	71.3	LOS F	1.5	10.2	0.97	0.70	0.97	8.0
Approach		173	0.6	173	0.6	0.427	54.9	LOS D	8.8	62.2	0.93	0.77	0.93	9.8
All Vehicles		2722	5.7	2404 ^N ₁	6.5	1.098	38.7	LOS C	18.7	134.4	0.74	0.70	0.81	8.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	233	64.8	LOS F	0.9	0.9	0.97	0.97	90.5	30.9	0.34
P52	Stage 2	65	64.3	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41

NorthEast: Westmead Hospital Access											
P6 Full	98	64.4	LOS F	0.4	0.4	0.96	0.96	91.0	31.9	0.35	
NorthWest: Darcy Road											
P71 Stage 1	21	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40	
P72 Stage 2	21	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32	
SouthWest: Farm House Road											
P8 Full	258	64.8	LOS F	1.0	1.0	0.97	0.97	91.4	31.9	0.35	
All Pedestrians	696	64.7	LOS F	1.0	1.0	0.96	0.96	91.6	32.3	0.35	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

 **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]**

 **Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]**

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

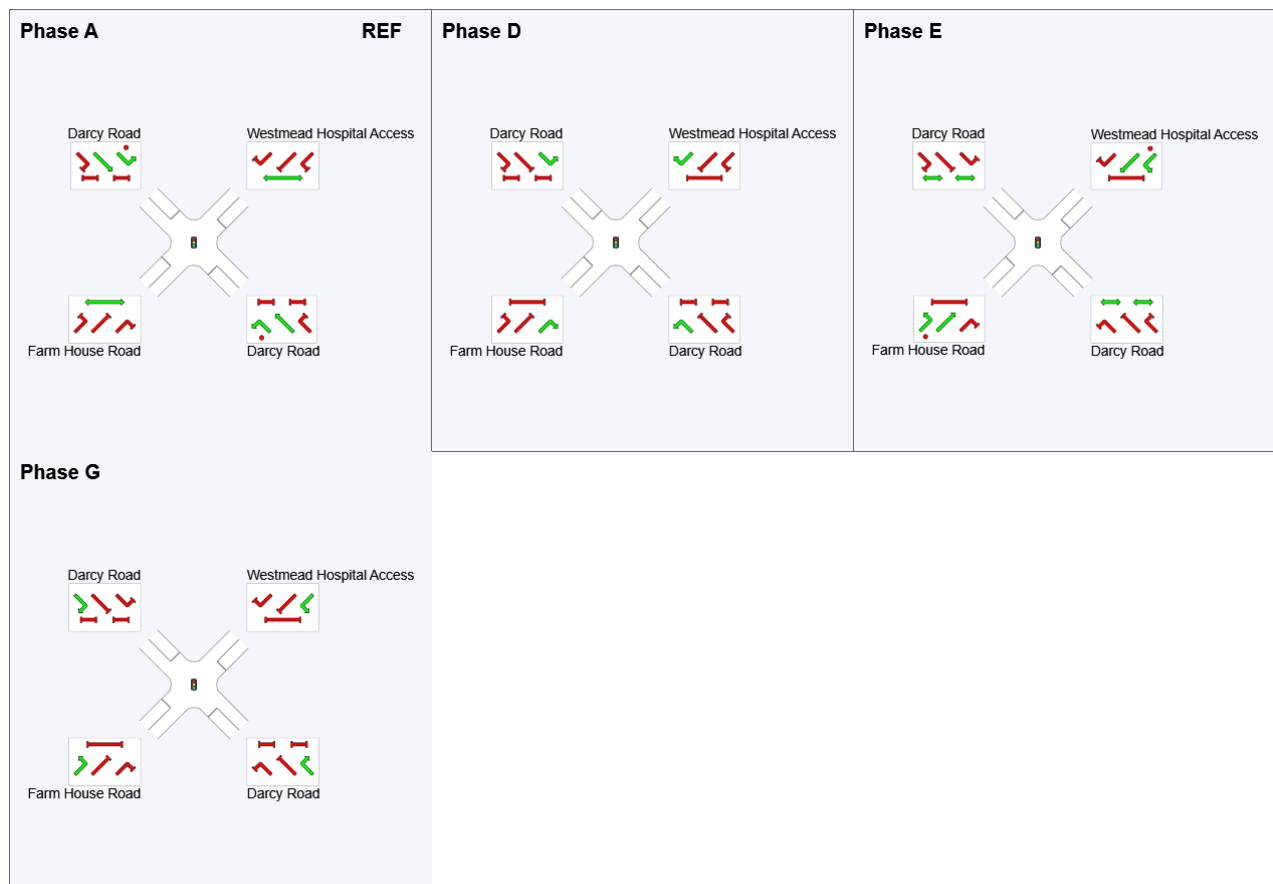
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	130	71	88	112
Green Time (sec)	73	10	16	12
Phase Time (sec)	80	18	22	20
Phase Split	57%	13%	16%	14%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	338	0.0	293	0.0	0.456	10.1	LOS A	2.2	15.6	0.71	0.94	0.95	16.9
22	T1	1032	6.5	897	6.7	0.456	0.0	LOS A	2.2	15.6	0.00	0.00	0.00	39.6
Approach		1370	4.9	1191 ^N ₁	5.0	0.456	2.5	NA	2.2	15.6	0.18	0.23	0.23	27.6
NorthWest: Darcy Road														
28	T1	1141	7.5	1040	8.2	0.352	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.8
Approach		1141	7.5	1040 ^N ₁	8.2	0.352	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.1	0.61	0.41	0.61	11.6
Approach		1	0.0	1	0.0	0.002	5.4	LOS A	0.0	0.1	0.61	0.41	0.61	11.6
All Vehicles		2512	6.1	2231 ^N ₁	6.9	0.456	1.4	NA	2.2	15.6	0.09	0.12	0.13	33.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
SouthEast: Darcy Road														
21	L2	8	0.0	7	0.0	* 0.464	9.2	LOS A	7.7	55.6	0.23	0.21	0.23	22.8
22	T1	966	6.9	857	7.2	0.464	5.6	LOS A	7.7	55.6	0.22	0.20	0.22	25.7
23	R2	59	0.0	52	0.0	* 0.394	77.3	LOS F	3.7	25.7	1.00	0.75	1.00	8.0
Approach		1033	6.5	917 ^{N1}	6.7	0.464	9.7	LOS A	7.7	55.6	0.26	0.23	0.26	20.2
NorthEast: Westmead Dental Hospital Access														
24	L2	19	0.0	19	0.0	0.023	0.6	LOS A	0.1	0.8	0.13	0.10	0.13	19.5
26	R2	37	0.0	37	0.0	0.267	61.8	LOS E	2.4	16.7	0.94	0.72	0.94	6.1
Approach		56	0.0	56	0.0	0.267	41.1	LOS C	2.4	16.7	0.67	0.51	0.67	7.9
NorthWest: Darcy Road														
27	L2	85	0.0	76	0.0	0.422	8.5	LOS A	5.9	43.1	0.20	0.24	0.20	22.0
28	T1	1038	8.3	937	9.1	0.422	4.0	LOS A	5.9	43.1	0.16	0.17	0.16	27.8
29	R2	5	0.0	4	0.0	0.034	73.7	LOS F	0.3	2.1	1.00	0.65	1.00	6.9
Approach		1128	7.6	1017 ^{N1}	8.3	0.422	4.6	LOS A	5.9	43.1	0.17	0.18	0.17	26.1
SouthWest: Parramatta Marist High School Access														
30	L2	156	0.0	156	0.0	* 0.408	44.4	LOS D	8.6	60.1	0.88	0.71	0.88	5.5
32	R2	84	0.0	84	0.0	0.290	52.6	LOS D	5.0	34.8	0.90	0.71	0.90	5.0
Approach		240	0.0	240	0.0	0.408	47.2	LOS D	8.6	60.1	0.89	0.71	0.89	5.3
All Vehicles		2457	6.2	2230 ^{N1}	6.9	0.464	12.2	LOS A	8.6	60.1	0.30	0.26	0.30	16.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	43	64.2	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	48	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35

All Pedestrians	182	64.3	LOS F	0.3	0.3	0.96	0.96	98.5	41.1	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

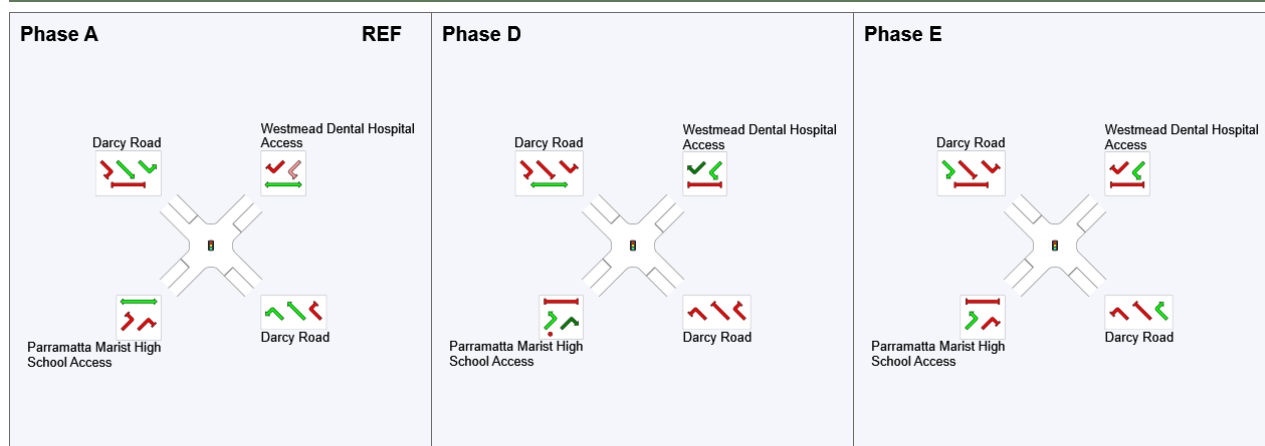
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	10	102	135
Green Time (sec)	86	27	10
Phase Time (sec)	92	32	16
Phase Split	66%	23%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.218	3.9	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1158	5.9	1071	6.0	0.218	0.0	LOS A	9.0	65.0	0.00	0.00	0.00	39.9
Approach		1159	5.9	1072 ^N ₁	6.0	0.218	0.0	NA	9.0	65.0	0.00	0.00	0.00	39.9
NorthWest: Darcy Road														
28	T1	1128	7.4	1017	8.1	0.258	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1128	7.4	1017 ^N ₁	8.1	0.258	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.2	LOS A	0.0	0.0	0.36	0.16	0.36	18.7
Approach		1	0.0	1	0.0	0.002	1.2	LOS A	0.0	0.0	0.36	0.16	0.36	18.7
All Vehicles		2288	6.6	2090 ^N ₁	7.3	0.258	0.0	NA	9.0	65.0	0.00	0.00	0.00	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
(Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21a	L1	824	1.0	784	1.0	0.532	22.4	LOS B	12.7	89.8	0.59	0.70	0.59	8.3
23a	R1	334	18.6	319	18.9	* 0.870	68.4	LOS E	11.8	89.8	0.99	0.95	1.15	16.9
Approach		1158	6.0	1103 ^N ₁	6.2	0.870	35.7	LOS C	12.7	89.8	0.70	0.77	0.75	13.7
East: Institute Road														
4b	L3	51	2.0	51	2.0	0.700	77.8	LOS F	6.0	42.5	1.00	0.85	1.13	12.8
5	T1	79	2.5	79	2.5	* 0.700	75.7	LOS F	7.4	52.6	1.00	0.86	1.17	12.7
6	R2	2	0.0	2	0.0	0.700	81.4	LOS F	7.4	52.6	1.00	0.87	1.21	20.2
Approach		132	2.3	132	2.3	0.700	76.6	LOS F	7.4	52.6	1.00	0.86	1.16	12.9
North: Mons Road														
7	L2	7	0.0	7	0.0	0.176	24.8	LOS B	5.2	44.6	0.60	0.61	0.60	30.9
7a	L1	170	44.1	170	44.1	0.176	23.1	LOS B	5.2	44.6	0.59	0.59	0.59	26.4
9	R2	126	10.3	126	10.3	* 0.618	57.2	LOS E	19.8	150.7	0.95	0.82	0.96	17.5
Approach		303	29.0	303	29.0	0.618	37.3	LOS C	19.8	150.7	0.74	0.69	0.74	22.0
West: Darcy Road														
10	L2	196	8.7	193	8.6	1.122	169.3	LOS F	12.7	91.4	1.00	1.50	1.93	8.4
11	T1	223	0.4	220	0.4	* 1.122	166.1	LOS F	12.7	91.4	1.00	1.50	1.93	7.1
12a	R1	907	0.9	893	0.9	1.122	176.9	LOS F	13.0	91.4	1.00	1.59	1.92	1.4
Approach		1326	2.0	1306 ^N ₁	1.9	1.122	174.0	LOS F	13.0	91.4	1.00	1.56	1.92	3.7
All Vehicles		2919	6.4	2844 ^N ₁	6.6	1.122	101.3	LOS F	19.8	150.7	0.86	1.13	1.31	6.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41

West: Darcy Road											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
 (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak
 (Network Folder: 2033
 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

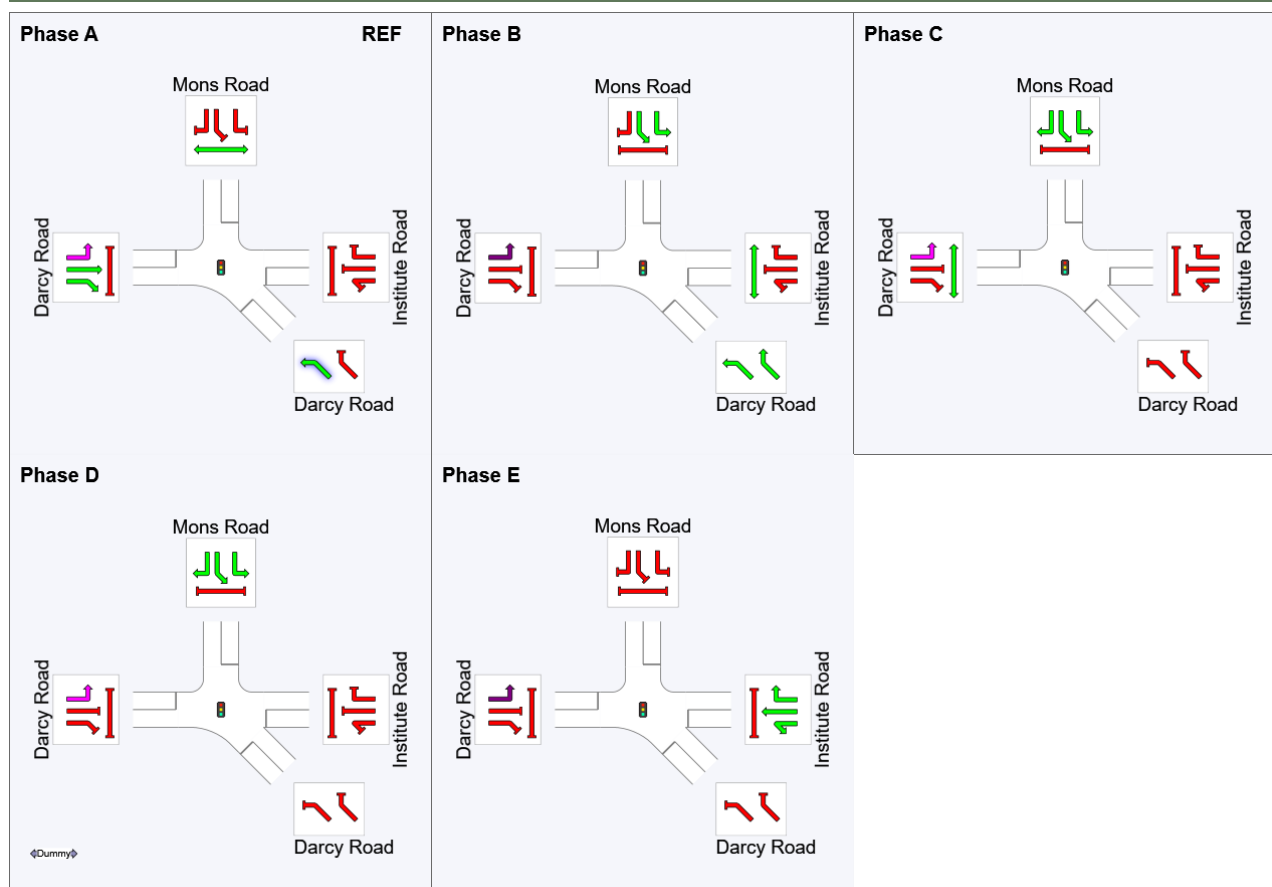
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	0	50	82	114	124
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



	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

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MOVEMENT SUMMARY

 Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

 Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Mother Teresa Primary School Access														
1	L2	579	0.9	579	0.9	1.036	108.5	LOS F	56.7	400.0	1.00	1.59	1.66	5.4
Approach		579	0.9	579	0.9	1.036	108.5	LOS F	56.7	400.0	1.00	1.59	1.66	5.4
East: Darcy Road														
4	L2	205	1.5	202	1.5	0.297	27.4	LOS B	6.5	45.9	0.82	0.83	0.82	8.3
5	T1	824	2.3	813	2.3	0.716	12.3	LOS A	12.8	91.4	0.48	0.43	0.48	13.0
Approach		1029	2.1	1016 ^N ₁	2.2	0.716	15.3	LOS B	12.8	91.4	0.54	0.51	0.54	11.5
West: Darcy Road														
11	T1	1325	2.3	1290	2.3	* 1.007	93.8	LOS F	64.9	463.5	0.96	1.31	1.48	8.8
12	R2	424	1.2	413	1.2	0.828	46.4	LOS D	24.2	171.0	0.97	1.01	1.08	14.6
Approach		1749	2.1	1702 ^N ₁	2.0	1.007	82.3	LOS F	64.9	463.5	0.96	1.24	1.38	9.7
All Vehicles		3357	1.9	3297 ^N ₁	1.9	1.036	66.3	LOS E	64.9	463.5	0.84	1.07	1.17	8.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Mother Teresa Primary School Access											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	86.8	27.1	0.31
East: Darcy Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	96.6	38.8	0.40
All Pedestrians		100	64.3	LOS F	0.2	0.2	0.96	0.96	91.7	33.0	0.36

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Convert Function Default

Reference Phase: Phase A

Input Phase Sequence: A, B, B1

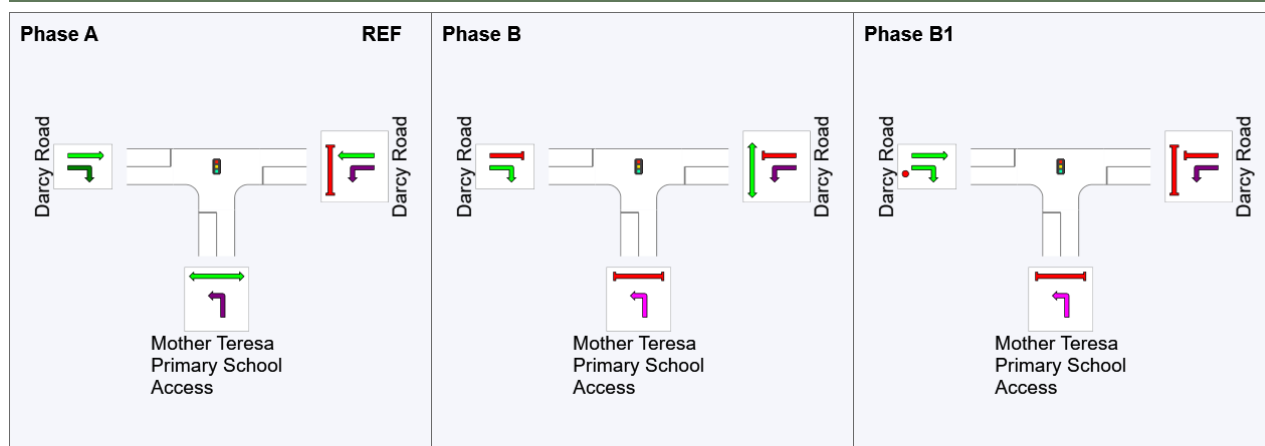
Output Phase Sequence: A, B, B1

Phase Timing Summary

Phase	A	B	B1
Phase Change Time (sec)	135	85	108
Green Time (sec)	84	17	22
Phase Time (sec)	90	22	28
Phase Split	64%	16%	20%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

P3 Full	78	64.3	LOS F	0.3	0.3	0.96	0.96	92.1	33.3	0.36
West: Darcy Road										
P4 Full	55	64.3	LOS F	0.2	0.2	0.96	0.96	96.4	38.5	0.40
All Pedestrians	240	64.3	LOS F	0.3	0.3	0.96	0.96	93.4	35.0	0.37

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing - Copy

Reference Phase: Phase A

Input Phase Sequence: A, D, E*, E2*

Output Phase Sequence: A, D, E*

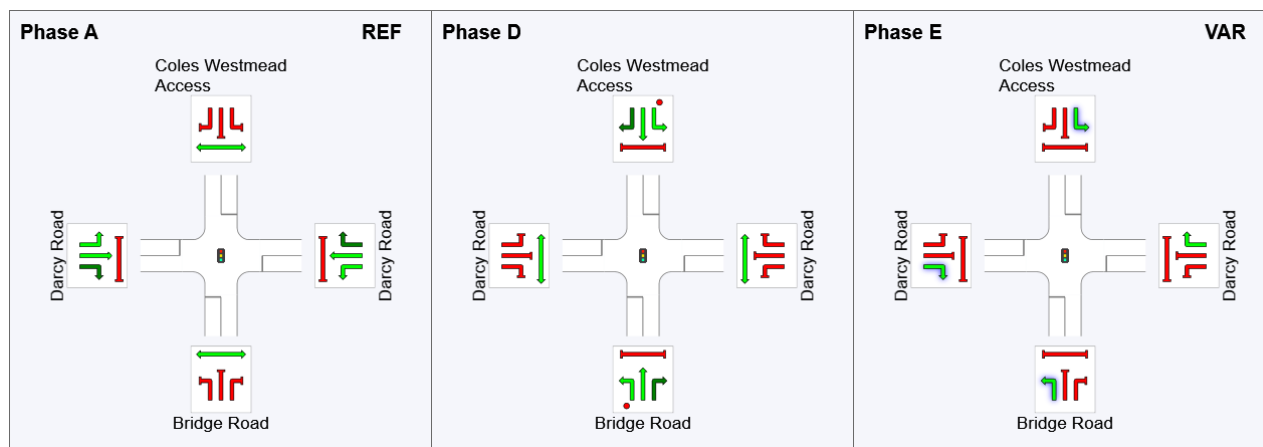
(* Variable Phase)

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	121	68	109
Green Time (sec)	80	34	10
Phase Time (sec)	87	36	17
Phase Split	62%	26%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Sensitivity Analysis (70%) AM Peak)]

 Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
2	T1	491	0.2	491	0.2	0.671	4.1	LOS A	8.9	62.4	0.44	0.49	0.44	24.2
3	R2	349	0.3	349	0.3	0.671	7.2	LOS A	8.9	62.4	0.44	0.49	0.44	24.2
3u	U	5	0.0	5	0.0	0.671	8.5	LOS A	8.9	62.4	0.44	0.49	0.44	27.4
Approach		845	0.2	845	0.2	0.671	5.4	LOS A	8.9	62.4	0.44	0.49	0.44	24.2
East: Alexandra Avenue														
4	L2	132	0.8	117	0.8	0.322	9.5	LOS A	1.7	12.1	0.65	0.82	0.65	40.3
6	R2	54	1.9	48	1.9	0.322	12.1	LOS A	1.7	12.1	0.65	0.82	0.65	40.9
6u	U	2	0.0	2	0.0	0.322	13.3	LOS A	1.7	12.1	0.65	0.82	0.65	40.9
Approach		188	1.1	166 ^{N1}	1.1	0.322	10.3	LOS A	1.7	12.1	0.65	0.82	0.65	40.5
North: Bridge Road														
7	L2	204	0.5	177	0.4	1.171	174.0	LOS F	100.9	707.0	1.00	4.25	7.53	8.0
8	T1	800	0.1	693	0.1	1.171	173.5	LOS F	100.9	707.0	1.00	4.25	7.53	8.8
9u	U	1	0.0	1	0.0	1.171	177.7	LOS F	100.9	707.0	1.00	4.25	7.53	8.0
Approach		1005	0.2	870 ^{N1}	0.2	1.171	173.6	LOS F	100.9	707.0	1.00	4.25	7.53	8.6
All Vehicles		2038	0.3	1881 ^{N1}	0.3	1.171	83.6	LOS F	100.9	707.0	0.72	2.26	3.74	11.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [AM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

0745 - 0845

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	110	104	109	101 ¹	102 ¹	103	108	106
CCG ID (if applicable)	NA	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-18	-8	-5	0	0	0	0	10
Program / User	U	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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CCG MOVEMENT SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance (CCG)														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]														
South: Hawkesbury Road														
1	L2	54	0.0	54	0.0	0.956	94.2	LOS F	30.3	214.0	1.00	1.19	1.43	6.8
2	T1	665	1.4	665	1.4	* 0.956	88.4	LOS F	33.1	234.3	1.00	1.19	1.41	6.9
Approach		719	1.3	719	1.3	0.956	88.8	LOS F	33.1	234.3	1.00	1.19	1.41	6.9
East: Alexandra Avenue														
4	L2	33	0.0	33	0.0	0.947	90.1	LOS F	12.9	93.1	1.00	1.14	1.39	11.2
5	T1	245	0.0	245	0.0	* 0.947	85.7	LOS F	12.9	93.1	1.00	1.14	1.39	6.2
6	R2	324	20.7	324	20.7	0.947	94.0	LOS F	22.7	187.2	1.00	1.09	1.44	5.8
Approach		602	11.1	602	11.1	0.947	90.4	LOS F	22.7	187.2	1.00	1.11	1.42	6.3
North: Hawkesbury Road														
7	L2	367	18.3	294	17.5	0.785	17.2	LOS B	12.1	88.1	0.60	0.71	0.60	24.9
8	T1	938	1.1	759	1.0	0.785	34.4	LOS C	12.5	88.1	0.82	0.82	0.83	16.9
9	R2	96	0.0	78	0.0	0.785	61.3	LOS E	12.5	88.1	1.00	0.93	1.03	4.0
Approach		1401	5.5	1131 ^N ₁	5.2	0.785	31.7	LOS C	12.5	88.1	0.78	0.80	0.79	17.1
West: Alexandra Avenue														
10	L2	102	0.0	100	0.0	0.190	36.3	LOS C	4.6	32.2	0.71	0.73	0.71	28.1
11	T1	209	0.5	206	0.5	* 0.872	75.2	LOS F	15.4	108.3	1.00	1.01	1.27	21.7
Approach		311	0.3	306 ^{N1}	0.3	0.872	62.5	LOS E	15.4	108.3	0.91	0.92	1.09	23.2
All Vehicles		3033	5.1	2758 ^N ₁	5.6	0.956	62.8	LOS E	33.1	234.3	0.90	0.98	1.12	11.8
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]														
South: Hawkesbury Road														
2	T1	852	8.7	851	8.7	0.476	4.9	LOS A	8.8	66.2	0.30	0.29	0.30	23.9
3	R2	238	0.0	238	0.0	* 0.476	14.4	LOS A	8.7	63.0	0.65	0.68	0.65	37.8
Approach		1090	6.8	1089 ^N ₁	6.8	0.476	6.9	LOS A	8.8	66.2	0.38	0.38	0.38	32.2
East: Railway Parade														
4	L2	298	0.3	298	0.3	0.572	20.1	LOS B	11.3	79.0	0.69	0.77	0.69	32.4
6	R2	33	0.0	33	0.0	0.173	67.0	LOS E	2.1	14.7	0.94	0.73	0.94	17.8
Approach		331	0.3	331	0.3	0.572	24.8	LOS B	11.3	79.0	0.71	0.76	0.71	30.0
North: Hawkesbury Road														
7	L2	88	0.0	66	0.0	0.127	48.9	LOS D	4.8	42.1	0.80	0.70	0.80	24.5
8	T1	1103	7.1	833	7.2	0.852	51.1	LOS D	26.5	191.9	0.97	0.90	1.04	8.3
Approach		1191	6.5	900 ^{N1}	6.7	0.852	50.9	LOS D	26.5	191.9	0.96	0.88	1.02	10.1
All Vehicles		2612	5.9	2319 ^N ₁	6.6	0.852	26.6	LOS B	26.5	191.9	0.65	0.63	0.68	19.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance (CCG)											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
Site: 101 [Hawkesbury Road / Alexandra Avenue (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.6	35.2	0.38
East: Alexandra Avenue											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	93.7	35.3	0.38
West: Alexandra Avenue											
P4	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	94.3	36.1	0.38
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	93.9	35.5	0.38
Site: 102 [Hawkesbury Road / Railway Parade (TCS 1571)]											
South: Hawkesbury Road											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.1	40.6	0.41
East: Railway Parade											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Hawkesbury Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	98.8	41.5	0.42
All Pedestrians		150	64.3	LOS F	0.2	0.2	0.96	0.96	95.9	38.0	0.40

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

CCG PHASING SUMMARY

Common Control Group: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

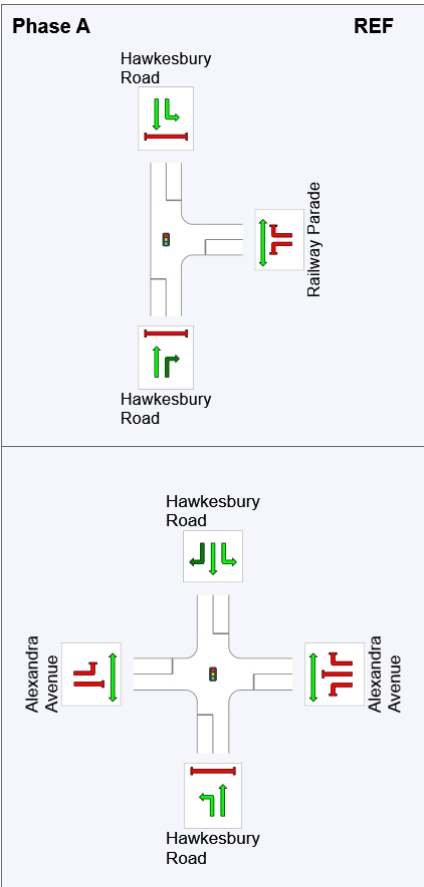
Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: CCG Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B*, E, D, C
Output Phase Sequence: A, E, D, C
(* Variable Phase)

Phase Timing Summary (CCG)

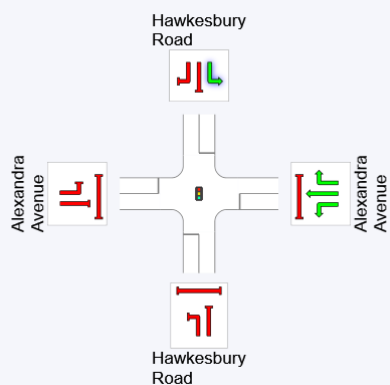
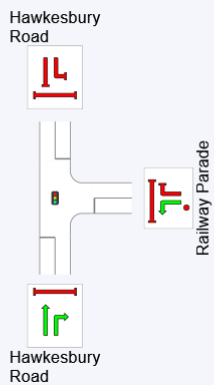
Phase	A	E	D	C
Phase Change Time (sec)	0	41	79	105
Green Time (sec)	35	29	17	29
Phase Time (sec)	44	38	23	35
Phase Split	31%	27%	16%	25%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

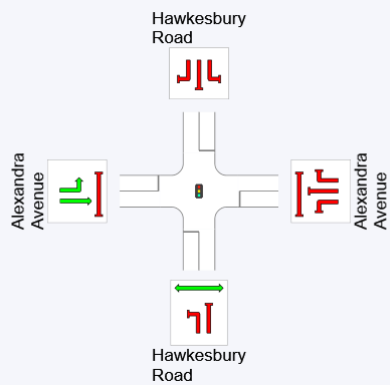
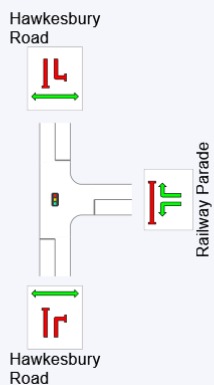
Output Phase Sequence (CCG)

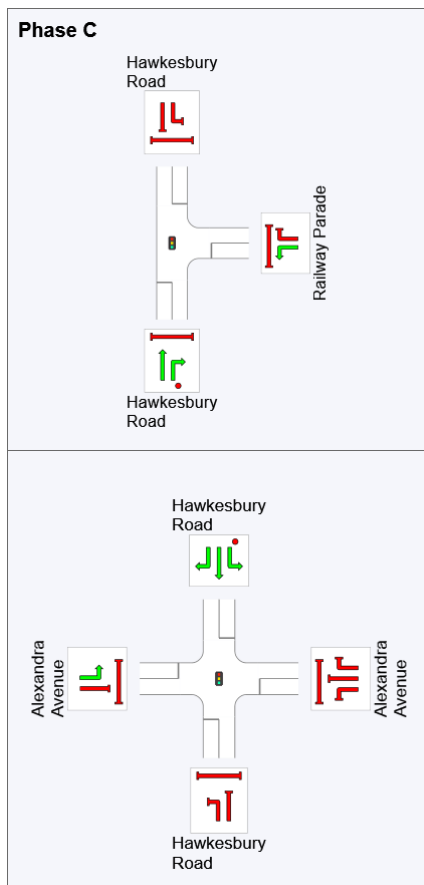


Phase E



Phase D





REF: Reference Phase

VAR: Variable Phase



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MOVEMENT SUMMARY

 **Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]**

 **Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]**

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Parramatta Light Rail														
3a	R1	8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
Approach		8	100.0	8	100.0	0.251	82.7	LOS F	0.6	16.3	1.00	0.69	1.00	10.4
NorthEast: Hawkesbury Road														
24a	L1	8	100.0	8	100.0	0.168	80.5	LOS F	0.6	15.6	0.99	0.68	0.99	10.4
25	T1	537	2.4	537	2.4	* 1.319	331.4	LOS F	90.2	644.8	0.98	2.18	2.65	2.1
26	R2	353	2.5	353	2.5	* 1.297	322.4	LOS F	58.3	417.2	1.00	1.85	2.61	2.1
Approach		898	3.3	898	3.3	1.319	325.6	LOS F	90.2	644.8	0.99	2.04	2.62	2.1
NorthWest: Darcy Road														
27	L2	206	4.9	190	5.1	1.392	26.0	LOS B	6.9	90.1	0.51	0.67	0.57	24.5
29	R2	654	9.6	606	10.1	* 1.392	331.0	LOS F	20.0	146.9	0.93	1.85	2.60	1.1
Approach		860	8.5	796 ^{N1}	8.9	1.392	258.1	LOS F	20.0	146.9	0.83	1.57	2.11	2.0
SouthWest: Hawkesbury Road														
30	L2	569	12.0	568	12.0	0.413	13.5	LOS A	12.4	92.0	0.37	0.66	0.37	21.8
31	T1	316	2.5	316	2.5	0.394	46.6	LOS D	18.5	132.5	0.93	0.80	0.93	16.4
Approach		885	8.6	884 ^{N1}	8.6	0.413	25.3	LOS B	18.5	132.5	0.57	0.71	0.57	18.4
All Vehicles		2651	7.1	2586 ^{N1}	7.2	1.392	201.4	LOS F	90.2	644.8	0.80	1.44	1.76	3.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Parramatta Light Rail											
P1	Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	238.3	208.6	0.88
NorthEast: Hawkesbury Road											
P6	Full	202	64.7	LOS F	0.8	0.8	0.97	0.97	97.1	38.9	0.40
NorthWest: Darcy Road											
P71	Stage 1	60	30.2	LOS D	0.1	0.1	0.92	0.92	55.9	30.9	0.55
P72	Stage 2	60	64.3	LOS F	0.2	0.2	0.96	0.96	99.9	42.7	0.43

SouthWest: Hawkesbury Road											
P8 Full	129	64.5	LOS F	0.5	0.5	0.96	0.96	98.7	41.1	0.42	
All Pedestrians	580	61.0	LOS F	0.8	0.8	0.96	0.96	124.9	76.7	0.61	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 103 [Hawkesbury Road / Darcy Road (TCS 1631) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog

Phase Times determined by the program

Downstream lane blockage effects included in determining phase times

Phase Sequence: Variable Phasing

Reference Phase: Phase C

Input Phase Sequence: C, D*, B, A, F*

Output Phase Sequence: C, D*, B, A

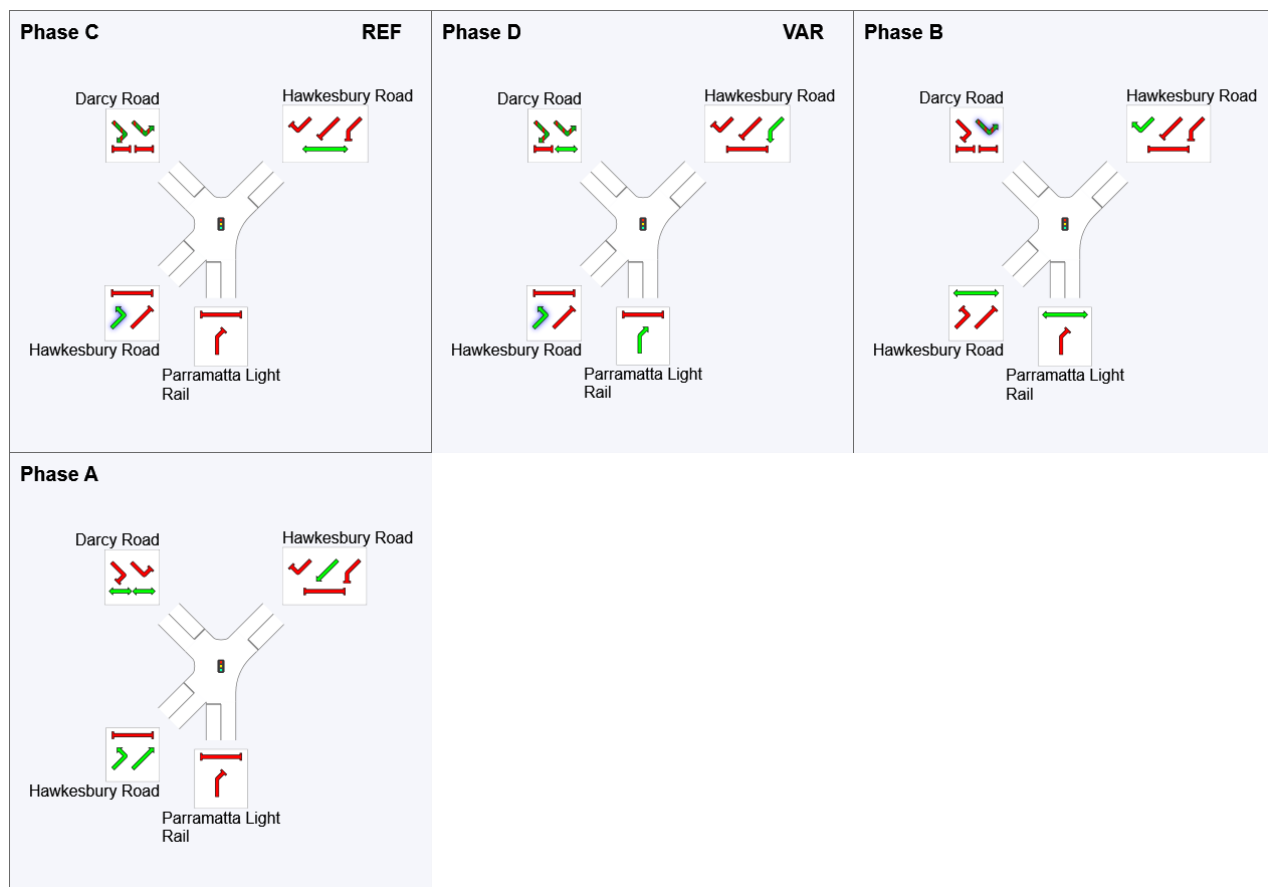
(* Variable Phase)

Phase Timing Summary

Phase	C	D	B	A
Phase Change Time (sec)	138	43	57	90
Green Time (sec)	37	6	24	39
Phase Time (sec)	45	15	33	47
Phase Split	32%	11%	24%	34%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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■ **Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (70% PM Peak)]**
■ **Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]**

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
SouthEast: Darcy Road											
P51	Stage 1	197	64.7	LOS F	0.8	0.8	0.97	0.97	90.4	30.9	0.34
P52	Stage 2	41	64.2	LOS F	0.2	0.2	0.96	0.96	97.1	39.4	0.41
NorthEast: Westmead Hospital Access											

P6 Full	88	64.4	LOS F	0.3	0.3	0.96	0.96	90.9	31.9	0.35
NorthWest: Darcy Road										
P71 Stage 1	26	64.2	LOS F	0.1	0.1	0.96	0.96	96.4	38.7	0.40
P72 Stage 2	26	64.2	LOS F	0.1	0.1	0.96	0.96	87.2	27.6	0.32
SouthWest: Farm House Road										
P8 Full	225	64.7	LOS F	0.9	0.9	0.97	0.97	91.3	31.9	0.35
All Pedestrians	603	64.6	LOS F	0.9	0.9	0.96	0.96	91.4	32.2	0.35

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 104 [Darcy Road / Farm House Road / Westmead Hospital Access (TCS 3281) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, G

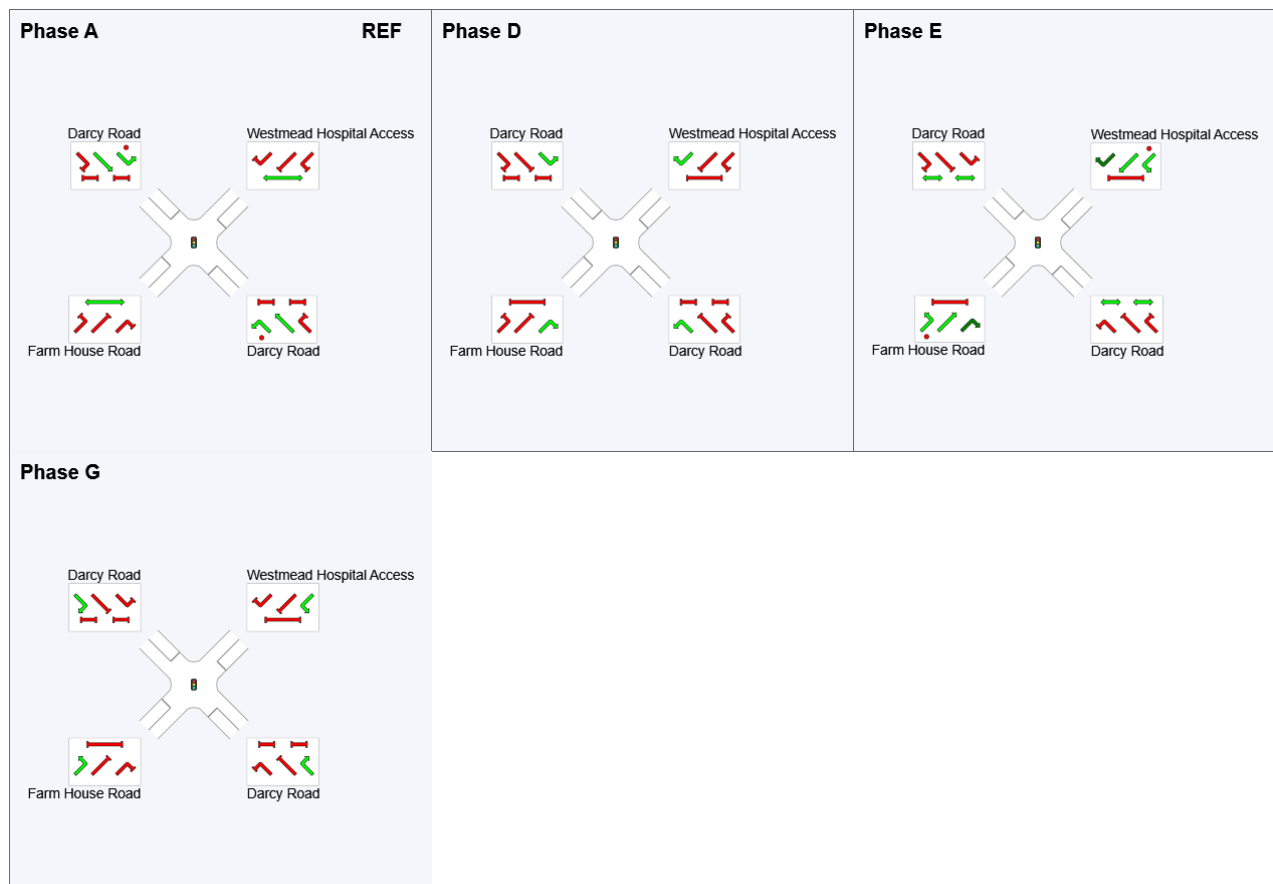
Output Phase Sequence: A, D, E, G

Phase Timing Summary

Phase	A	D	E	G
Phase Change Time (sec)	121	64	82	106
Green Time (sec)	75	11	16	9
Phase Time (sec)	82	19	22	17
Phase Split	59%	14%	16%	12%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

Site: 105 [Darcy Road / Parramatta Marist High School Access (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
SouthEast: Darcy Road														
21	L2	86	0.0	81	0.0	0.317	11.8	LOS A	2.0	14.0	0.51	0.17	0.61	20.4
22	T1	992	7.3	932	7.5	0.317	1.4	LOS A	2.0	14.0	0.16	0.05	0.19	30.6
Approach		1078	6.7	1012 ^N ₁	6.9	0.317	2.2	NA	2.0	14.0	0.19	0.06	0.23	29.0
NorthWest: Darcy Road														
28	T1	895	7.6	812	8.1	0.205	0.0	LOS A	16.3	118.4	0.00	0.00	0.00	39.9
Approach		895	7.6	812 ^{N1}	8.1	0.205	0.0	NA	16.3	118.4	0.00	0.00	0.00	39.9
SouthWest: Parramatta Marist High School Access														
30	L2	1	0.0	1	0.0	0.005	19.2	LOS B	0.0	0.1	0.86	0.74	0.86	5.6
Approach		1	0.0	1	0.0	0.005	19.2	LOS B	0.0	0.1	0.86	0.74	0.86	5.6
All Vehicles		1974	7.1	1825 ^N ₁	7.7	0.317	1.3	NA	16.3	118.4	0.11	0.04	0.13	34.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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MOVEMENT SUMMARY

 Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	* 0.345	14.4	LOS A	12.5	90.5	0.47	0.42	0.47	19.4
22	T1	948	7.5	891	7.8	0.345	10.6	LOS A	12.5	90.5	0.45	0.40	0.45	19.4
23	R2	45	0.0	42	0.0	* 0.530	81.0	LOS F	3.1	21.5	1.00	0.74	1.01	8.6
Approach		994	7.1	934 ^{N1}	7.4	0.530	13.8	LOS A	12.5	90.5	0.48	0.42	0.48	17.3
NorthEast: Westmead Dental Hospital Access														
24	L2	46	0.0	46	0.0	0.080	5.0	LOS A	0.5	3.3	0.20	0.53	0.20	28.9
26	R2	37	0.0	37	0.0	0.180	62.1	LOS E	2.3	16.0	0.92	0.73	0.92	7.1
Approach		83	0.0	83	0.0	0.180	30.5	LOS C	2.3	16.0	0.52	0.62	0.52	12.1
NorthWest: Darcy Road														
27	L2	66	0.0	58	0.0	0.263	13.8	LOS A	12.1	87.7	0.45	0.43	0.45	26.8
28	T1	789	8.6	704	9.4	0.263	11.2	LOS A	12.1	87.7	0.49	0.44	0.49	18.1
29	R2	2	50.0	2	51.5	0.021	76.8	LOS F	0.1	1.3	1.00	0.61	1.00	6.7
Approach		857	8.1	765 ^{N1}	8.7	0.263	11.5	LOS A	12.1	87.7	0.49	0.44	0.49	19.0
SouthWest: Parramatta Marist High School Access														
30	L2	112	0.0	112	0.0	* 0.333	48.5	LOS D	6.4	44.6	0.90	0.71	0.90	5.1
32	R2	60	0.0	60	0.0	0.320	55.7	LOS D	3.7	25.8	0.91	0.72	0.91	4.8
Approach		172	0.0	172	0.0	0.333	51.0	LOS D	6.4	44.6	0.91	0.72	0.91	5.0
All Vehicles		2106	6.6	1954 ^{N1}	7.2	0.530	16.9	LOS B	12.5	90.5	0.52	0.46	0.52	14.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
NorthEast: Westmead Dental Hospital Access											
P6	Full	4	64.1	LOS F	0.0	0.0	0.96	0.96	90.7	31.9	0.35
NorthWest: Darcy Road											
P7	Full	91	64.4	LOS F	0.3	0.3	0.96	0.96	106.2	50.2	0.47
SouthWest: Parramatta Marist High School Access											
P8	Full	59	64.3	LOS F	0.2	0.2	0.96	0.96	90.9	31.9	0.35

All Pedestrians	154	64.3	LOS F	0.3	0.3	0.96	0.96	99.9	42.7	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 106 [Darcy Road / Westmead Dental Hospital Access / Parramatta Marist High School Access (TCS 3282) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E

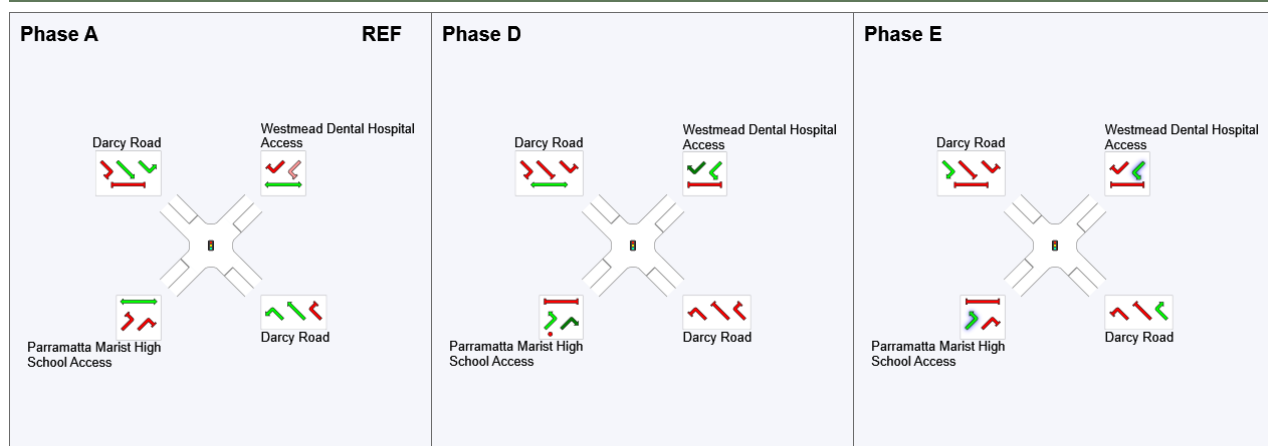
Output Phase Sequence: A, D, E

Phase Timing Summary

Phase	A	D	E
Phase Change Time (sec)	109	67	98
Green Time (sec)	92	25	6
Phase Time (sec)	98	30	12
Phase Split	70%	21%	9%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

Site: 107 [Darcy Road / Catherine McAuley Westmead Access
(Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total HV] veh/h	%	v/c	sec		[Veh. veh	Dist] m				km/h
SouthEast: Darcy Road														
21	L2	1	0.0	1	0.0	0.314	3.7	LOS A	0.0	0.0	0.00	0.00	0.00	26.8
22	T1	1096	6.7	1040	6.9	0.314	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		1097	6.7	1041 ^N ₁	6.9	0.314	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8
NorthWest: Darcy Road														
28	T1	857	7.9	764	8.6	0.193	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	39.9
Approach		857	7.9	764 ^{N1}	8.6	0.193	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.9
SouthWest: Catherine McAuley Westmead Access														
30	L2	1	0.0	1	0.0	0.002	1.4	LOS A	0.0	0.0	0.39	0.18	0.39	18.6
Approach		1	0.0	1	0.0	0.002	1.4	LOS A	0.0	0.0	0.39	0.18	0.39	18.6
All Vehicles		1955	7.2	1805 ^N ₁	7.8	0.314	0.0	NA	0.0	0.0	0.00	0.00	0.00	39.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)
(Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m					
East: Institute Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
North: Mons Road											
P3	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	97.4	39.8	0.41
West: Darcy Road											

P4 Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	95.2	37.1	0.39
All Pedestrians	150	64.3	LOS F	0.2	0.2	0.96	0.96	94.5	36.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

PHASING SUMMARY

Site: 108 [Darcy Road / Mons Road / Institute Road (TCS 2393)]
 (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak
 (Network Folder: 2033
 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, B, C, D, E

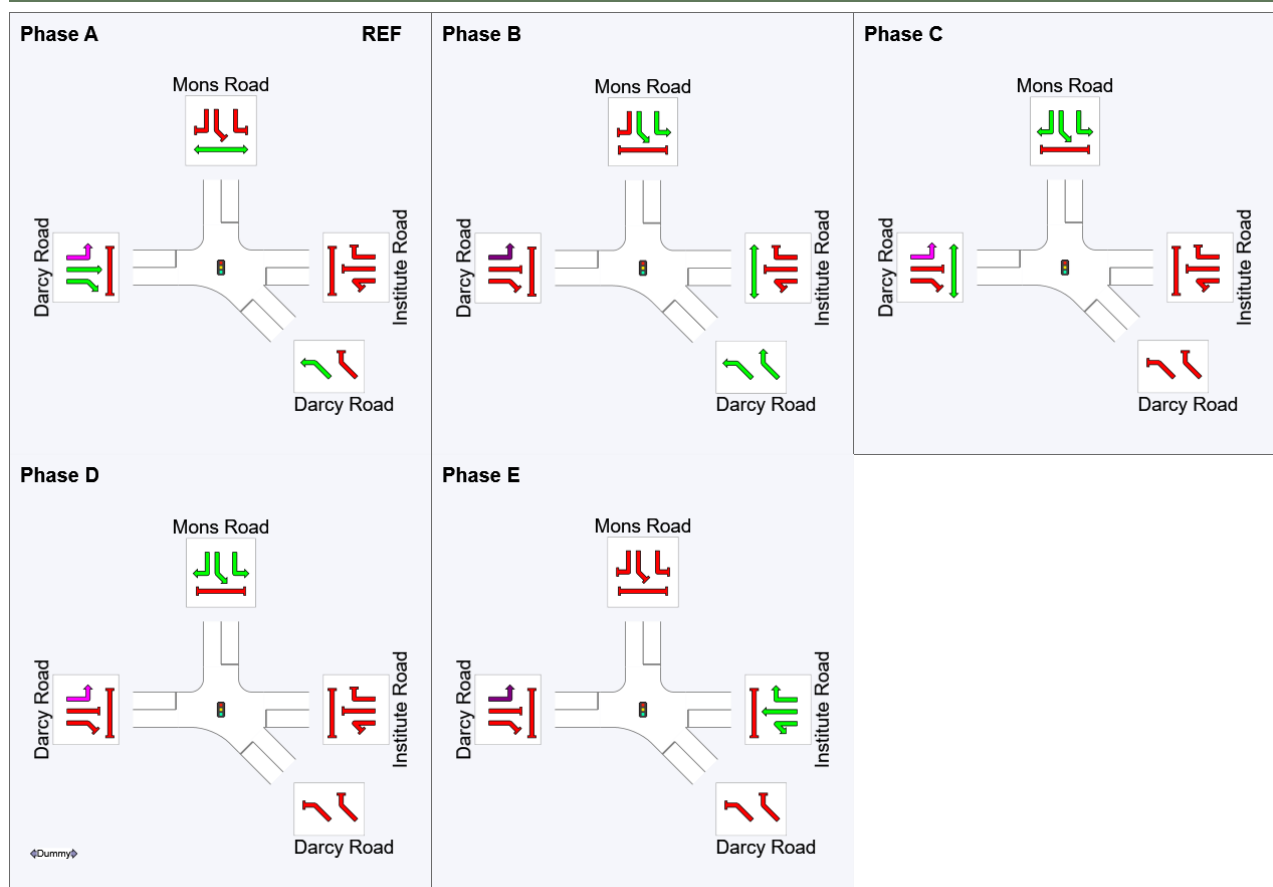
Output Phase Sequence: A, B, C, D, E

Phase Timing Summary

Phase	A	B	C	D	E
Phase Change Time (sec)	28	78	110	2	12
Green Time (sec)	44	26	26	4	10
Phase Time (sec)	50	32	32	10	16
Phase Split	36%	23%	23%	7%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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Project: P:\P4803 2 Darcy Road Westmead EIS Peer Review\Technical Work\Models\P4803.001M 2 Darcy Road Westmead EIS SIDRA Models.sip9

MOVEMENT SUMMARY

 Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

 Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mother Teresa Primary School Access														
1	L2	222	4.5	222	4.5	0.421	6.7	LOS A	7.2	52.2	0.54	0.48	0.54	9.6
Approach		222	4.5	222	4.5	0.421	6.7	LOS A	7.2	52.2	0.54	0.48	0.54	9.6
East: Darcy Road														
4	L2	70	7.1	58	7.8	0.047	10.2	LOS A	0.3	2.0	0.10	0.80	0.10	16.7
5	T1	1409	1.3	1169	1.5	* 0.522	12.4	LOS A	12.9	91.4	0.44	0.40	0.44	13.0
Approach		1479	1.6	1227 ^N ₁	1.8	0.522	12.3	LOS A	12.9	91.4	0.43	0.42	0.43	13.1
West: Darcy Road														
11	T1	678	2.4	635	2.0	0.382	3.9	LOS A	6.4	45.8	0.29	0.26	0.29	34.8
12	R2	120	3.3	112	2.8	* 0.237	9.9	LOS A	1.6	11.8	0.25	0.77	0.25	29.2
Approach		798	2.5	747 ^N ₁	2.1	0.382	4.8	LOS A	6.4	45.8	0.28	0.34	0.28	33.8
All Vehicles		2499	2.2	2196 ^N ₁	2.5	0.522	9.2	LOS A	12.9	91.4	0.39	0.40	0.39	17.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Mother Teresa Primary School Access											
P1	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	86.8	27.1	0.31
East: Darcy Road											
P2	Full	50	64.3	LOS F	0.2	0.2	0.96	0.96	96.6	38.8	0.40
All Pedestrians		100	64.3	LOS F	0.2	0.2	0.96	0.96	91.7	33.0	0.36

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

PHASING SUMMARY

Site: 109 [Darcy Road / Mother Teresa Primary School Access
(Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak
(Network Folder: 2033
Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Convert Function Default

Reference Phase: Phase A

Input Phase Sequence: A, B, B1

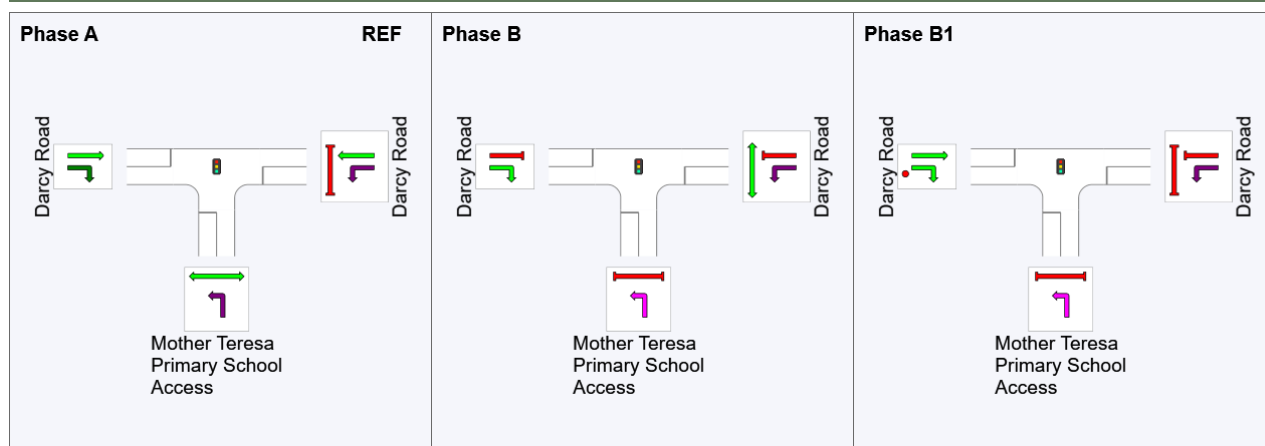
Output Phase Sequence: A, B, B1

Phase Timing Summary

Phase	A	B	B1
Phase Change Time (sec)	135	85	108
Green Time (sec)	84	17	22
Phase Time (sec)	90	22	28
Phase Split	64%	16%	20%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

MOVEMENT SUMMARY

 Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist] m				km/h
South: Bridge Road														
1	L2	229	1.3	226	1.3	0.459	41.6	LOS C	11.6	82.4	0.84	0.78	0.84	25.5
2	T1	29	0.0	29	0.0	* 2.111	1050.0	LOS F	36.1	266.8	1.00	2.15	4.55	1.6
3	R2	96	8.3	95	8.4	2.111	1049.6	LOS F	36.1	266.8	1.00	2.15	4.55	1.5
Approach		354	3.1	350 ^{N1}	3.1	2.111	397.7	LOS F	36.1	266.8	0.89	1.27	2.15	4.5
East: Darcy Road														
4	L2	313	4.2	270	4.6	0.348	18.1	LOS B	16.7	119.9	0.40	0.48	0.40	29.2
5	T1	1290	1.3	1109	1.4	0.348	9.4	LOS A	16.7	119.9	0.31	0.32	0.31	38.2
6	R2	28	0.0	24	0.0	* 0.053	12.2	LOS A	0.3	2.2	0.36	0.60	0.36	29.4
Approach		1631	1.8	1403 ^{N1}	2.0	0.348	11.1	LOS A	16.7	119.9	0.33	0.36	0.33	36.6
North: Coles Westmead Access														
7	L2	26	0.0	26	0.0	0.068	43.0	LOS D	1.3	9.4	0.83	0.61	0.83	4.3
8	T1	45	0.0	45	0.0	1.115	187.1	LOS F	10.7	74.6	1.00	1.84	2.21	1.2
9	R2	42	0.0	42	0.0	1.115	187.1	LOS F	10.7	74.6	1.00	1.84	2.21	3.7
Approach		113	0.0	113	0.0	1.115	154.0	LOS F	10.7	74.6	0.96	1.56	1.90	2.5
West: Darcy Road														
10	L2	57	0.0	57	0.0	0.340	16.5	LOS B	15.3	108.4	0.49	0.47	0.49	23.4
11	T1	675	1.3	675	1.3	* 0.340	11.4	LOS A	15.3	108.4	0.47	0.43	0.47	25.4
12	R2	335	1.8	335	1.8	0.732	18.7	LOS B	9.5	67.8	0.67	0.80	0.69	19.8
Approach		1067	1.4	1067	1.4	0.732	14.0	LOS A	15.3	108.4	0.53	0.55	0.54	23.2
All Vehicles		3165	1.8	2933 ^{N1}	1.9	2.111	63.8	LOS E	36.1	266.8	0.49	0.58	0.68	13.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance											
Mov ID	Crossing	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE		Prop. Que	Effective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	sec		[Ped ped	Dist] m			sec	m	m/sec
South: Bridge Road											
P1	Full	47	64.3	LOS F	0.2	0.2	0.96	0.96	90.8	31.9	0.35
East: Darcy Road											
P2	Full	44	64.2	LOS F	0.2	0.2	0.96	0.96	96.3	38.5	0.40

North: Coles Westmead Access											
P3	Full	127	64.5	LOS F	0.5	0.5	0.96	0.96	92.2	33.3	0.36
West: Darcy Road											
P4	Full	81	64.3	LOS F	0.3	0.3	0.96	0.96	96.4	38.5	0.40
All Pedestrians		299	64.4	LOS F	0.5	0.5	0.96	0.96	93.7	35.3	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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PHASING SUMMARY

Site: 110 [Darcy Road / Bridge Road / Coles Westmead Access (TCS 1630) (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog

Phase Times specified by the user

Phase Sequence: Variable Phasing

Reference Phase: Phase A

Input Phase Sequence: A, D, E, E2

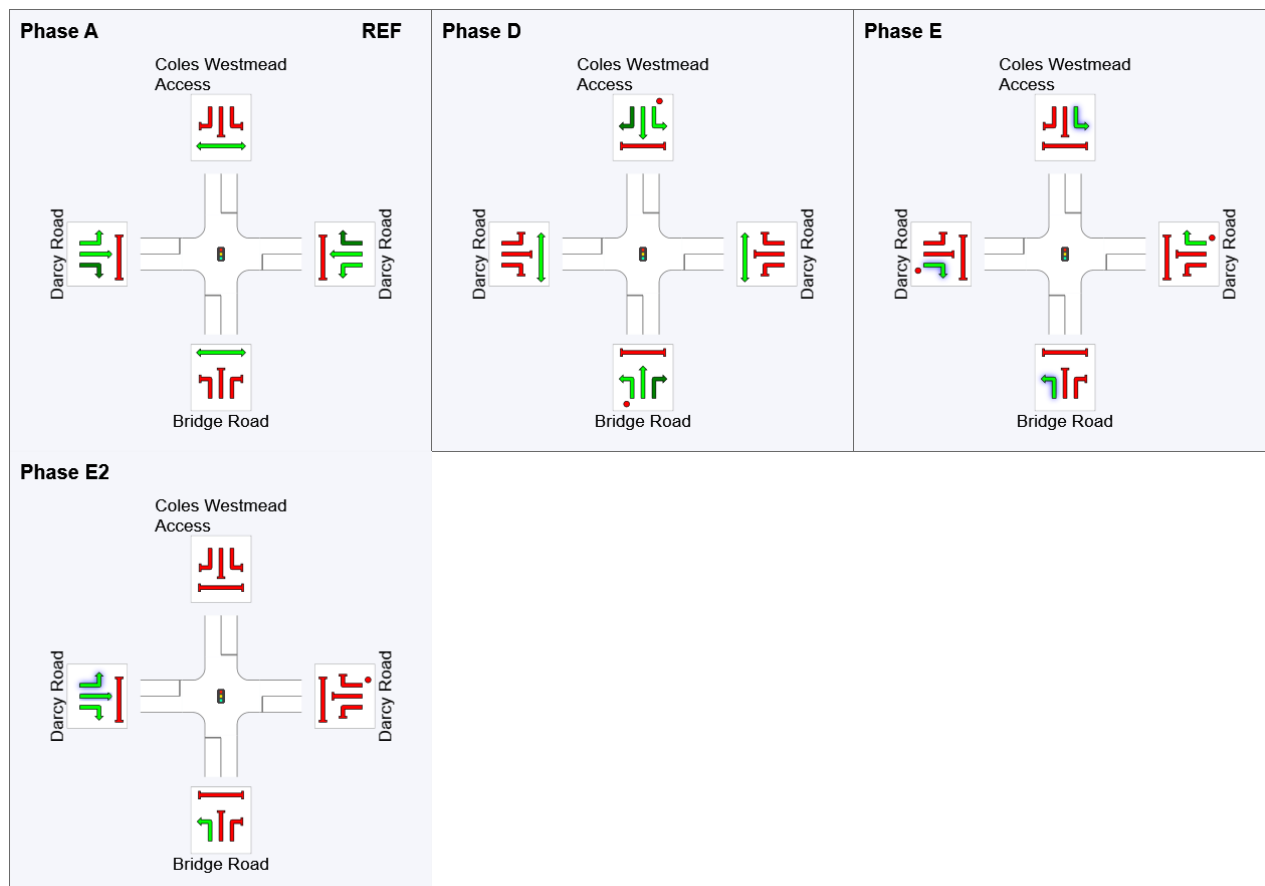
Output Phase Sequence: A, D, E, E2

Phase Timing Summary

Phase	A	D	E	E2
Phase Change Time (sec)	14	96	129	140
Green Time (sec)	75	26	5	8
Phase Time (sec)	82	32	11	15
Phase Split	59%	23%	8%	11%

See the Timing Analysis 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, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

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

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MOVEMENT SUMMARY

 Site: 111 [Bridge Road / Alexandra Avenue (Site Folder: 2033 Sensitivity Analysis (70%) PM Peak)]

 Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600
Site Category: (None)
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	DEMAND FLOWS		ARRIVAL FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %	v/c	sec		[Veh. veh	Dist m				km/h
South: Bridge Road														
2	T1	463	2.4	463	2.4	0.651	5.4	LOS A	6.9	49.1	0.70	0.62	0.70	22.7
3	R2	172	0.6	172	0.6	0.651	8.5	LOS A	6.9	49.1	0.70	0.62	0.70	22.7
3u	U	1	100.0	1	100.0	0.651	11.6	LOS A	6.9	49.1	0.70	0.62	0.70	24.0
Approach		636	2.0	636	2.0	0.651	6.2	LOS A	6.9	49.1	0.70	0.62	0.70	22.7
East: Alexandra Avenue														
4	L2	253	0.4	242	0.4	0.816	24.2	LOS B	9.1	63.9	0.90	1.23	1.53	32.7
6	R2	152	0.0	145	0.0	0.816	26.7	LOS B	9.1	63.9	0.90	1.23	1.53	32.5
6u	U	1	0.0	1	0.0	0.816	28.0	LOS B	9.1	63.9	0.90	1.23	1.53	32.5
Approach		406	0.2	388 ^{N1}	0.3	0.816	25.1	LOS B	9.1	63.9	0.90	1.23	1.53	32.6
North: Bridge Road														
7	L2	101	0.0	96	0.0	0.836	10.8	LOS A	14.1	100.8	0.90	0.79	1.05	37.9
8	T1	720	2.6	681	2.7	0.836	10.5	LOS A	14.1	100.8	0.90	0.79	1.05	37.9
9u	U	1	0.0	1	0.0	0.836	14.6	LOS B	14.1	100.8	0.90	0.79	1.05	37.9
Approach		822	2.3	778 ^{N1}	2.4	0.836	10.6	LOS A	14.1	100.8	0.90	0.79	1.05	37.9
All Vehicles		1864	1.8	1802 ^{N1}	1.8	0.836	12.2	LOS A	14.1	100.8	0.83	0.82	1.03	34.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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SIGNAL OFFSETS

■ Network: N101 [PM Peak (Network Folder: 2033 Sensitivity Analysis (70%))]

1500 - 1600

Network Category: (None)

Network Cycle Time = 140 seconds (Network User-Given Cycle Time)

SIGNAL OFFSETS

Offset Definition: Green Start

Reference Site / CCG: CCG1 [Hawkesbury Road / Alexandra Avenue / Railway Parade (TCS 1571)]¹

Site ID	106	104	109	101 ¹	102 ¹	103	110	108
CCG ID (if applicable)	NA	NA	NA	CCG1	CCG1	NA	NA	NA
Offset (sec)	-31	-17	-5	0	0	0	15	28
Program / User	U	U	U	U	U	U	U	U
Reference Phase	A	A	A	A	A	C	A	A
Route ID	-	-	-	-	-	-	-	-

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

ROUTE OFFSET RESULTS

No results are given since the Network does not have any Routes.

¹ Reference Site / CCG as specified in the Network Timing dialog, Network Timing Data tab.

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