Cross River Rail Environmental Impact Statement

Request for Project Change 10

Change to the imposed conditions

Volume 2 Technical Reports

Date: ***February 2021***

Author: ***Cross River Rail Delivery Authority***

CROSSRIVERRAIL

Queensland Government

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1. Introduction

These technical reports have been prepared for the Cross River Rail (CRR) Project to assess the environmental effects arising from the Proposed Changes in comparison to the Evaluated Project.

Volume 1 describes the Proposed Changes, the reasons for the Proposed Change and the effects of the Proposed Change on the Project.

Where there has been a material or significant change in the design, delivery, existing environmental values, assessment criteria, or the change conflicts with the Coordinator-General's Imposed Conditions, further detailed technical assessments, modelling and surveys have been undertaken, and detailed in this report (Volume 2) and supported by **Attachments A-D**.

2. Proposed Change

This RfPC requests that the Coordinator-General evaluate the following Proposed Change:

- Addition of a new Condition 10A to permit spoil haulage and materials/equipment delivery (excluding concrete deliveries) on Sundays from 9:00am - 6:30pm for the Albert Street Railway station and Roma Street Railway station worksites.

3. Technical Assessments

A requirement for technical assessments has been identified for the Proposed Change and listed in Table 1.

Table 1: Requirement for technical assessments

Proposed change	Potential impacts	Technical assessments required
Spoil haulage and materials/equipment delivery (excluding concrete deliveries) on Sundays for the Albert Street Railway station and Roma Street Railway station worksites	• Noise impact from increased traffic • Traffic impact from haulage	• Traffic noise impact assessment • Traffic impact assessment

Four (4) technical reports have been prepared to assess the potential changes to noise, and traffic and transport impacts, arising from the Proposed Change in comparison to the Evaluated Project (**Attachments A-D**). How these reports relate to potential changed impacts and associated cross-references are detailed in Table 2.

Table 2: Potential changed impacts and associated technical report cross-references

Potential changes to impacts / Technical report	Change aspects	Technical report cross-references
Traffic noise impact - Albert Street Railway station worksite **Attachment A Technical Report - Traffic Noise (Albert Street Railway Station Worksite)** This report covers detailed traffic noise assessment of construction related road traffic on Sundays associated with the Albert Street Railway station worksite.	Evaluated project	Sections 1 and 2
	Effect of the proposed change	Section 5.1
	Mitigations proposed	Section 5.2

Potential changes to impacts / Technical report	Change aspects	Technical report cross-references
Traffic noise impact - Roma Street Railway station worksite **Attachment B Technical Report - Traffic Noise (Roma Street Railway Station Worksite)** This report covers detailed traffic noise assessment of construction related road traffic on Sundays associated with the Roma Street Railway station worksite.	Evaluated project	Sections 1 and 2
	Effect of the proposed change	Section 5.1
	Mitigations proposed	Section 5.2
Traffic impact - Albert Street Railway station worksite **Attachment C Technical Report - Traffic and Transport (Albert Street Railway Station Worksite)** This report covers detailed traffic assessment of construction related road traffic on Sundays associated with the Albert Street Railway station worksite.	Evaluated project	N/A
	Effect of the proposed change	Sections 5.4, 5.5, 5.6 and 5.7
	Mitigations proposed	The site specific Construction Traffic Management Plan (CTMP) Sub-plan will be updated to include Sunday haulage in consultation with Brisbane City Council (BCC).
Traffic impact - Roma Street Railway station worksite **Attachment D Technical Report - Traffic and Transport (Roma Street Railway Station Worksite)** This report covers detailed traffic assessment of construction related road traffic on Sundays associated with the Roma Street Railway station worksite.	Evaluated project	N/A
	Effect of the proposed change	Sections 5.4, 5.5 and 5.6
	Mitigations proposed	The site specific CTMP Sub-plan will be updated to include Sunday haulage in consultation with BCC.

Attachment A Technical Report – Traffic Noise (Albert Street Railway Station Worksite)

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Acoustics
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CROSS RIVER RAIL - ALBERT STREET WORKSITE

Construction Traffic Noise Assessment (Sundays)

January 2021

CBGU JV

35 1982-2017 ACOUSTIC ENGINEERING EXCELLENCE

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1 Introduction

Renzo Tonin & Associates was engaged by CBGU JV to prepare a construction traffic noise assessment for the Cross River Rail project-Albert Street worksite.

The review focuses on the impacts from spoil haulage traffic on Sundays between 6:30am to 6:30pm and addresses the noise goals, Imposed Conditions and recommendations of the following documents:

- Cross River Rail EIS-*Construction Noise and Vibration*, PART A (Report No: *20-2524-R2*, dated 14th July 2011, Revision 1), Chapter 9.4, Page 11.
- Cross River Rail EIS- *Request for Project Change-Volume 4: Technical Reports* (Dated February 2017), Chapter 12.2.4, Page 190.
- Cross River Rail Project – Tunnel, Stations and Development Package (TSD), *Construction Traffic Management Plan Subplan –Albert St Stage 4 – Lot 3 Northern Entrance Works* (Document Number: *CRRTSD-TM-CTMP-CBGU-040003*, Rev: 0, dated 31st July 2020).
- Cross River Rail Project – Tunnel, Stations and Development Package (TSD), *Construction Traffic Management Plan Subplan –Albert St Stage 5 – Lot 1 Long Term Operations* (Document Number: *CRRTSD-TM-CTMP-CBGU-040004*, Rev: 0, dated 21st October 2020).
- Cross River Rail Project – *Coordinator-General's change report - no 8*, dated November 2020.
- CRR Albert Street Precinct - *2020 Background Traffic Volumes (Survey) - Total Volumes [Sunday]*, Cardno, Project No: T0920002, dated 9th December 2020.
- *Hourly traffic volume summary*, provided by CBGU JV, as shown in Appendix B.

Condition 10 *Hours of Work* of the *Coordinator-General's change report - no 8*, states the following for the Albert Street worksite:

Worksite	Surface works- standard hours	Extended hours work (includes spoil haulage, materials/equipment delivery to support extended work hours activities, and delivery of "in time" materials such as concrete, hazardous materials, large components and machinery)		Managed Work	Spoil haulage and materials/ equipment delivery (excluding concrete deliveries)
Albert Street Railway station	Monday to Saturday: 6:30am-6:30pm	Project Works that require continuous construction support, such as continuous concrete pours, pipe-jacking or other forms of ground support necessary to avoid a failure or construction incident	Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am – 10:00pm Saturday: 6:30am – 6:30pm
		Project Works in a road or busway that cannot be undertaken reasonably nor practicably during standard hours due to potential disruptions to peak traffic flows or bus operations	At any time permitted by the road or busway authority, or otherwise, Monday to Friday 6:30pm – 10:00pm		
		Project Works involving the transport, assembly or decommissioning of oversized plant, equipment, components or structures	During the hours stated in the road access permit or otherwise Monday to Friday: 6:30pm - 10:00pm		

Cross River Rail project
Coordinator-General's change report – no. 8 45

It is noted that there are no specific Imposed Conditions related to construction traffic noise. Imposed Condition 14 (e) states:

> *Heavy construction vehicles use only designated routes for spoil haulage and deliveries of major plant, equipment and materials, in accordance with the Construction Environmental Management Plan. The designated haulage routes for each worksite must follow major or arterial roads to the extent practicable and be developed in consultation with the Department of Transport and Main Roads and the Brisbane City Council in preparation of the Construction Environmental Management Plan.*

As can be seen in Condition 10 *Hours of Work* for the Albert Street worksite, *spoil haulage and material equipment delivery (excluding concrete deliveries)* are permitted on:

Monday to Friday
- 6:*30am* to 10:00pm

Saturday:
- *6:30am to 6:30pm*

The proposed change relates to amending Condition 10 *Hours of Work* to allow heavy vehicle movements along George Street, Mary Street and Edward Street on Sundays between 9:00am to 6:30pm. Under the proposed change heavy vehicles would:

- Access the Albert Street worksite via George Street and Mary Street; and
- Exit the Albert Street worksite via Mary Street and Edward Street.

The proposed construction traffic routes are shown below in Figure 1.

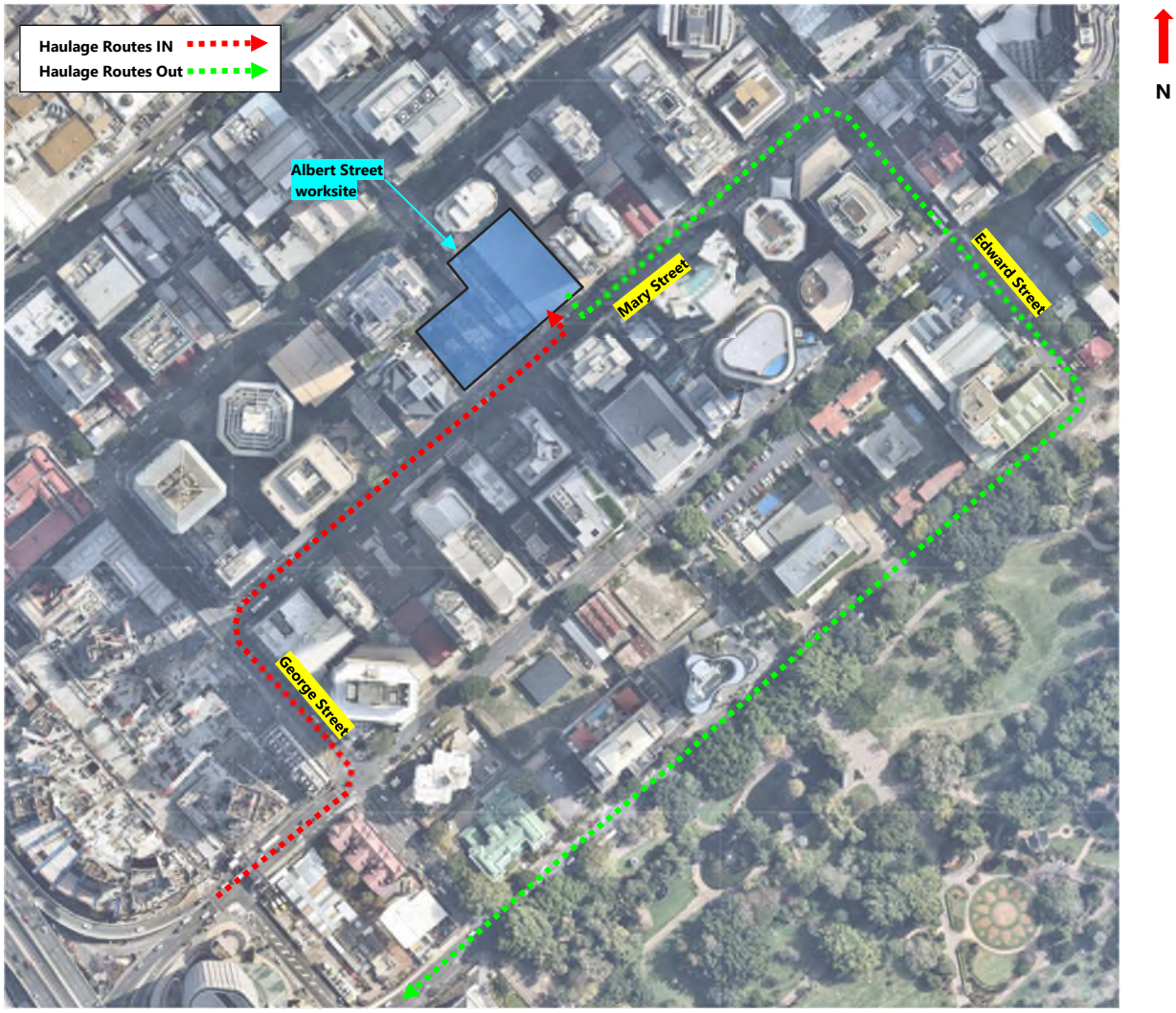


Figure 1: Proposed heavy vehicle access route for Sundays

Predicted changes in traffic noise are based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board (ARRB) and as a result it is recognised and accepted by the Department of Transport and Main Roads.

Therefore, the construction related road traffic noise is assessed in accordance with the Transport Noise Management *Code of Practice: Volume 1 (Road Traffic Noise)*, Department of Transport and Main Roads, 2013.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

2 Traffic noise goal

Section 2.2.6 *Construction Road Traffic Noise* of the CRR 2011 EIS (Page 11) states:

> *Where the construction phase of CRR is adding heavy vehicles to the existing road network, it is appropriate to consider the incremental change in noise levels due to the changes in traffic volume.*
>
> *A change of up to 3 dBA in the level of a dynamic noise, such as passing vehicles is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness.*
>
> *It is acknowledged that people are likely to notice increased traffic based on visual clues and perception of vehicle pass-by frequency before they will objectively notice an increase in the average noise level.*
>
> *For assessment purposes it is common to set the threshold of significance in relation to changes in the noise emission level from roads at 2 dBA. For the impact assessment of construction traffic noise the noise goal in Table 7 is recommended.*

Table 7 Construction Road Traffic Noise Goal

Type of Roads	***Goal***
Existing Roads	*2dBA change in existing $L_{A10\ (1hour)}$ [1], $L_{A10(12hour)}$ [2] and $L_{10(18hour)}$ [3]*

The applicable parameter for the traffic noise assessment of this report would be the $L_{10\ (12hour)}$, which represents the traffic noise levels between the hours of 6:30am and 6:30pm.

Note that the $L_{A10\ (1hour)}$ noise parameter relates to noise levels between 12midnight and 6am. The $L_{10\ (18hour)}$ relates to noise levels between 6am and 12midnight. The $L_{A10\ (1hour)}$ and $L_{10\ (18hour)}$ are not applicable for the time period of 6:30am and 6:30pm, assessed in this report.

3 Existing traffic volumes

The traffic volumes were based on the following intersection counts conducted over a 12-hour period provided by Cardno and CBGU JV (refer to Appendix B of this report):

- Mary Street/George Street intersection on Sunday 29th November 2020;
- Mary Street/Albert Street intersection on Sunday 29th November 2020; and
- Mary Street/Edward Street intersection on Sunday 29th November 2020.

[1] $L_{A10(1hour)}$ for the peak number of heavy vehicle movements during any hour between 12midnight and 6am as stated in Section 9.4.2 of the EIS.
[2] $L_{A10(12hour)}$ is the average L_{A10} traffic noise level between the hours of 6:30am and 6:30pm as stated in Section 9.4.2 of the EIS.
[3] $L_{A10(18hour}$ is the average L_{A10} traffic noise level between the hours of 6am and 12midnight.

Appendix B shows the hourly calculated traffic volumes and traffic volume plots. A summary of the 12-hr volume is shown in Table 1 below.

Table 1: Existing traffic volume – 29th November 2020

Road Segment	12-hour period	
	Existing Total	Existing Heavy Vehicles
George Street	4,208	18 (0.4%)
Mary Street	2,277	16 (0.7%)
Edward Street	5,685	33 (0.6%)

4 Construction traffic volumes

4.1 Construction traffic volumes

The forecast for additional heavy vehicles associated with the Albert Street worksite on Sundays is as follows;

> *Construction traffic is assumed as 10 vph in and 10 vph out, with a daily volume of 120 vph in and 120 vph out (12 hours x 10 vph).*

Based on the above advice, the expected construction 12-hour traffic volumes have been calculated, as shown in Table 2. The calculations include an additional 10 vehicles per hour along George Street, Mary Street and Edward Street over the 12-hour period, i.e. 120 additional vehicles.

Table 2: Traffic volumes summary

Worksite	Road Segment	12-hour period					
		Existing Total	Existing Heavy Vehicles	Additional Vehicles due to Construction	Additional Heavy Vehicles due to Construction	TOTAL	Heavy Vehicles
Albert Street Worksite	George Street	4,208	18 (0.4%)	120	120	4,328	138 (3.2%)
	Mary Street	2,277	16 (0.7%)	120	120	2,397	136 (5.7%)
	Edward Street	5,685	33 (0.6%)	120	120	5,805	153 (2.6%)

5 Traffic noise assessment

5.1 Predicted construction traffic noise

Predicted changes in traffic noise are based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board (ARRB) and as a result it is recognised and accepted by the Department of Transport and Main Roads. The predicted increase in traffic noise on all assessed roads is detailed in Table 3 below.

As stated in the EIS, *the effect of construction related heavy vehicle traffic on the noise emission from roadways has been assessed by calculating how the additional truck traffic would alter the $L_{A10(12hour)}$ level of noise emission from roadways using the CoRTN prediction algorithms. For the purpose of this analysis, the $L_{A10(12hour)}$ is the average L_{A10} traffic noise level between the hours of 6:30 am and 6:30 pm.*

This report adopts the same calculation methodology as the EIS.

Table 3: Predicted overall increase in traffic noise

Worksite	Road Segment	Predicted overall increase in noise levels, dBA
		$L_{A10(12hour)}$ (6:30am to 6:30pm) Sunday
Albert Street	George Street	+1
	Mary Street	+2
	Edward Street	+1

Table 3 shows the predicted increase in road traffic noise levels due to additional traffic on Sundays at the Albert Street worksite is predicted to be approximately 2dBA, when compared with existing November 2020 Sunday traffic volumes. Construction traffic noise is predicted to satisfy the noise goal outlined in Table 7 of the EIS.

As noted in Section 2, the threshold of significance in relation to changes in the noise emission level from roads is 2dBA, therefore the goal is met along these streets.

5.2 Traffic noise mitigation and management

No specific measures are required when construction vehicles are on public roads, provided hourly traffic movements associated with construction are consistent with the assumptions outlined in Section 4.1. However, best practice measures, such as limiting of compression braking will ensure that noise impacts of heavy vehicle traffic on surrounding streets are minimised. The Construction Environmental Management Plan and Noise and Vibration Management Plan detail mitigation and management measures that have been applied to manage noise emissions from construction activities for the Project. Additionally, the generic measures stated in the EIS could be adopted:

- *Best practice management over engine noise emissions by procurement and maintenance of a fleet that conforms to Australian Design Rule 28/01 for engine noise emissions, tested in accordance with the National Road Transport Commission document Stationary Exhaust Noise Test Procedures for In-Service Motor Vehicles.*

- *Adoption of airbag suspension throughout the fleet to minimise noise associated with empty trucks travelling over road irregularities.*

- *Satellite tracking and management of the position of the truck fleet to ensure that waiting queues are appropriate to space constraints, minimising noise from idling trucks.*

6 Conclusion

Renzo Tonin & Associates was engaged by CBGU JV to prepare a noise assessment for the Cross River Rail project-Albert Street worksite for spoil haulage traffic along George Street, Mary Street and Edward Street on Sundays between 9:00am and 6:30pm.

The review focuses on the impacts from construction related road traffic noise and provides a comparison to the noise goals provided in the Cross River Rail EIS-*Construction Noise and Vibration, PART A* (Report No: 20-2524-R2, dated 14th July 2011, Revision 1), Chapter 9.4.

The outcomes are as follows:

- The predicted increase in traffic volumes are expected to comply with the traffic noise goals and are generally consistent with the EIS.
- The assessment has been conducted in accordance with the Transport Noise Management *Code of Practice: Volume 1 (Road Traffic Noise)*, Department of Transport and Main Roads, 2013.
- No specific measures are required when construction vehicles are on public roads, provided hourly traffic movements associated with construction are consistent with the assumptions outlined above.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment Point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of common sounds in our daytime environment:

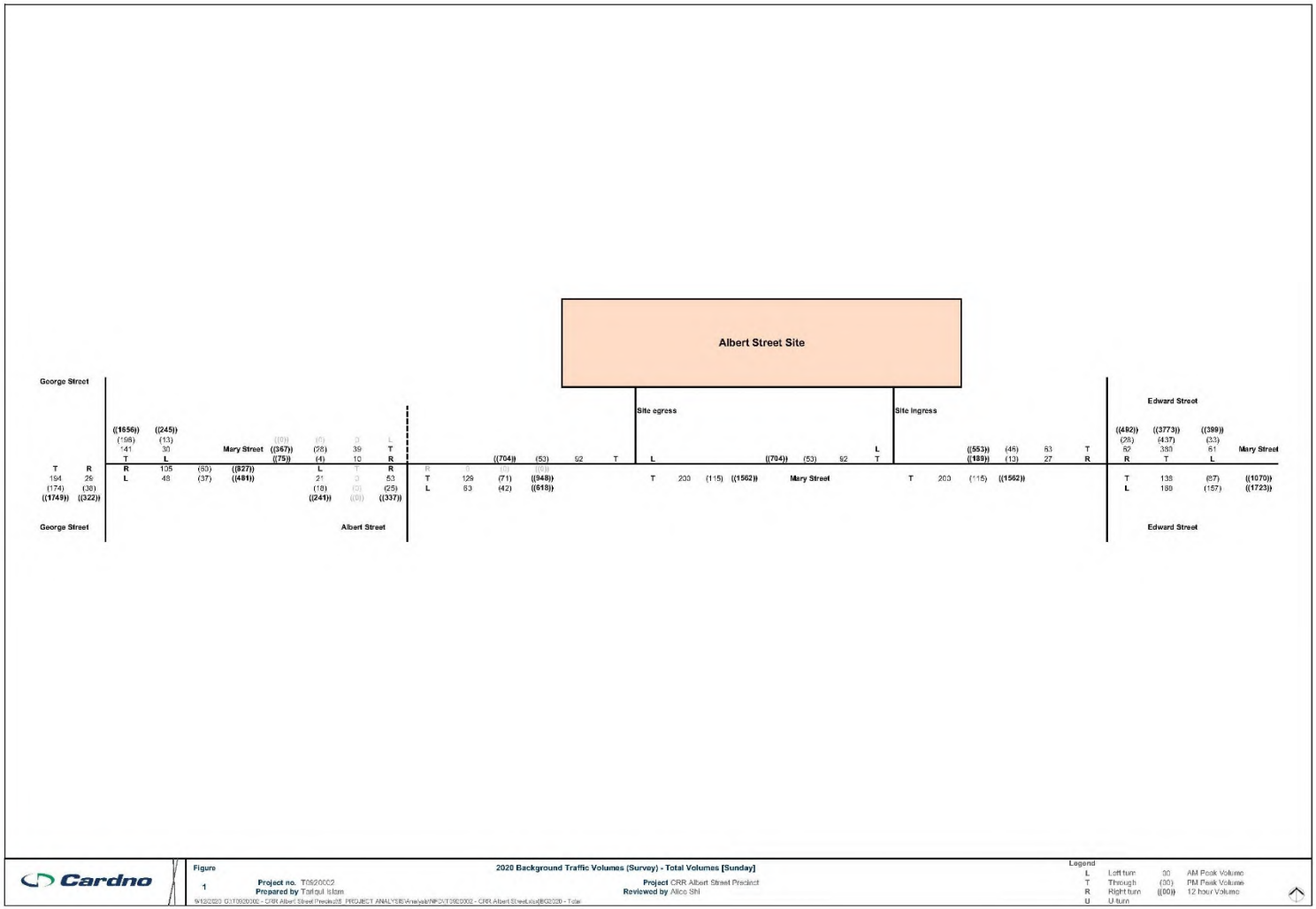
threshold of hearing	0 dB	The faintest sound we can hear
	10 dB	Human breathing
almost silent	20 dB	
	30 dB	Quiet bedroom or in a quiet national park location
generally quiet	40 dB	Library
	50 dB	Typical office space or ambience in the city at night
moderately loud	60 dB	CBD mall at lunch time
	70 dB	The sound of a car passing on the street
loud	80 dB	Loud music played at home
	90 dB	The sound of a truck passing on the street
very loud	100 dB	Indoor rock band concert
	110 dB	Operating a chainsaw or jackhammer
extremely loud	120 dB	Jet plane take-off at 100m away
threshold of pain	130 dB	
	140 dB	Military jet take-off at 25m away

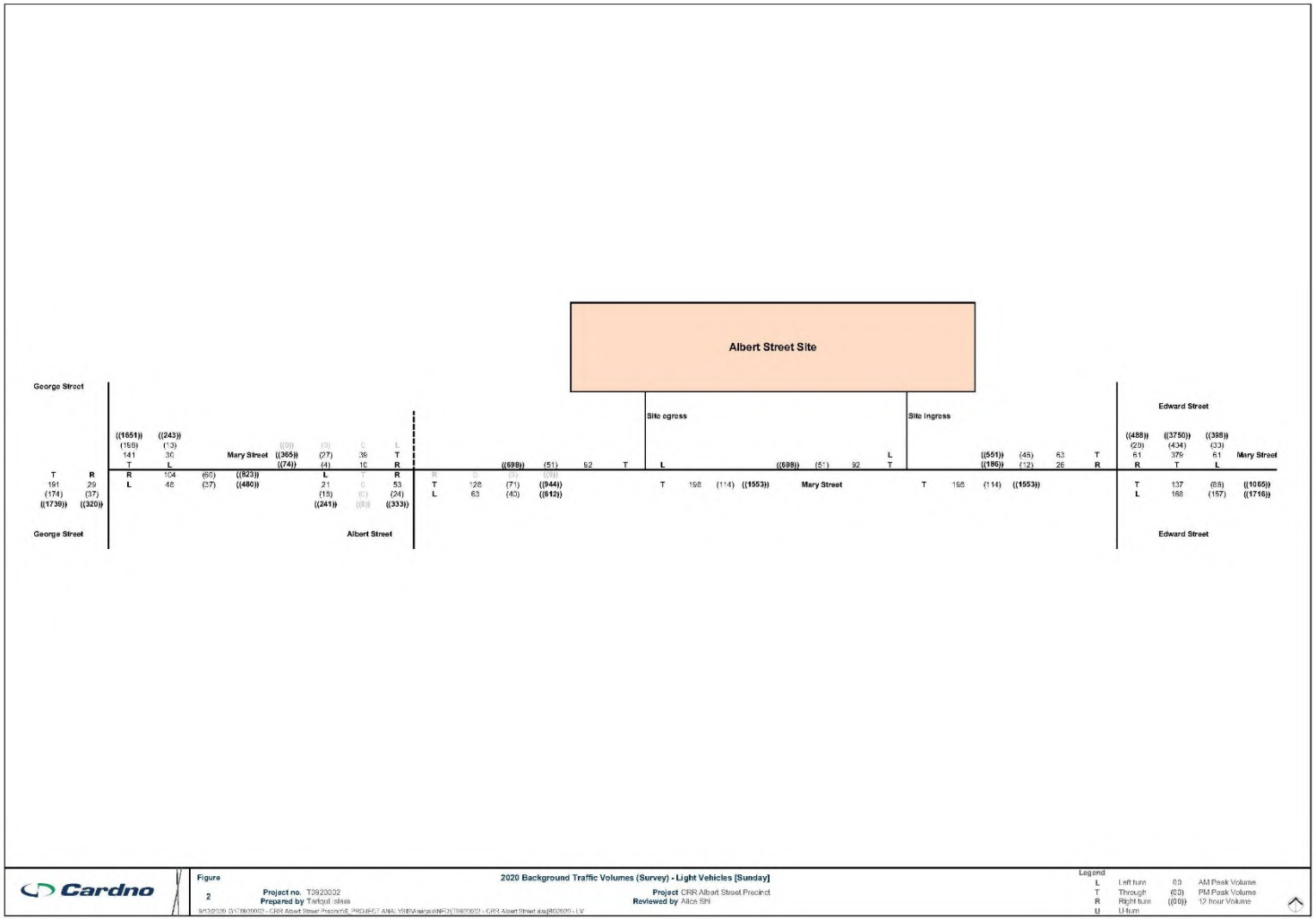
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.

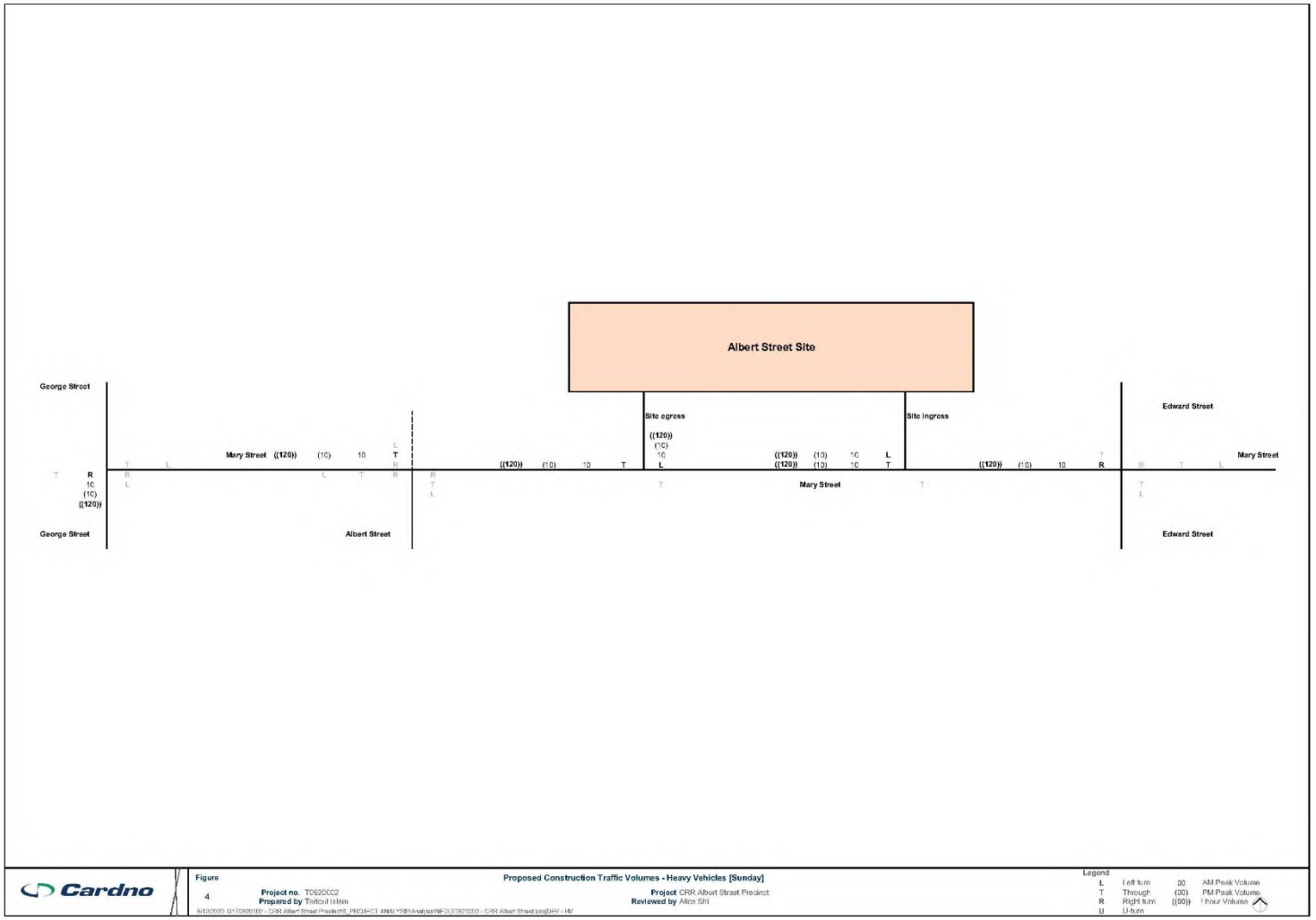
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

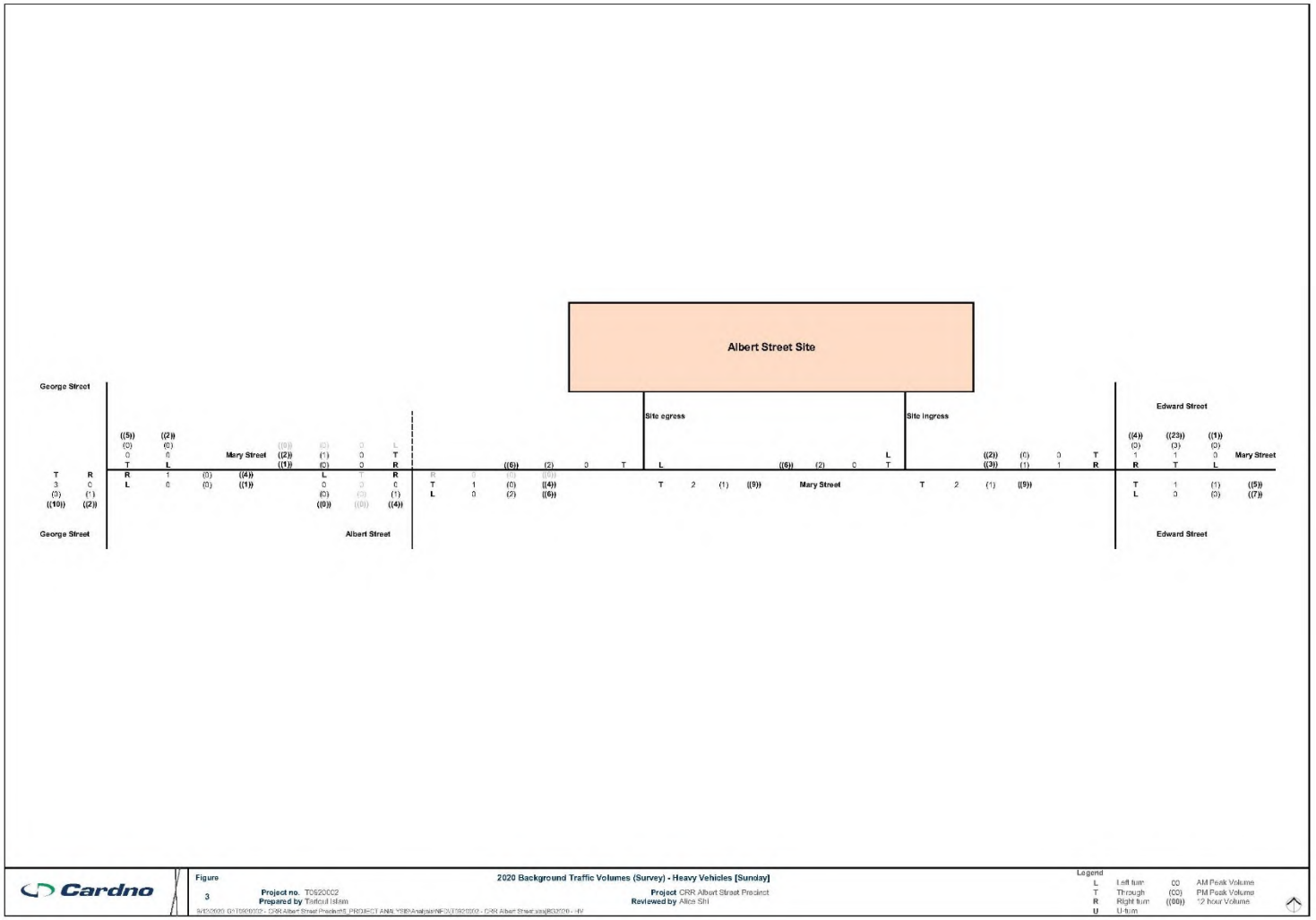
APPENDIX B Traffic Data (29th November 2020)

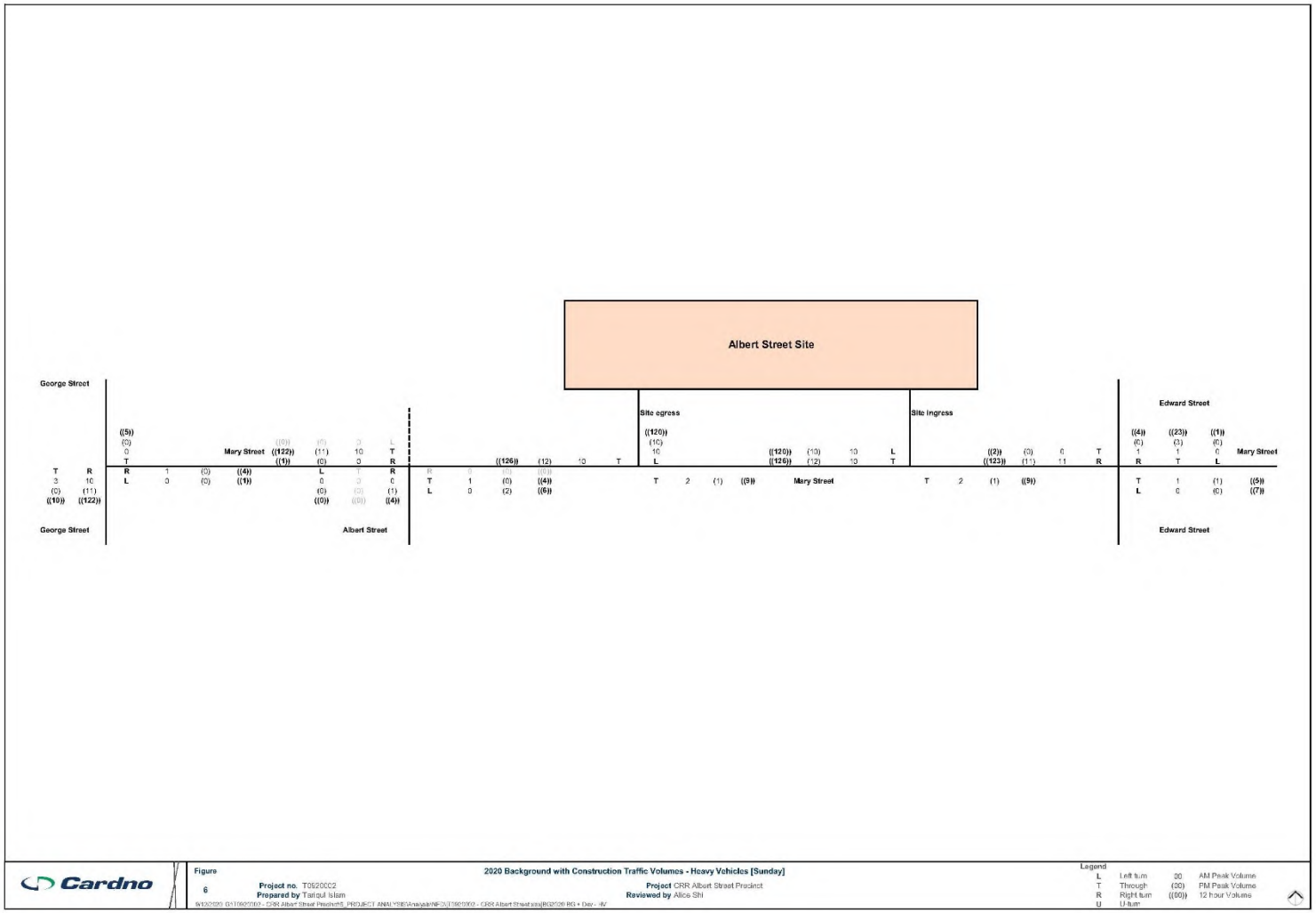
Site	Hourly volumes (Sunday)						
	George Street (South of Mary Street)			Mary Street (East of Albert Street)		Edward Street (South of Mary Street)	
	Hours	Existing	HV	Existing	HV	Existing	HV
Albert Street	06:30-07:30	101	1	64	1	118	1
	07:30-08:30	108	3	75	2	182	6
	08:30-09:30	205	2	143	2	264	4
	09:30-10:30	390	0	212	0	448	2
	10:30-11:30	413	4	275	1	559	3
	11:30-12:30	412	0	276	1	599	5
	12:30-13:30	446	3	253	0	614	1
	13:30-14:30	463	0	199	2	588	2
	14:30-15:30	448	2	197	2	568	4
	15:30-16:30	439	0	201	1	620	1
	16:30-17:30	438	1	177	4	603	3
	17:30-18:30	345	2	205	0	522	1
	Total (12-hour)	4208	18	2272	16	5685	33

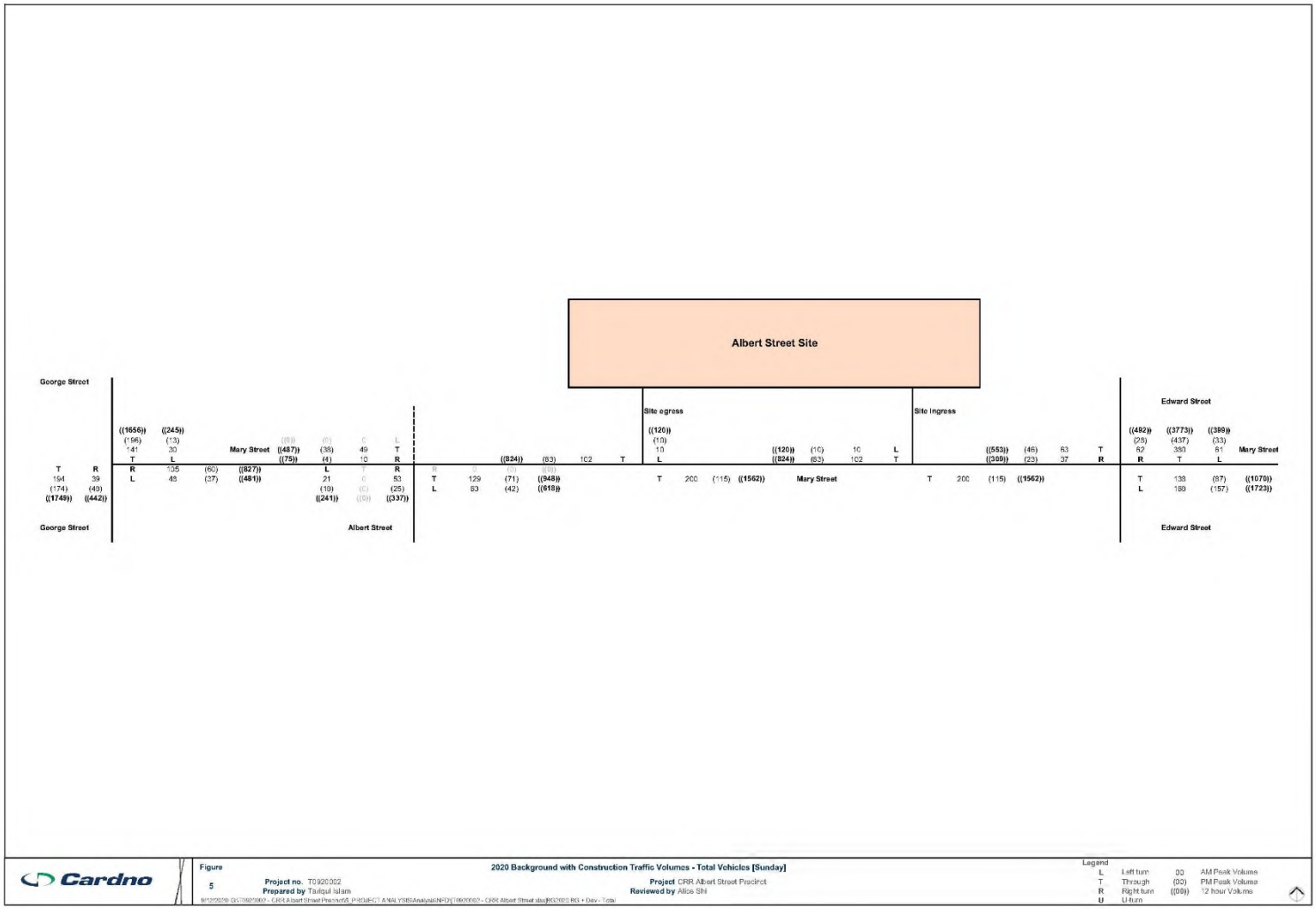

Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Albert Street
George Street
Edward Street
Mary Street
2020 Background Traffic Volumes (Survey) - Total Volumes [Sunday]
Figure 1
Project no. T0620002
Prepared by Tarigul Islam
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
(00) AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Albert Street
George Street
Edward Street
Cardno
Figure
2
Project no. T3920002
Prepared by Tarlquil Silva
2020 Background Traffic Volumes (Survey) - Light Vehicles [Sunday]
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
AM Peak Volume
PM Peak Volume
12 hour Volume


Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Mary Street
George Street
Albert Street
Mary Street
Edward Street
Cardno
Figure
4
Project no. TG520002
Prepared by Tariful Islam
Proposed Construction Traffic Volumes - Heavy Vehicles [Sunday]
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 1 hour Volume


Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Albert Street
George Street
Edward Street
Mary Street
Cardno
Figure
3
Project no. T052000C2
Prepared by Tofiqul Islam
2020 Background Traffic Volumes (Survey) - Heavy Vehicles [Sunday]
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Albert Street
George Street
Edward Street
Mary Street
Cardno
Figure
6
Project no. T0920002
Prepared by Tariqul Islam
2020 Background with Construction Traffic Volumes - Heavy Vehicles [Sunday]
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Albert Street Site
George Street
Site egress
Site ingress
Edward Street
Mary Street
Albert Street
George Street
Edward Street
Mary Street
Cardno
Figure
5
2020 Background with Construction Traffic Volumes - Total Vehicles [Sunday]
Project no. T0920002
Prepared by Tariqul Islam
Project CRR Albert Street Precinct
Reviewed by Alice Shi
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume

Attachment B Technical Report - Traffic Noise (Roma Street Railway Station Worksite)

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CROSS RIVER RAIL - ROMA STREET WORKSITE

Construction Traffic Noise Assessment (Sundays)

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- Cross River Rail EIS-*Construction Noise and Vibration*, PART A (Report No: 20-2524-R2, dated 14th July 2011, Revision 1), Chapter 9.4, Page 11.
- Cross River Rail EIS- *Request for Project Change-Volume 4: Technical Reports* (Dated February 2017), Chapter 12.2.4, Page 190.
- Cross River Rail Project – Tunnel, Stations and Development Package (TSD), *Construction Traffic Management Plan Subplan – Long Term Operations* (Document Number: *CRRTSD-TM-CTMP-CBGU-050005*, Rev: 0, dated 21st September 2020).
- Cross River Rail Project – *Coordinator-General's change report - no 8*, dated November 2020.
- CRR Roma Street Precinct - *2020 Background Traffic Volumes (Survey) - Total Volumes [Sunday]*, Cardno, Project No: T0920001, dated 9th December 2020.
- *Hourly traffic volume summary*, provided by CBGU JV, as shown in Appendix B.

Condition 10 *Hours of Work* of the *Coordinator-General's change report - no 8*, states the following for the Roma Street worksite:

Worksite	Surface works- standard hours	Extended hours work (includes spoil haulage, materials/equipment delivery to support extended work hours activities, and delivery of "in time" materials such as concrete, hazardous materials, large components and machinery)		Managed Work	Spoil haulage and materials/ equipment delivery (excluding concrete deliveries)
Roma Street Railway station	Monday to Saturday: 6:30am-6:30pm	Project Works that require continuous construction support, such as continuous concrete pours, pipe-jacking or other forms of ground support necessary to avoid a failure or construction incident	Monday to Friday: 6:30pm - 10:00pm	24 hours, 7 days	Monday to Friday: 6:30am – 7:30am, 9:00am – 4:30pm 6:30pm – 10:00pm Saturday: 6:30am – 6:30pm
		For approved rail possessions	Up to 24 hours per day, for the duration of the possession		
		Project Works in a road or busway that cannot be undertaken reasonably nor practicably during standard hours due to potential disruptions to peak traffic flows or bus operations	At any time permitted by the road or busway authority, or otherwise, Monday to Friday 6:30pm – 10:00pm		
		Project Works involving the transport, assembly or decommissioning of	During the hours stated in the road access permit or otherwise		

Cross River Rail project
Coordinator-General's change report – no. 8 46

It is noted that there are no specific Imposed Conditions related to construction traffic noise. Imposed Condition 14 (e) states:

> *Heavy construction vehicles use only designated routes for spoil haulage and deliveries of major plant, equipment and materials, in accordance with the Construction Environmental Management Plan. The designated haulage routes for each worksite must follow major or arterial roads to the extent practicable and be developed in consultation with the Department of Transport and Main Roads and the Brisbane City Council in preparation of the Construction Environmental Management Plan.*

As can be seen in Condition 10 *Hours of Work* for the Roma Street worksite, *spoil haulage and material equipment delivery (excluding concrete deliveries)* are permitted on:

Monday to Friday:

- *6:30am to 7:30am,*
- *9:00am to 4:30pm,*
- *6:30pm to 10:00pm*

Saturday:

- *6:30am to 6:30pm*

The proposed change relates to amending Condition 10 *Hours of Work* to allow heavy vehicle movements along Roma Street on Sundays between 9:00am to 6:30pm. Under the proposed change heavy vehicles would:

- Access the Roma Street worksite via Roma Street; and
- Exit the Roma Street worksite via Roma Street.

The proposed construction traffic routes are shown below in Figure 1.

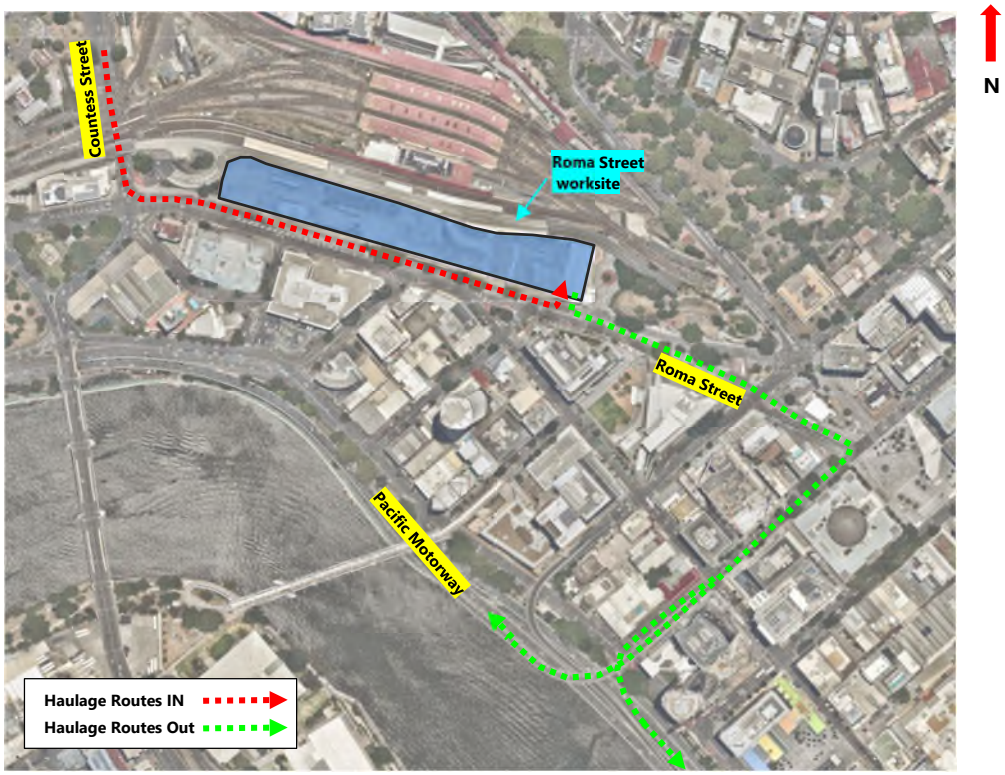


Figure 1: Proposed heavy vehicle access route for Sundays

Predicted changes in traffic noise are based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board (ARRB) and as a result it is recognised and accepted by the Department of Transport and Main Roads.

Therefore, the construction related road traffic noise is assessed in accordance with the Transport Noise Management *Code of Practice: Volume 1 (Road Traffic Noise)*, Department of Transport and Main Roads, 2013.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. Appendix A contains a glossary of acoustic terms used in this report.

2 Traffic noise goal

Section 2.2.6 *Construction Road Traffic Noise* of the CRR 2011 EIS (Page 11) states:

> *Where the construction phase of CRR is adding heavy vehicles to the existing road network, it is appropriate to consider the incremental change in noise levels due to the changes in traffic volume.*
>
> *A change of up to 3 dBA in the level of a dynamic noise, such as passing vehicles is difficult for most people to detect, whilst a 3 dBA to 5 dBA change corresponds to a small but noticeable change in loudness. A 10 dBA change corresponds to an approximate doubling or halving in loudness.*
>
> *It is acknowledged that people are likely to notice increased traffic based on visual clues and perception of vehicle pass-by frequency before they will objectively notice an increase in the average noise level.*
>
> *For assessment purposes it is common to set the threshold of significance in relation to changes in the noise emission level from roads at 2 dBA. For the impact assessment of construction traffic noise the noise goal in Table 7 is recommended.*

Table 7 Construction Road Traffic Noise Goal

Type of Roads	***Goal***
Existing Roads	*2dBA change in existing $L_{A10\ (1hour)}$ [1], $L_{A10(12hour)}$ [2] and $L_{10(18hour)}$ [3]*

The applicable parameter for the traffic noise assessment of this report would be the $L_{10\ (12hour)}$, which represents the traffic noise levels between the hours of 6:30am and 6:30pm.

Note that the $L_{A10\ (1hour)}$ noise parameter relates to noise levels between 12midnight and 6am. The $L_{10\ (18hour)}$ relates to noise levels between 6am and 12midnight. The $L_{A10\ (1hour)}$ and $L_{10\ (18hour)}$ are not applicable for the time period of 6:30am and 6:30pm, assessed in this report.

3 Existing traffic volumes

The traffic volumes were based on the following intersection counts conducted over a 12-hour period provided by Cardno and CBGU JV (refer to Appendix B of this report):

- Roma Street/Parklands Access intersection on Sunday 29th November 2020; and
- Roma Street/Herschel Street intersection on Sunday 29th November 2020.

[1] $L_{A10(1hour)}$ for the peak number of heavy vehicle movements during any hour between 12midnight and 6am as stated in Section 9.4.2 of the EIS.
[2] $L_{A10(12hour)}$ is the average L_{A10} traffic noise level between the hours of 6:30am and 6:30pm as stated in Section 9.4.2 of the EIS.
[3] $L_{A10(18hour}$ is the average L_{A10} traffic noise level between the hours of 6am and 12midnight.

Appendix B shows the hourly calculated traffic volumes and traffic volume plots. A summary of the 12-hr volume is shown in Table 1 below.

Table 1: Existing traffic volume – 29th November 2020

Road Segment	12-hour period	
	Existing Total	Existing Heavy Vehicles
Roma Street	4,133	162 (3.9%)

4 Construction traffic volumes

4.1 Construction traffic volumes

The forecast for additional heavy vehicles associated with the Roma Street worksite on Sundays is as follows;

> *Construction traffic is assumed as 10 vph in and 10 vph out, with a daily volume of 120 vph in and 120 vph out (12 hours x 10 vph).*

Based on the above advice, the expected construction 12-hour traffic volumes have been calculated, as shown in Table 2. The calculations include an additional 10 vehicles per hour along Roma Street over the 12-hour period, i.e. 120 additional vehicles.

Table 2: Traffic volumes summary

Worksite	Road Segment	12-hour day period					
		Existing Total	Existing Heavy Vehicles	Additional Vehicles due to Construction	Additional Heavy Vehicles due to Construction	TOTAL	Heavy Vehicles
Roma Street	Roma Street	4,133	162 (3.9%)	120	120	4253	282 (6.6%)

5 Traffic noise assessment

5.1 Predicted construction traffic noise

Predicted changes in traffic noise are based on a method developed by the United Kingdom Department of Environment entitled "Calculation of Road Traffic Noise (1988)" known as the CoRTN (1988) method. This method has been adapted to Australian conditions and extensively tested by the Australian Road Research Board (ARRB) and as a result it is recognised and accepted by the Department of Transport and Main Roads. The predicted increase in traffic noise is detailed in Table 3 below.

As stated in the EIS, *the effect of construction related heavy vehicle traffic on the noise emission from roadways has been assessed by calculating how the additional truck traffic would alter the* $L_{A10(12hour)}$ *level of*

noise emission from roadways using the CoRTN prediction algorithms. For the purpose of this analysis, the $L_{A10(12hour)}$ is the average L_{A10} traffic noise level between the hours of 6:30 am and 6:30 pm.

This report adopts the same calculation methodology as the EIS.

Table 3: Predicted overall increase in traffic noise

Worksite	Road Segment	Predicted overall increase in noise levels, dBA
		$L_{A10(12hour)}$ (6:30am to 6:30pm) Sunday
Roma Street	Roma Street	+1

Table 3 shows the predicted increase in road traffic noise levels due to additional traffic on Sundays at the Roma Street worksite is predicted to be less than 2dBA, when compared with existing November 2020 Sunday traffic volumes. Construction traffic noise is predicted to satisfy the noise goal outlined in Table 7 of the EIS.

As noted in Section 2, the threshold of significance in relation to changes in the noise emission level from roads is 2dBA, therefore the goal is met along Roma Street.

5.2 Traffic noise mitigation and management

No specific measures are required when construction vehicles are on public roads, provided hourly traffic movements associated with construction are consistent with the assumptions outlined in Section 4.1. However, best practice measures, such as limiting of compression braking will ensure that noise impacts of heavy vehicle traffic on surrounding streets are minimised. The Construction Environmental Management Plan and Noise and Vibration Management Plan detail mitigation and management measures that have been applied to manage noise emissions from construction activities for the Project. Additionally, the generic measures stated in the EIS could be adopted:

- *Best practice management over engine noise emissions by procurement and maintenance of a fleet that conforms to Australian Design Rule 28/01 for engine noise emissions, tested in accordance with the National Road Transport Commission document Stationary Exhaust Noise Test Procedures for In-Service Motor Vehicles.*

- *Adoption of airbag suspension throughout the fleet to minimise noise associated with empty trucks travelling over road irregularities.*

- *Satellite tracking and management of the position of the truck fleet to ensure that waiting queues are appropriate to space constraints, minimising noise from idling trucks.*

6 Conclusion

Renzo Tonin & Associates was engaged by CBGU JV to prepare a noise assessment for the Cross River Rail project-Roma Street worksite for spoil haulage traffic along Roma Street on Sundays between 9:00am and 6:30pm.

The review focuses on the impacts from construction related road traffic noise and provides a comparison to the noise goals provided in the Cross River Rail EIS-*Construction Noise and Vibration, PART A* (Report No: 20-2524-R2, dated 14th July 2011, Revision 1), Chapter 9.4.

The outcomes are as follows:

- The predicted increase in traffic volumes are expected to comply with the traffic noise goals and are generally consistent with the EIS.
- The assessment has been conducted in accordance with the Transport Noise Management *Code of Practice: Volume 1 (Road Traffic Noise)*, Department of Transport and Main Roads, 2013.
- No specific measures are required when construction vehicles are on public roads, provided hourly traffic movements associated with construction are consistent with the assumptions outlined above.

APPENDIX A Glossary of terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment period	The period in a day over which assessments are made.
Assessment Point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of common sounds in our daytime environment:

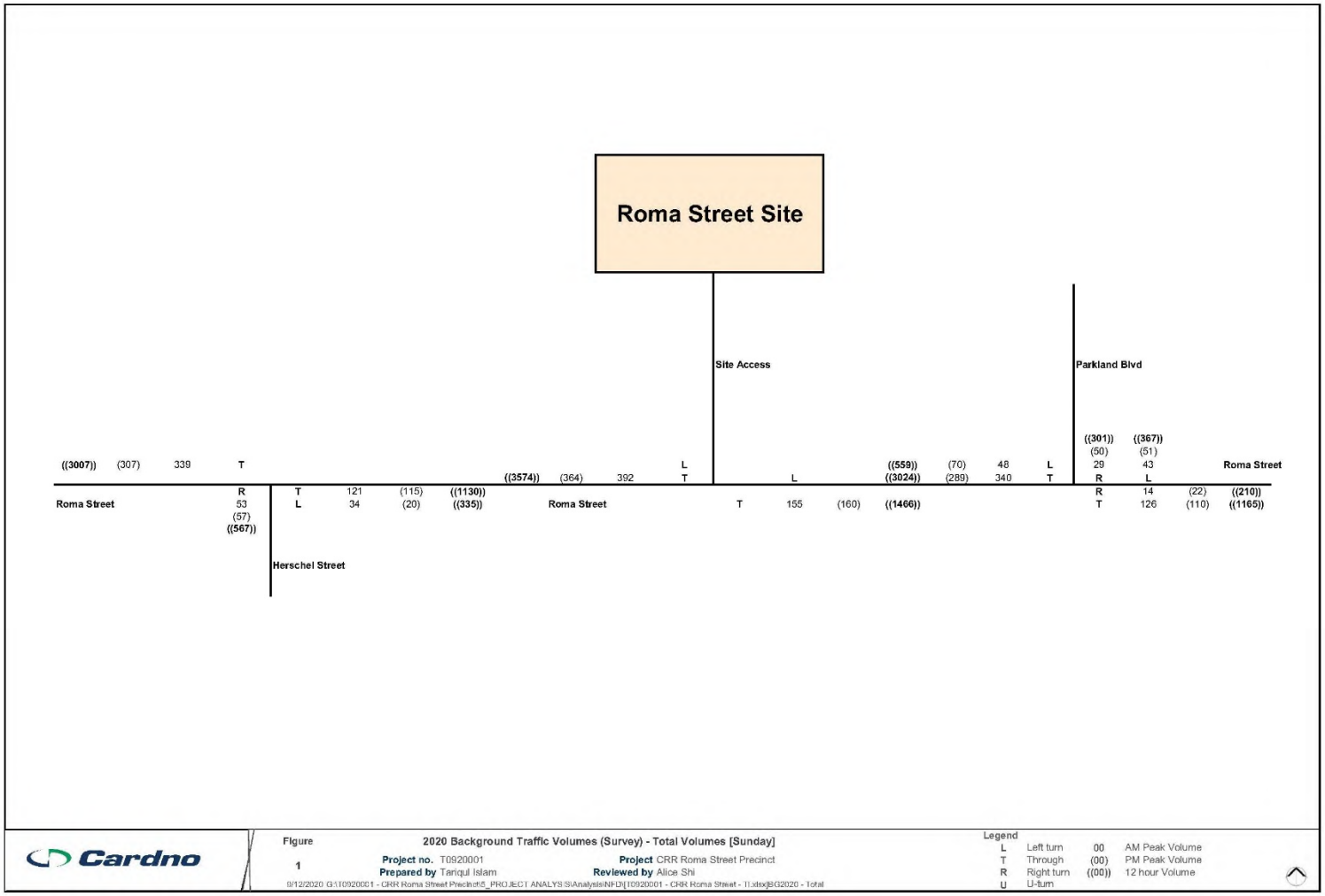
threshold of hearing	0 dB	The faintest sound we can hear
	10 dB	Human breathing
almost silent	20 dB	
	30 dB	Quiet bedroom or in a quiet national park location
generally quiet	40 dB	Library
	50 dB	Typical office space or ambience in the city at night
moderately loud	60 dB	CBD mall at lunch time
	70 dB	The sound of a car passing on the street
loud	80 dB	Loud music played at home
	90 dB	The sound of a truck passing on the street
very loud	100 dB	Indoor rock band concert
	110 dB	Operating a chainsaw or jackhammer
extremely loud	120 dB	Jet plane take-off at 100m away
threshold of pain	130 dB	
	140 dB	Military jet take-off at 25m away

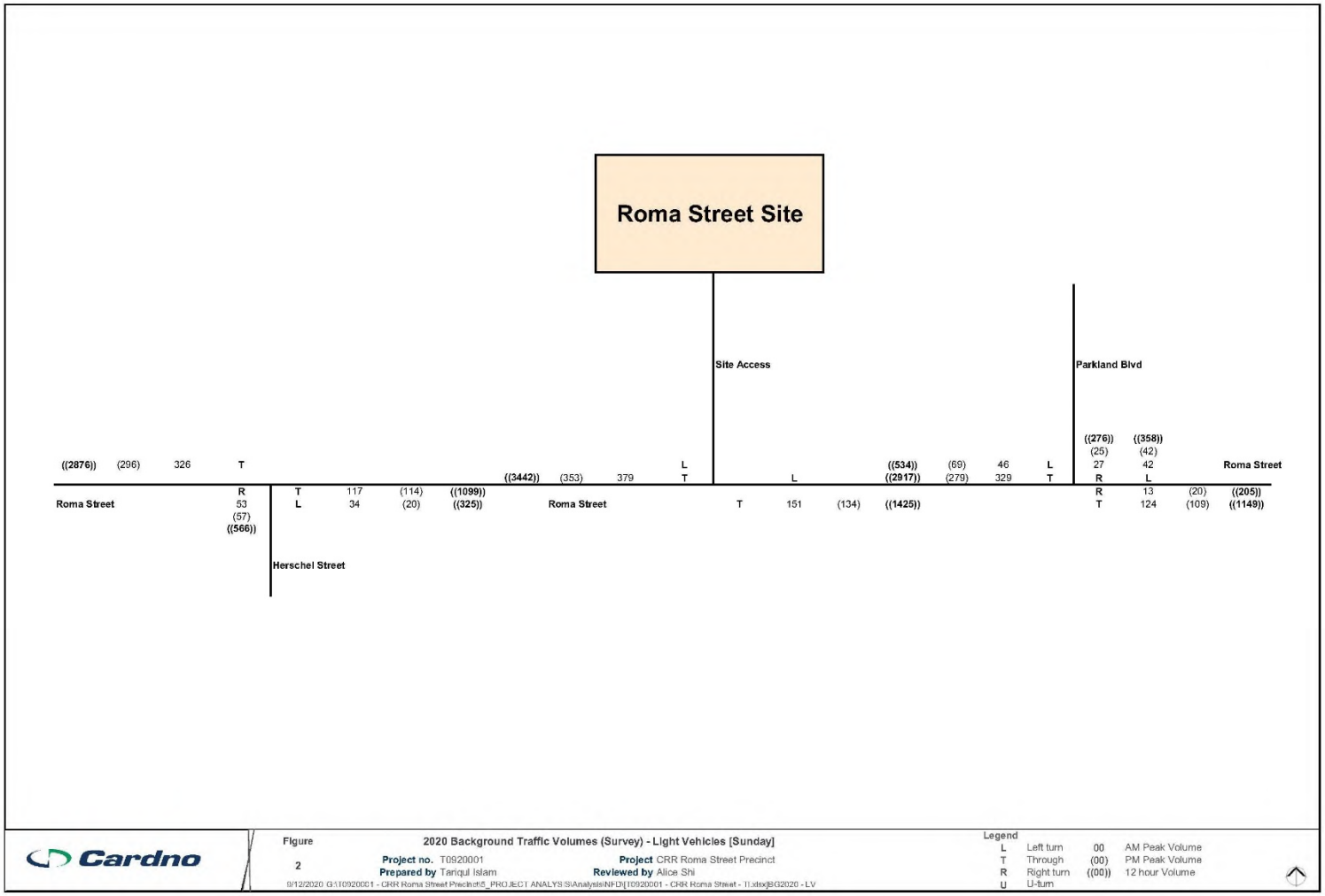
dB(A)	A-weighted decibels. The A- weighting noise filter simulates the response of the human ear at relatively low levels, where the ear is not as effective in hearing low frequency sounds as it is in hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
dB(C)	C-weighted decibels. The C-weighting noise filter simulates the response of the human ear at relatively high levels, where the human ear is nearly equally effective at hearing from mid-low frequency (63Hz) to mid-high frequency (4kHz), but is less effective outside these frequencies.

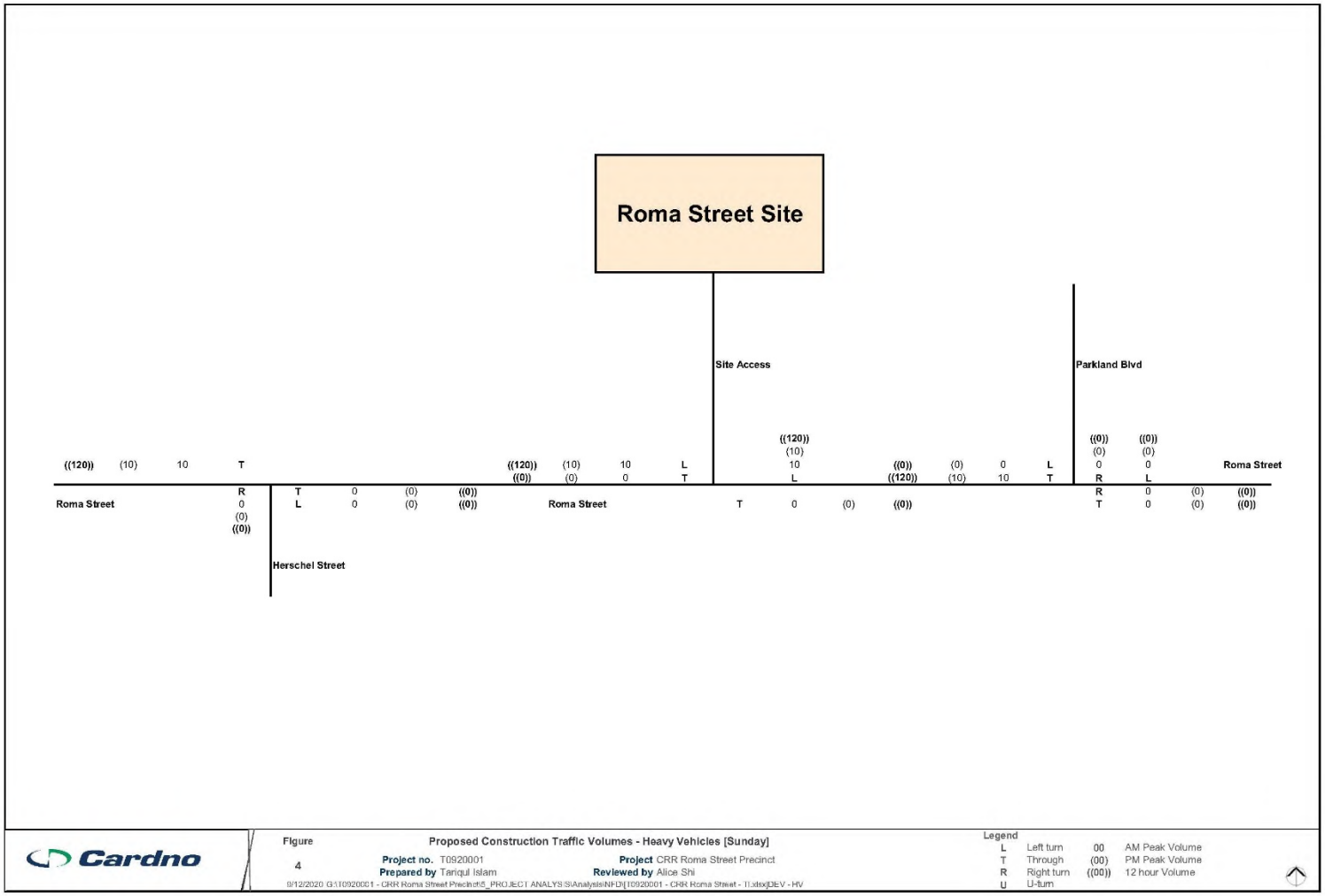
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.
L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound level meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound pressure level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound power level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.

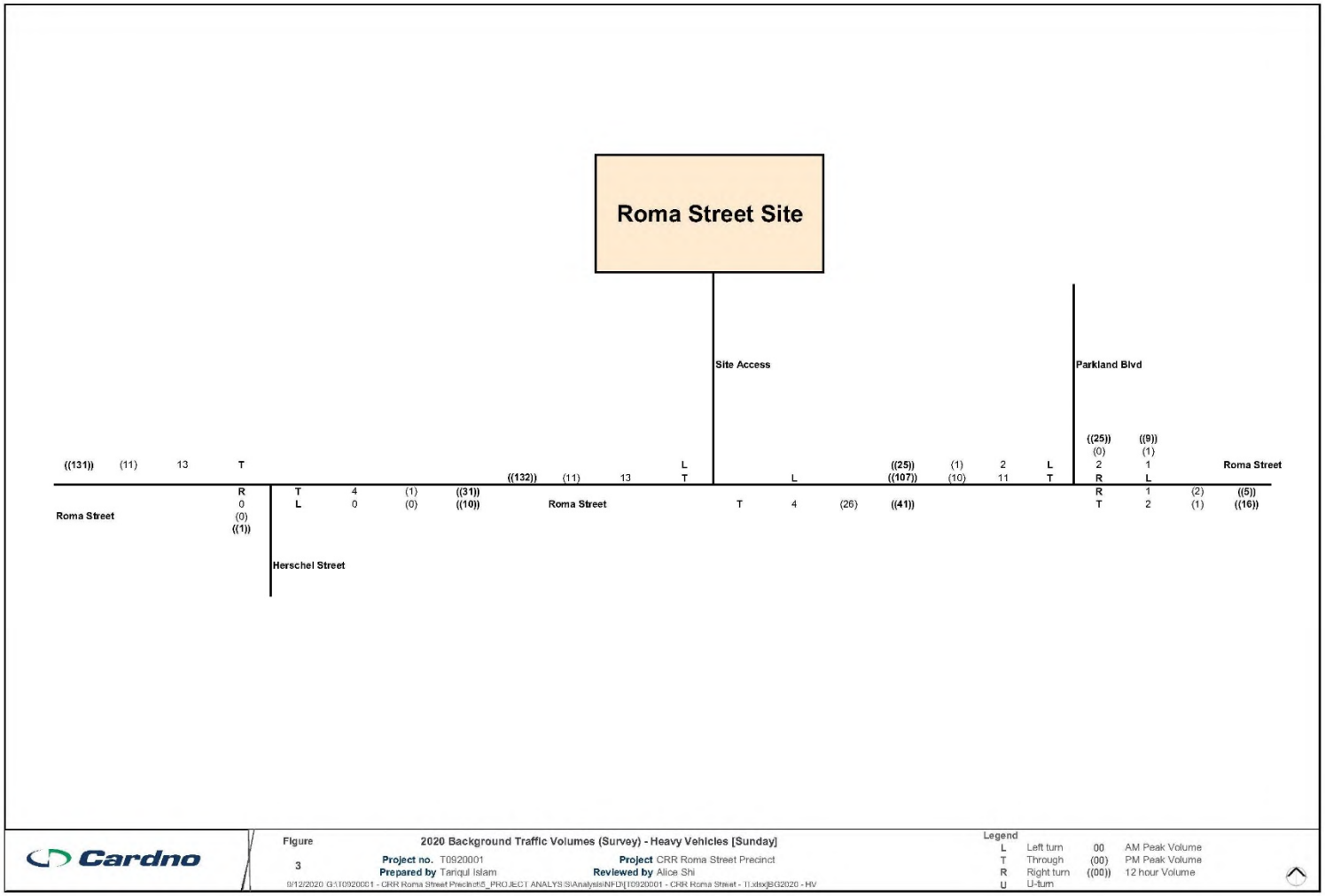
APPENDIX B Traffic Data (29th November 2020)

Site	Hourly volumes (Sunday)		
	Roma Street (East of Herschel Street)		
	Hours	Existing	HV
Roma Street	06:30-07:30	111	8
	07:30-08:30	177	8
	08:30-09:30	268	13
	09:30-10:30	369	12
	10:30-11:30	460	17
	11:30-12:30	428	17
	12:30-13:30	434	19
	13:30-14:30	395	24
	14:30-15:30	378	15
	15:30-16:30	404	10
	16:30-17:30	366	9
	17:30-18:30	343	10
	Total (12-hour)	4133	162


Roma Street Site
Site Access
Parkland Blvd
Herschel Street
Roma Street
((3007)) (307) 339 T
R 53 (57) ((567))
T 121 (115) ((1130))
L 34 (20) ((335))
((3574)) (364) 392 L T
T 155 (160) ((1466))
((559)) (70) 48 L
((3024)) (289) 340 T
((301)) (50)
29
((367)) (51)
43
R 14 (22) ((210))
T 126 (110) ((1165))
Roma Street
Roma Street
Roma Street
Figure
1
2020 Background Traffic Volumes (Survey) - Total Volumes [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\Analysis\NPD\[T0920001 - CRR Roma Street - TI.xlsx]BG2020 - Total
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Roma Street Site
Site Access
Parkland Blvd
Herschel Street
Roma Street
Roma Street
Roma Street
((2876)) (296) 326 T
R 53 (57) ((566))
T 117 (114) ((1099))
L 34 (20) ((325))
((3442)) (353) 379 L T
T 151 (134) ((1425))
L ((534)) (69) 46 L
((2917)) (279) 329 T
((276)) ((358))
(25) (42)
R 27 L 42
R 13 (20) ((205))
T 124 (109) ((1149))
Figure 2
2020 Background Traffic Volumes (Survey) - Light Vehicles [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\Analysis\NPDI\T0920001 - CRR Roma Street - TI.xlsx]BG2020 - LV
Legend
L Left turn 00 AM Peak Volume
T Through (00) PM Peak Volume
R Right turn ((00)) 12 hour Volume
U U-turn


Roma Street Site
Site Access
Parkland Blvd
Roma Street
Herschel Street
Roma Street
Roma Street
Cardno
Figure
4
Proposed Construction Traffic Volumes - Heavy Vehicles [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\S\Analysis\NPD\[T0920001 - CRR Roma Street - TI.xlsx]DEV - HV
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Roma Street Site
Site Access
Parkland Blvd
Roma Street
Roma Street
Herschel Street
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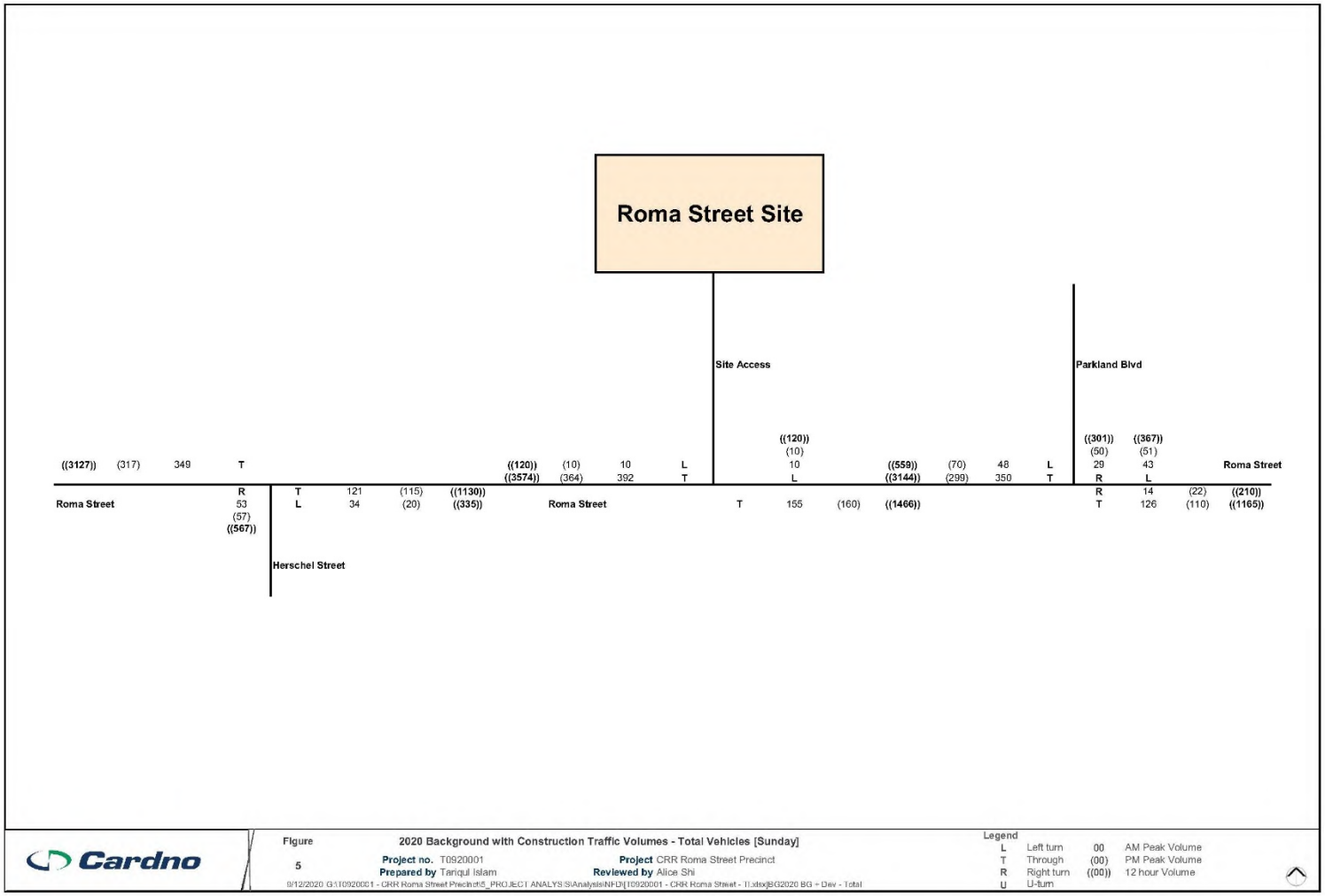
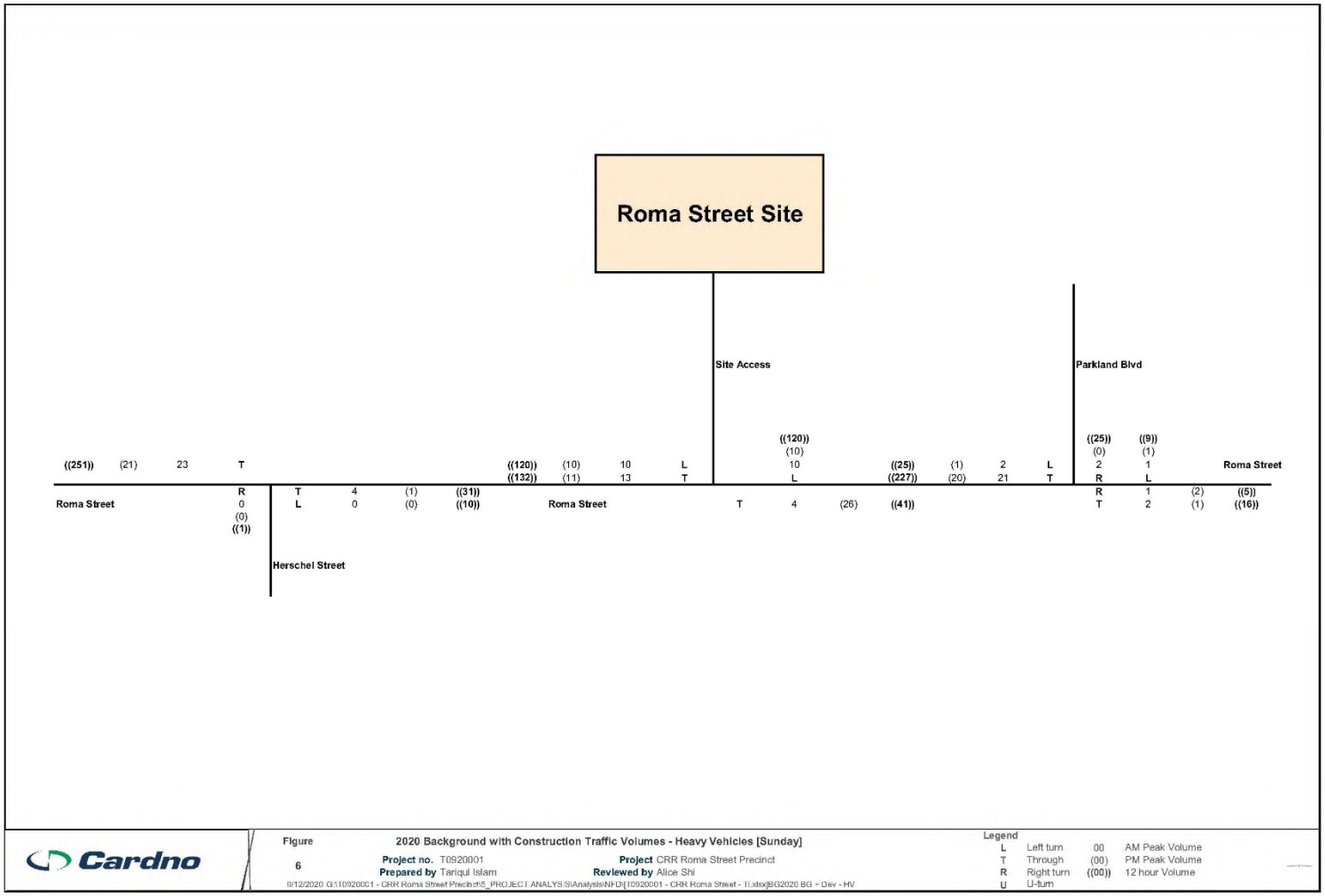
R 0 (0) ((1))
T L 4 0 (1) (0) ((31)) ((10))
((132)) (11) 13 L T
L
((25)) ((107)) (1) (10) 2 11 L T
((25)) (0) ((9)) (1)
R 2
T 1 2
L 1 (2) (1)
Roma Street ((5)) ((16))
T 4 (26) ((41))
Cardno
Figure 3
2020 Background Traffic Volumes (Survey) - Heavy Vehicles [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\Analysis\NPD\[T0920001 - CRR Roma Street - TI.xlsx]BG2020 - HV
Legend
L Left turn
T Through
R Right turn
U U-turn
00 AM Peak Volume
(00) PM Peak Volume
((00)) 12 hour Volume


Roma Street Site
Site Access
Parkland Blvd
Herschel Street
Roma Street
Roma Street
((3127)) (317) 349 T
R 53 (57) ((567))
T 121 (115) ((1130))
L 34 (20) ((335))
((120)) ((3574)) (10) (364) 10 392 L T
((120)) (10) 10 L
T 155 (160) ((1466))
((559)) ((3144)) (70) (299) 48 350 L T
((301)) (50) 29 R
((367)) (51) 43 L
R 14 (22) ((210))
T 126 (110) ((1165))
Roma Street
Figure 5
2020 Background with Construction Traffic Volumes - Total Vehicles [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\S\Analysis\NPD\[T0920001 - CRR Roma Street - TI.xlsx]BG2020 BG + Dev - Total
Legend
L Left turn 00 AM Peak Volume
T Through (00) PM Peak Volume
R Right turn ((00)) 12 hour Volume
U U-turn


Roma Street Site
Site Access
Parkland Blvd
Roma Street
Roma Street
Herschel Street
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R 0 (0) ((1))
T L 4 0 (1) (0) ((31)) ((10))
((120)) (132) (10) (11) 10 13 L T
((120)) (10) 10 L
((25)) (227) (1) (20) 2 21 L T
((25)) (0) 2 R
((9)) (1) 1 L
R 1 T 2 (2) (1) ((5)) ((16))
T 4 (26) ((41))
Figure 6
2020 Background with Construction Traffic Volumes - Heavy Vehicles [Sunday]
Project no. T0920001
Project CRR Roma Street Precinct
Prepared by Tariqul Islam
Reviewed by Alice Shi
9/12/2020 G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYS\Analysis\NPDI\T0920001 - CRR Roma Street - TI.idx|BG2020 BG + Dev - HV
Legend
L Left turn 00 AM Peak Volume
T Through (00) PM Peak Volume
R Right turn ((00)) 12 hour Volume
U U-turn

Attachment C Technical Report - Traffic and Transport (Albert Street Railway Station Worksite)

Traffic Impact Assessment

Cross River Rail Albert Street Precinct

T0920002

Prepared for

CBGU Joint Venture

20 January 2021

Cardno

Table of Contents

Appendices

Tables

Figures

1 Introduction

Cardno has been commissioned by CBGU Joint Venture (the client) to undertake a Traffic Impact Assessment (TIA) in relation to the proposed construction activities for the Cross River Rail project.

The purpose of this assessment is limited to potential traffic impacts associated with the proposal to include haulage on Sundays and considers road design and traffic operations.

1.1 Context

As part of the construction of the future Albert Street Station of the Cross River Rail project, construction is currently underway within the Brisbane CBD.

The assessment for the Albert Street precinct considers Sunday haulage and deliveries between 9:00am and 6:30pm. This assessment is based on 10 heavy vehicles per hour (total movements per hour). The assessment considers impacts on key affected intersections along Mary Street, at George Street, Albert Street and Edward Street.

1.2 References

The following documents have been referred to in preparing this assessment:

- Brisbane City Council City Plan 2014 Interactive Mapping (2020)
- Brisbane City Council CityLink Cycleway Trial website (2020)
- Department of Transport and Main Road Guidelines for Assessment of Road Impacts of Development
- Department of Transport and Main Road Guide to Traffic Impact Assessments
- Queensland Government Queensland Globe (2020)

1.3 Limitations

Cardno has completed this traffic report in accordance with the usual care and thoroughness of the consulting profession. The assessment is based on accepted traffic engineering practises and standards applicable at the time of undertaking the assessment. The assessment was completed in December 2020, and is based upon the conditions encountered and project information available at the time. Cardno disclaims responsibility for any changes to project planning or road conditions that may occur after completion of the assessment.

2 Existing Situation

2.1 Site Location

The location of the site and the surrounding road network is illustrated on Figure 2-1. Of the three lots comprising the Albert Street precinct, this assessment relates to access movements to and from Lot 2, located at the northern corner of Albert Street and Mary Street.

Figure 2-1 Site Location

Source: Nearmap

2.2 Existing Road Network

2.2.1 Road Hierarchy

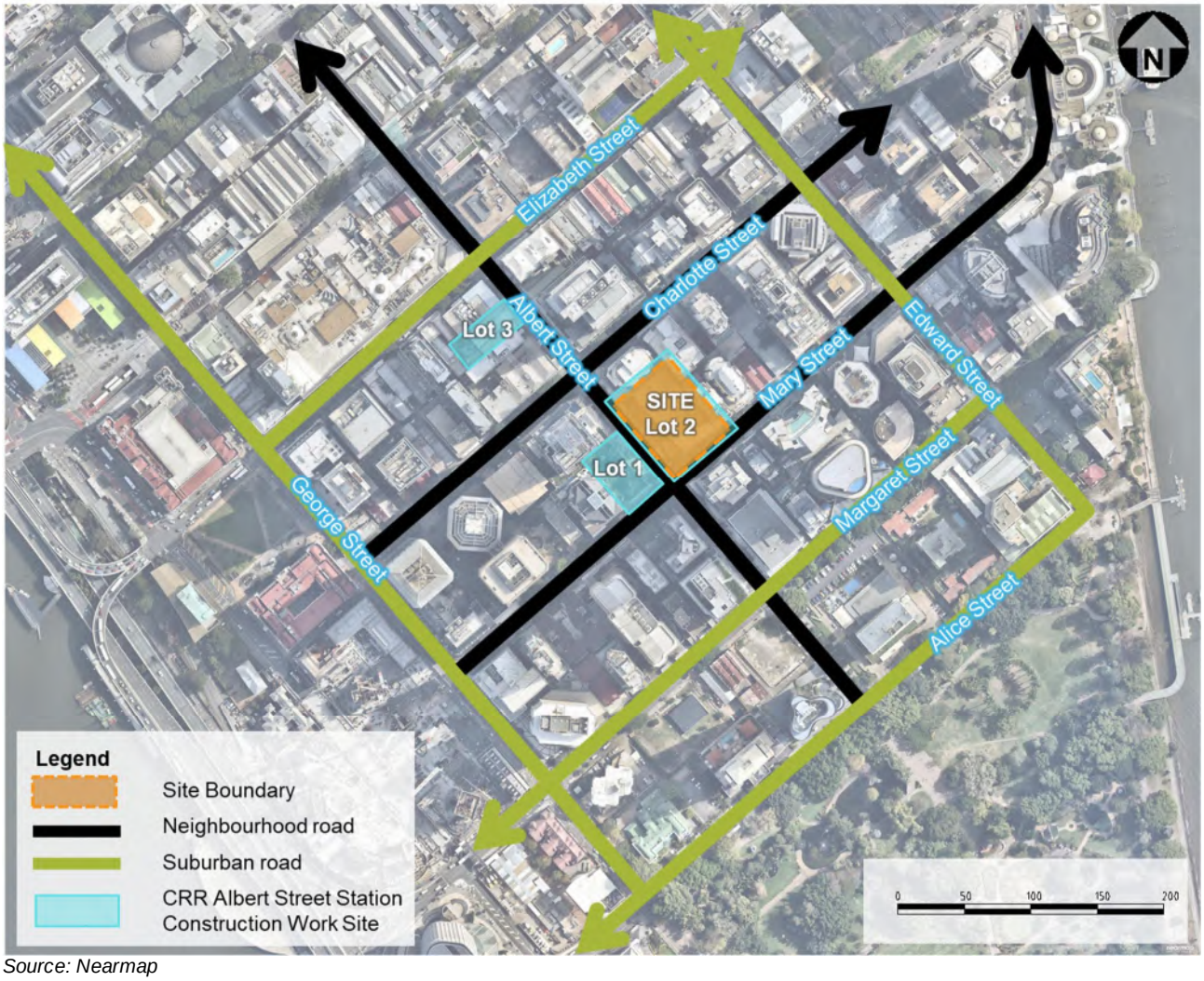
In accordance with Brisbane City Council's road hierarchy mapping, the road classification for each of the study roads is outlined in Table 2-1.

Table 2-1 Road Hierarchy

Road Names	Road Hierarchy
Mary Street	Neighbourhood road
George Street	Suburban road
Albert Street	Neighbourhood road
Edward Street	Suburban road

Figure 2-2 illustrates the road hierarchy in context with the site.

Figure 2-2 Road Hierarchy



Source: Nearmap

2.2.2 Key Intersections

Three key intersections have been included in this assessment, which have been selected based on being impacted the greatest by the proposed haulage vehicle trips. Figure 2-3 illustrates the locations of these intersections.

The George Street and Edward Street intersections with Mary Street have been assessed as construction vehicles will be undertaking turning movements, presenting a greater impact on operations. The Mary Street / Albert Street intersection has been assessed due to its close proximity to the site access point.

Figure 2-3 Key Intersections

Source: Nearmap

2.3 Planned Road/Intersection Upgrades

Review of the Brisbane City Council planning scheme identifies that there are no planned road upgrades on the roads within the study area.

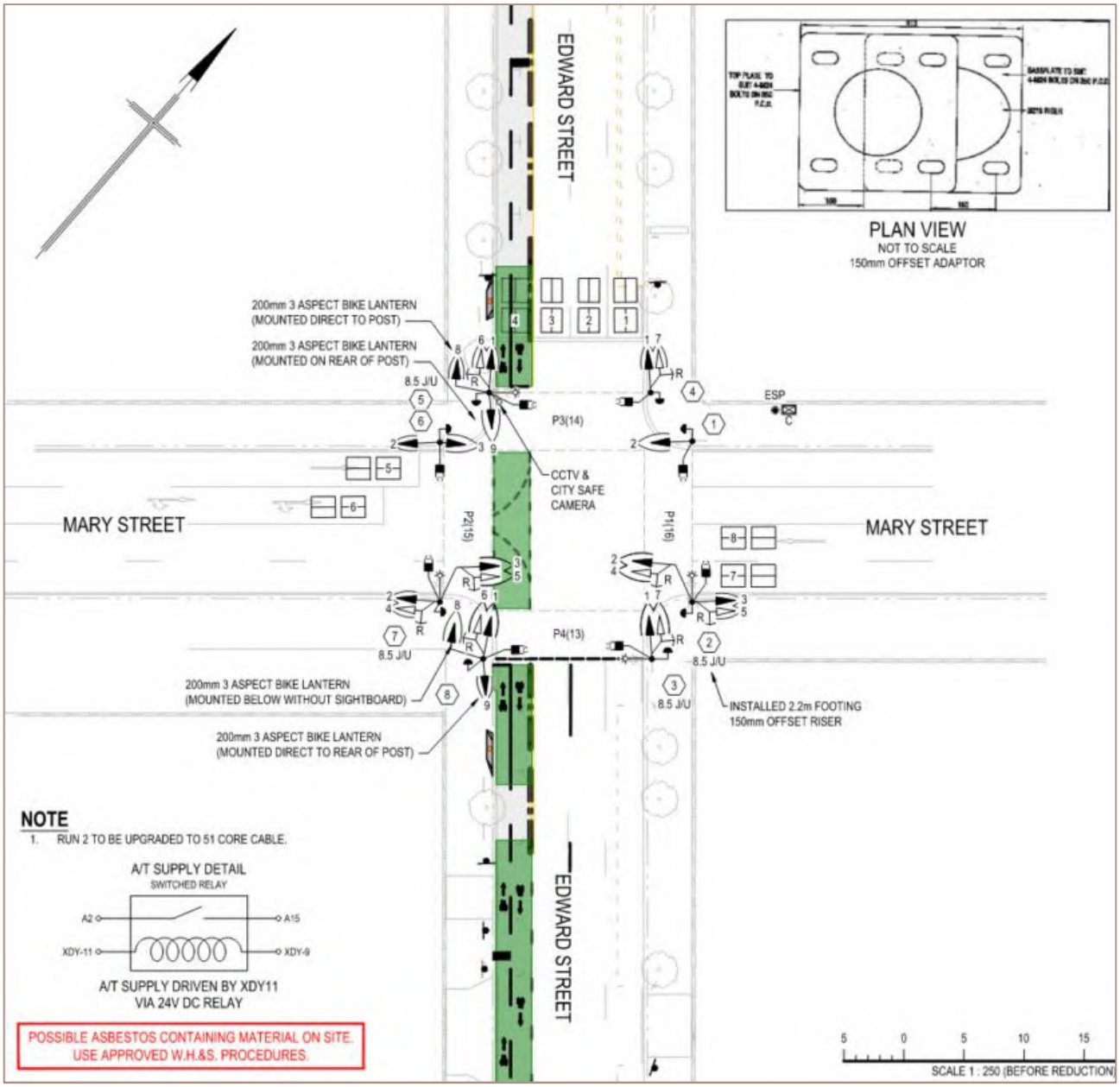
It is noted that the CityLink Cycleway trial is being delivered by Council which will provide separated cycleways along Edward Street between Elizabeth Street and Alice Street. The project removes or relocates existing parking spaces, loading bays or taxi ranks. As part of the implementation, the Edward Street / Mary Street intersection will be upgraded to provide separated cycleway infrastructure as illustrated in Figure 2-4 and adjustments to the phasing for the traffic signals. Council has issued signal plans indicating this change.

As construction for the cycleway commenced in late November 2020 with anticipated completion date around mid-Feburary 2021, the cycleway will be operational while the Sunday construction activities are proposed to be undertaken. Therefore, this assessment has taken account of the CityLink Cycleway in all traffic operations scenarios.

Additionally, a trial separated cycleway may also be provided on Albert Street between Mary Street and Alice Street, which would result in an upgrade to the Albert Street / Mary Street intersection in future. As this is not

confirmed at the time of preparing this report, consideration for this change has not been included in the assessment.

Figure 2-4 Separated Cycleway Upgrade at Edward Street / Mary Street



Source: Brisbane City Council

3 Proposed Development

3.1 Site Access

The haulage route proposed for Sunday construction activities follows existing haulage routes already used during Monday to Saturday. The primary route advised for Sunday activities involves access to the site from the Riverside Expressway via Margaret Street, George Street and Mary Street. Egress from the site is via Mary Street onto Edward Street then Alice Street. These haulage routes are illustrated on Figure 3-1.

The development is proposing to utilise the existing left-in left-out accesses on Mary Street. The site access locations are illustrated on Figure 3-1.

Figure 3-1 Haulage Route and Access Locations

Source: Nearmap

4 Traffic Assumptions and Characteristics

4.1 Background Traffic Volumes

To understand the existing traffic conditions, a 12-hour traffic survey was undertaken by Austraffic between 6:30AM – 6:30PM on Sunday 29th November 2020, for the following intersections:

- George Street / Mary Street
- Albert Street / Mary Street
- Edward Street / Mary Street

A review of the survey indicated that the AM and PM road network peak periods were as follows:

- 11:00 AM – 12:00 PM
- 4:15 PM – 5:15 PM

Detailed traffic count information is included in **Appendix A**.

4.2 Assessed Intersections

As outlined in Figure 2-3, the following intersections formed the scope of this study:

1. George Street / Mary Street
2. Albert Street / Mary Street
3. Edward Street / Mary Street

4.3 Project Traffic Volumes

The total number of construction vehicles expected for the project are 10 heavy vehicles per hour (vph). Accordingly, the assessment has been prepared on the basis that 10 vph enter the site and 10 vph exit from the site for each assessment peak hour.

4.3.1 Trip Distribution

The access to the construction site is restricted to left-in left-out, thus it is anticipated that all vehicles will access the site from the west and exit to the east, as per the route diagram in Figure 3-1.

4.3.2 Directional Distribution

A summary of the in / out splits adopted for the construction vehicles are summarised in Table 4-1.

Table 4-1 Construction Traffic In / Out Splits

Site Traffic	AM Peak		PM Peak	
	IN	OUT	IN	OUT
Construction Vehicles	50%	50%	50%	50%

4.4 Signal Phasing

Signal phasing plans have been received from Council and reviewed to inform the SIDRA analysis for the three signalised intersections:

- George Street / Mary Street
- Albert Street / Mary Street
- Edward Street / Mary Street

The phasing adopted for the study intersections are outlined in Figure 4-1 to Figure 4-3. Timing has been optimised for each intersection considering the assessed day is a Sunday.

Figure 4-1 George Street / Mary Street Phasing

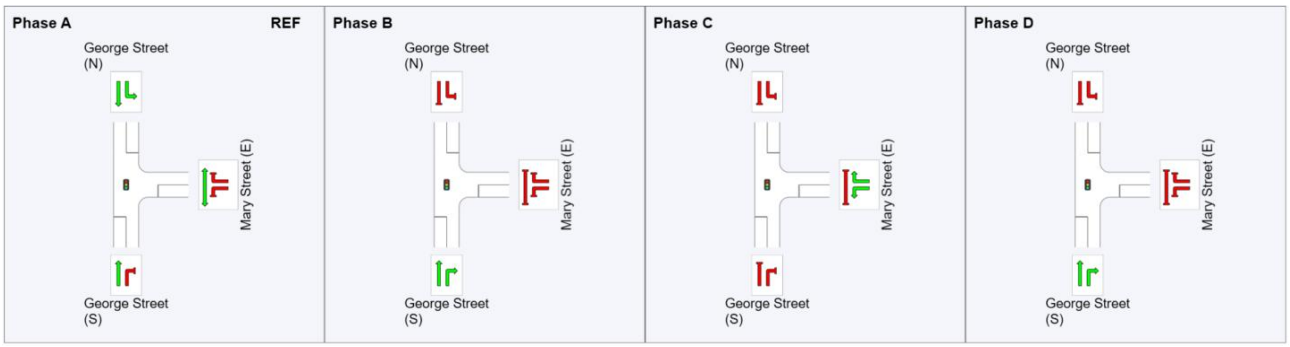


Figure 4-2 Albert Street / Mary Street Phasing

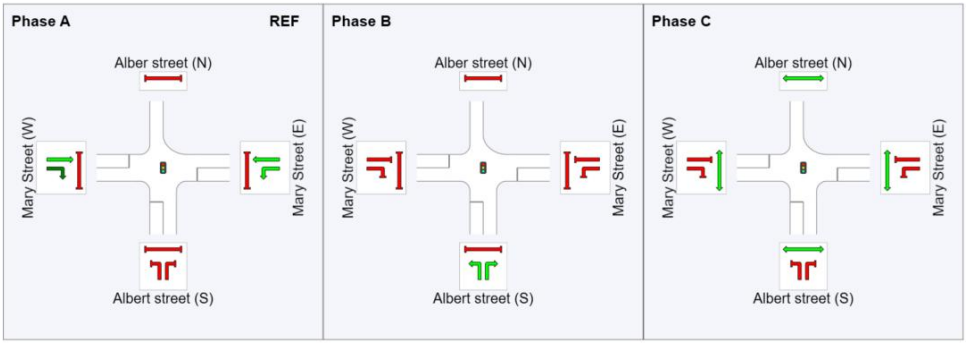
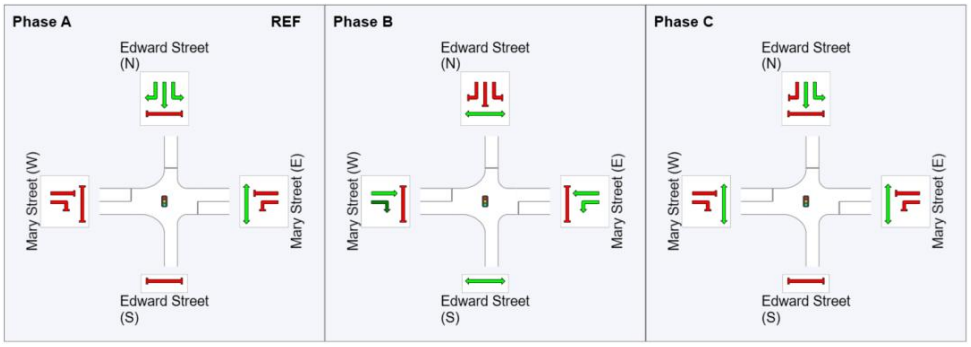


Figure 4-3 Edward Street / Mary Street Phasing



It is noted that for the Edward Street / Mary Street intersection, the new CityLink Cycleway will implement a separated cycleway along Edward Street expected to be completed in mid-Feburary 2021. The new infrastructure adds cyclists to the C phase which is to be automatically called (not called by push button), in conjunction to the western approach pedestrian crossing which is not expected to impact the operation of the Edward Street / Mary Street intersection.

5 Operational Assessment

5.1 Assessment Scenarios

The following assessment scenarios have been adopted for this assessment:

- 2020 Background (without construction traffic) – volumes as per surveys
- 2020 Background (with construction traffic) – survey volumes with the addition of construction volumes as advised

5.2 Assessment Criteria

The performance of the study intersections have been analysed using SIDRA Intersection 8 (SIDRA). SIDRA is an industry recognised analysis tool that estimates the capacity and performance of intersections based on input parameters, including geometry and traffic volumes, and provides estimates of an intersection's Degree of Saturation (DOS), queues and delays.

5.2.1 Intersection Delay

The TMR Guide to Traffic Impact Assessments (GTIA) recognises the intersection delay as a greater indicator of intersection performance in comparison to the previous TMR Guidelines for Assessment of Road Impacts of Development (GARID) significance on the degree of saturation (DOS).

The desired outcome outlined by the GTIA is to ensure that the sum of all intersection delays on the base traffic within the study area does not significantly worsen (i.e. does not increase average delays by more than 5% in aggregate) as a result of the development. The proposed development should seek to achieve no net worsening to efficiency across the impact assessment area.

Intersection mitigation measures (avoid, manage or mitigate) must be considered where the sum of all intersection delays on the base traffic is greater than 5% in aggregate. Furthermore, for priority controlled intersections, where the average peak hour delays for any movement exceeds 42 seconds, the intersection should be upgraded for safety reasons.

5.2.2 Intersection Degree of Saturation

While the movement delay is considered to provide a better indication of intersection performance and safety for priority controlled intersections and roundabouts, the DOS should still be considered when assessing the performance of the intersection. Table 5-1 provides the DOS thresholds adopted for the assessment.

Table 5-1 Adopted Intersection Performance Threshold – Degree of Saturation

Intersection Treatment	DOS Threshold
Signalised Intersections	Less than or equal to 0.90
Roundabouts	Less than or equal to 0.85
Priority controlled intersections	Less than or equal to 0.80

Source: TMR Guidelines for Assessment of Road Impacts Development

The guideline notes that a DOS exceeding the values indicated in Table 5-1 indicates that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience increasing delays and queueing.

5.3 Modelling Parameters

A summary of the Sidra Modelling parameters adopted for this assessment are summarised below:

- Peak Flow Factor – 0.95 (30min/60min)
- Basic Saturation Flow – 1,950tcu/hr.
- Existing heavy vehicle volumes for all movements

A copy of the SIDRA summary results is included at **Appendix B**.

5.4 George Street / Mary Street

The current configuration of this intersection is a three-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated on Figure 5-1.

Figure 5-1 Current and SIDRA Assessed Layout – George Street / Mary Street Intersection

The results of the SIDRA assessment, for all assessed scenarios, are summarised in Table 5-2.

Table 5-2 SIDRA Results – George Street / Mary Street Intersection

Scenarios	Sunday AM Peak			Sunday PM Peak		
	DOS	Delay (sec)	95th %ile Queue (m)	DOS	Delay (sec)	95th %ile Queue (m)
2020 BG	0.214	22.5	34.9	0.223	18.9	40.5
2020 BG + Construction Vehicles	0.218	22.7	35.5	0.233	19.6	42.1

The results of the analysis indicate that the three-way signalised arrangement operates within the typical performance thresholds (DOS ≤ 0.90 for signalised), for all assessed scenarios. It is noted that with the inclusion of the proposed additional construction vehicles, the average delay and 95th percentile queue are not significantly impacted, when compared to the background scenarios.

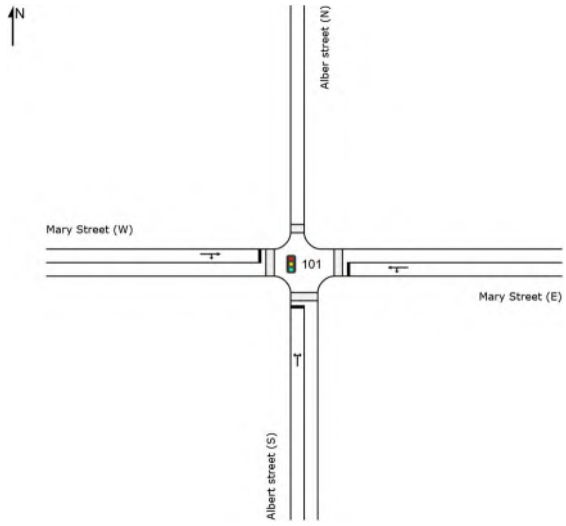
With respect to delays, the George Street approaches experience delay increases of approximately 1 second during both the AM and PM peaks. During the AM peak, this is largely driven by the southern George Street approach which shows a 1.5 second increase in delay for the lane carrying the construction traffic. In the PM peak, the majority of the delay increase is attributed to the northern George Street approach. This is due to a minor phase time change as a result of the additional vehicles.

Nonetheless, the overall intersection is noted to operate well within acceptable thresholds and the impact of the additional heavy vehicles will have a minor impact.

5.5 Albert Street / Mary Street

The current configuration of this intersection is a four-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated on Figure 5-2.

Figure 5-2 Current and SIDRA Assessed Layout – Albert Street / Mary Street Intersection



The results of the SIDRA assessment, for all assessed scenarios, are summarised in Table 5-3.

Table 5-3 SIDRA Results – Albert Street / Mary Street Intersection

Scenarios	Sunday AM Peak			Sunday PM Peak		
	DOS	Delay (sec)	95th %ile Queue (m)	DOS	Delay (sec)	95th %ile Queue (m)
2020 BG	0.262	27.9	45.4	0.166	28.6	27.1
2020 BG + Construction Vehicles	0.262	27.6	45.4	0.166	28.3	27.1

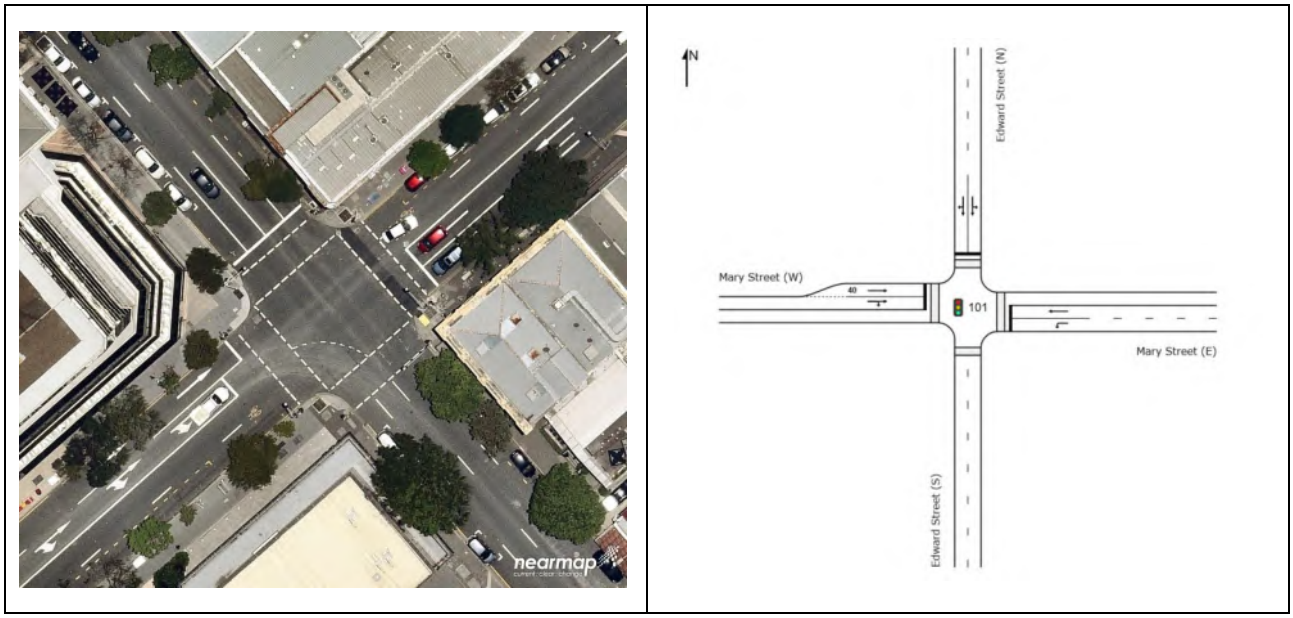
The results of the analysis indicate that the four-way signalised arrangement operates within the typical performance thresholds (DOS ≤ 0.90 for signalised), for all assessed scenarios. It is noted that with the inclusion of the proposed additional construction vehicles, the average delay and 95th percentile queue are not significantly impacted, when compared to the background scenarios.

With respect to delays, the Mary Street western approach experiences a minor delay reduction of less than 1 second during both the AM and PM peaks. There was no change to the operation of the other approaches. This is due to a minor phase time change as a result of the additional vehicles. The overall intersection is noted to operate well within acceptable thresholds and the impact of the additional heavy vehicles will have a minor impact.

5.6 Edward Street / Mary Street

The current configuration of this intersection is a four-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated on Figure 5-3.

Figure 5-3 Current and SIDRA Assessed Layout – Edward Street / Mary Street Intersection



The results of the SIDRA assessment, for all assessed scenarios, are summarised in Table 5-4.

Table 5-4 SIDRA Results – Edward Street / Mary Street Intersection

Scenarios	Sunday AM Peak			Sunday PM Peak		
	DOS	Delay (sec)	95th %ile Queue (m)	DOS	Delay (sec)	95th %ile Queue (m)
2020 BG	0.340	25.8	67.3	0.330	24.4	63.7
2020 BG + Construction Vehicles	0.340	26.0	67.3	0.330	24.6	63.7

The results of the analysis indicate that the four-way signalised arrangement operates within the typical performance thresholds (DOS ≤ 0.90 for signalised), for all assessed scenarios. It is noted that with the inclusion of the proposed additional construction vehicles, the average delay and 95th percentile queue are not significantly impacted, when compared to the background scenarios.

With respect to delays, the Mary Street western approach experiences a minor delay increase during both the AM and PM peaks. There was no change to the operation of the other approaches. During the AM peak, this is largely driven by the right turn lane carrying the construction traffic which shows a 2.4 second increase in delay. Similarly for the PM peak, the majority of the delay increase is attributed to the right turn lane carrying the construction traffic with a 3.7 second increase in delay. This is due to a minor phase time change as a result of the additional vehicles.

The overall intersection is noted to operate well within acceptable thresholds and the impact of the additional heavy vehicles will have a minor impact.

5.7 Summary of Operational Assessment

Following review of the operational analysis results, a summary of the outcomes has been prepared to review the impact of Sunday haulage activities. The performance of each intersection with respect to the impact of the operations has been compared to the baseline scenarios.

For the purposes of this assessment, the following threshold criteria have been adopted to understand the comparative extent of impacts for each intersection. Three different outcomes have been proposed, negligible, moderate and significant impacts. The assessment assigns the highest impact level which has been triggered for the parameters to each intersection.

Table 5-5 Adopted Assessment Thresholds

Parameter	Negligible Impact	Moderate Impact	Significant Impact
DOS	<0.05 increase in DOS	<0.1 increase in DOS	>0.1 increase in DOS
Delay	<5 sec increase in delays	<10 sec increase in delays	>10 sec increase in delays
Queues	<19m increase in queues *(equivalent to one design vehicle)*	<38m increase in queues *(equivalent to two design vehicles)*	>38m increase or causes queue blockage *(equivalent to two design vehicles)*

Based on these thresholds, the following outcomes have been determined.

Table 5-6 Summary of SIDRA Results

Intersection	Sunday AM Peak	Sunday PM Peak
George Street / Mary Street	Negligible impact	Negligible impact
Albert Street / Mary Street	Negligible impact	Negligible impact
Edward Street / Mary Street	Negligible impact	Negligible impact

The results indicate that all intersections have a negligible impact when adding construction traffic on a Sunday. This indicates that the additional construction vehicles can be accommodated on the external road network.

6 Conclusions and Recommendations

Cardno has prepared this traffic impact assessment to document the impact of Sunday haulage activities and outcomes for the identified construction vehicle access routes for the Albert Street Precinct.

6.1 Traffic Analysis

Following review of the operational analysis results, a summary of the outcomes has been prepared to compare the existing traffic with CRR Albert Street station construction traffic. Table 6-1 identifies the impact of each intersection with respect to the worsened operations compared to the baseline scenarios.

Table 6-1 Summary of SIDRA Results

Intersection	Sunday AM Peak	Sunday PM Peak
George Street / Mary Street	Negligible impact	Negligible impact
Albert Street / Mary Street	Negligible impact	Negligible impact
Edward Street / Mary Street	Negligible impact	Negligible impact

The results indicate that all intersections have a negligible impact when adding construction traffic on a Sunday. This indicates that the additional construction vehicles can be accommodated on the external road network.

6.2 Overall Summary

The proposed change to introduce construction activities for the Lot 2 site of the Albert Street precinct during Sundays 9:00am to 6:30pm has been assessed with respect to traffic operations for the key road study area. This assessment has determined that there would be no significant impact to the road network as a result of the proposed heavy vehicle movements. As such, there will be no traffic based impediment to allowing this change to occur.

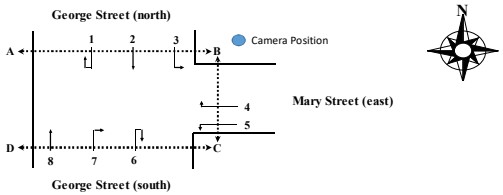
APPENDIX

A

TRAFFIC SURVEY DATA

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 1 **Weather:** Fine
Location: Mary Street/George Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 12:00 PM*
PM Peak: *Hour ending - 1:45 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements											
																																	A - B		B - A		B - C		C - B		C - D		D - C	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	0	0	**0**	0	8	0	**8**	0	2	0	**2**	0	2	0	**2**	0	1	0	**1**	0	0	0	**0**	0	4	0	**4**	0	4	0	**4**	1	0	0	0	0	10	0	7	0	0	0	0	0
7:00 AM	0	0	**0**	0	13	0	**13**	0	1	0	**1**	0	3	0	**3**	0	5	0	**5**	0	0	0	**0**	0	1	0	**1**	0	7	1	**8**	0	0	0	0	0	10	0	5	1	0	0	0	0
7:15 AM	0	0	**0**	0	9	0	**9**	1	0	0	**0**	0	9	0	**9**	0	5	0	**5**	0	0	0	**0**	0	1	0	**1**	0	8	0	**8**	0	0	0	0	0	6	0	5	0	0	0	0	0
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7:45 AM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	9	0	**9**	0	7	0	**7**	0	0	0	**0**	0	5	0	**5**	0	12	0	**12**	2	0	0	0	0	4	0	1	2	0	0	0	0
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8:45 AM	0	0	**0**	0	14	0	**14**	0	6	0	**6**	0	9	0	**9**	0	7	0	**7**	0	0	0	**0**	0	6	0	**6**	0	15	0	**15**	0	0	0	0	0	13	0	12	0	0	0	0	0
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10:45 AM	0	0	**0**	0	34	0	**34**	0	4	0	**4**	0	17	0	**17**	0	12	0	**12**	0	0	0	**0**	0	4	0	**4**	0	46	1	**47**	0	0	0	0	0	5	0	17	0	0	0	0	0
11:00 AM	0	0	**0**	0	30	0	**30**	0	6	0	**6**	0	20	1	**21**	0	19	0	**19**	0	0	0	**0**	0	6	0	**6**	0	62	0	**62**	0	0	0	0	0	26	1	8	1	0	0	0	0
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12:00 PM	0	0	**0**	0	42	0	**42**	0	6	0	**6**	0	33	0	**33**	0	14	0	**14**	0	0	0	**0**	0	10	0	**10**	0	57	0	**57**	0	0	0	0	0	11	1	16	0	0	0	0	0
12:15 PM	0	0	**0**	0	37	0	**37**	0	5	0	**5**	1	23	0	**23**	0	9	0	**9**	0	0	0	**0**	0	8	0	**8**	0	58	0	**58**	0	0	0	0	0	15	1	15	0	0	0	0	0
12:30 PM	0	0	**0**	0	35	0	**35**	2	5	0	**5**	0	20	0	**20**	0	10	0	**10**	0	0	0	**0**	0	2	0	**2**	0	40	0	**40**	1	0	0	0	0	16	0	15	0	0	0	0	0
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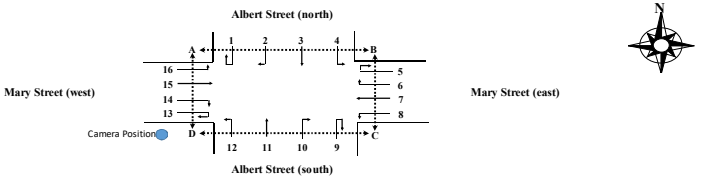
1:30 PM	0	0	**0**	0	54	0	**54**	0	9	0	**9**	0	27	0	**27**	0	14	0	**14**	0	0	0	**0**	0	7	0	**7**	0	59	1	**60**	0	0	0	0	0	9	4	13	0	0	0	0	0
1:45 PM	0	0	**0**	0	50	0	**50**	0	4	0	**4**	1	16	0	**16**	0	15	0	**15**	0	0	0	**0**	0	13	0	**13**	0	55	0	**55**	1	0	0	0	0	18	0	8	1	0	0	0	0
2:00 PM	0	0	**0**	0	42	0	**42**	0	6	0	**6**	0	11	0	**11**	0	15	0	**15**	0	0	0	**0**	0	6	0	**6**	0	50	0	**50**	0	0	0	0	0	10	0	9	0	0	0	0	0
2:15 PM	0	0	**0**	0	43	0	**43**	0	7	0	**7**	0	20	0	**20**	0	13	0	**13**	0	0	0	**0**	0	10	0	**10**	0	42	0	**42**	0	0	0	0	0	15	1	5	0	0	0	0	0
2:30 PM	0	0	**0**	0	43	1	**43**	1	6	0	**6**	0	19	0	**19**	0	8	0	**8**	0	0	0	**0**	0	10	0	**10**	0	48	0	**48**	0	0	0	0	0	8	0	12	1	0	0	0	0
2:45 PM	0	0	**0**	0	49	0	**49**	0	4	0	**4**	1	20	0	**20**	0	5	0	**5**	0	0	0	**0**	0	6	0	**6**	0	44	0	**44**	0	0	0	0	0	8	2	10	0	0	0	0	0
3:00 PM	0	0	**0**	0	61	0	**61**	0	6	1	**7**	0	16	0	**16**	0	5	0	**5**	0	0	0	**0**	0	7	1	**8**	0	51	0	**51**	0	0	0	0	0	8	0	8	0	0	0	0	0
3:15 PM	0	0	**0**	0	48	0	**48**	0	6	0	**6**	0	23	0	**23**	0	8	0	**8**	3	0	0	**0**	0	3	0	**3**	0	49	0	**49**	1	0	0	0	0	3	1	18	0	0	0	0	0
3:30 PM	0	0	**0**	0	49	0	**49**	0	6	0	**6**	0	15	1	**16**	0	13	0	**13**	0	0	0	**0**	0	10	0	**10**	0	38	1	**39**	0	0	0	0	0	10	0	9	0	0	0	0	0
3:45 PM	0	0	**0**	0	43	0	**43**	0	5	0	**5**	0	21	0	**21**	1	11	0	**11**	0	0	0	**0**	0	8	0	**8**	0	43	0	**43**	0	0	0	0	0	12	0	6	0	0	0	0	0
4:00 PM	0	0	**0**	0	57	0	**57**	0	11	0	**11**	0	25	1	**26**	0	11	0	**11**	0	0	0	**0**	0	8	0	**8**	0	42	0	**42**	0	0	0	0	0	8	0	16	1	0	0	0	0
4:15 PM	0	0	**0**	0	49	0	**49**	0	5	0	**5**	0	24	0	**24**	0	14	0	**14**	0	0	0	**0**	0	6	0	**6**	0	30	0	**30**	0	0	0	0	0	10	0	12	0	0	0	0	0
4:30 PM	0	0	**0**	0	56	0	**56**	0	3	0	**3**	0	23	0	**23**	1	9	0	**9**	0	0	0	**0**	0	7	0	**7**	0	45	0	**45**	1	0	0	0	0	13	0	22	0	0	0	0	0
4:45 PM	0	0	**0**	0	46	0	**46**	0	4	0	**4**	0	7	0	**7**	1	12	0	**12**	0	0	0	**0**	0	13	0	**13**	0	58	0	**58**	0	0	0	0	0	9	1	19	2	0	0	0	0
5:00 PM	0	0	**0**	0	43	0	**43**	0	4	0	**4**	0	15	0	**15**	0	10	0	**10**	0	0	0	**0**	0	9	0	**9**	0	33	0	**33**	0	0	0	0	0	22	0	21	1	0	0	0	0
5:15 PM	0	0	**0**	0	51	0	**51**	0	2	0	**2**	0	15	0	**15**	0	6	0	**6**	0	0	0	**0**	0	8	1	**9**	0	38	0	**38**	1	0	0	0	0	7	0	19	0	0	0	0	0
5:30 PM	0	0	**0**	0	55	0	**55**	0	2	0	**2**	0	33	0	**33**	0	9	0	**9**	0	0	0	**0**	0	14	0	**14**	0	32	0	**32**	1	0	0	0	0	17	1	20	0	0	0	0	0
5:45 PM	0	0	**0**	0	43	0	**43**	0	5	0	**5**	0	26	0	**26**	0	9	0	**9**	0	0	0	**0**	0	8	0	**8**	0	39	0	**39**	0	0	0	0	0	12	1	18	0	0	0	0	0
6:00 PM	0	0	**0**	0	36	0	**36**	0	7	0	**7**	0	16	0	**16**	0	11	0	**11**	0	0	0	**0**	0	12	0	**12**	0	26	0	**26**	0	0	0	0	0	21	1	23	2	0	0	0	0
6:15 PM	0	0	**0**	0	36	1	**37**	0	2	0	**2**	0	20	0	**20**	0	11	0	**11**	0	0	0	**0**	0	5	0	**5**	0	35	0	**35**	0	0	0	0	0	12	0	15	0	0	0	0	0
6:30 PM	0	0	**0**	0	26	1	**27**	0	8	0	**8**	0	13	0	**13**	0	12	0	**12**	0	0	0	**0**	0	8	0	**8**	0	26	0	**26**	0	0	0	0	0	11	0	13	0	0	0	0	0
12 hr Total	**0**	**0**	**0**	**0**	**1651**	**5**	**1656**	**5**	**243**	**2**	**245**	**3**	**823**	**4**	**827**	**3**	**480**	**1**	**481**	**3**	**0**	**0**	**0**	**0**	**320**	**2**	**322**	**0**	**1739**	**10**	**1749**	**12**	**0**	**0**	**0**	**0**	**564**	**22**	**891**	**18**	**1**	**0**	**0**	**0**
AM Peak	**0**	**0**	**0**	**0**	**141**	**0**	**141**	**0**	**30**	**0**	**30**	**0**	**104**	**1**	**105**	**0**	**48**	**0**	**48**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**29**	**0**	**191**	**3**	**194**	**0**	**0**	**0**	**0**	**0**	**59**	**3**	**51**	**0**	**0**	**0**	**0**	**0**
PM Peak	**0**	**0**	**0**	**0**	**173**	**2**	**175**	**0**	**31**	**0**	**31**	**1**	**90**	**0**	**90**	**0**	**54**	**0**	**54**	**0**	**0**	**0**	**0**	**0**	**36**	**0**	**36**	**0**	**214**	**1**	**215**	**1**	**0**	**0**	**0**	**0**	**59**	**4**	**41**	**1**	**0**	**0**	**0**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

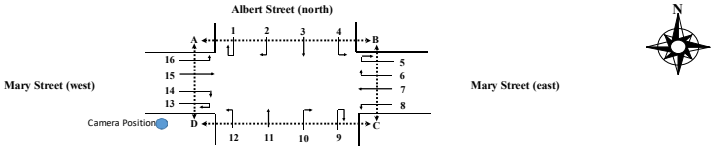
Site No.: 2 **Weather:** Fine
Location: Mary Street/Albert Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 11:15 AM*
PM Peak: *Hour ending - 12:45 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*
6:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	5	0	**5**	0
7:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	3	1	**4**	0
7:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	1	0	**1**	0
7:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	1	13	0	**13**	0
7:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	6	1	**7**	0
8:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	8	1	**9**	2	1	0	**1**	0
8:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	6	0	**6**	0
8:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	8	0	**8**	1	6	0	**6**	0
8:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	14	0	**14**	0	8	0	**8**	0
9:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	16	0	**16**	0	7	1	**8**	0
9:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	13	0	**13**	0	11	0	**11**	0
9:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	16	0	**16**	0	15	0	**15**	0
9:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	18	0	**18**	0	15	0	**15**	0
10:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	18	0	**18**	0	16	0	**16**	0
10:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	12	0	**12**	1
10:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	2	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	16	0	**16**	0	18	0	**18**	0
10:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	36	0	**36**	0	15	0	**15**	0
11:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	27	1	**28**	0	22	0	**22**	0
11:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	39	0	**39**	0	17	0	**17**	0
11:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	22	0	**22**	1	16	0	**16**	0
11:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	27	1	**28**	0	13	0	**13**	0
12:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	40	0	**40**	0	17	0	**17**	0
12:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	1	20	0	**20**	0
12:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	27	0	**27**	0
12:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	30	0	**30**	0	22	0	**22**	0
1:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	35	0	**35**	1	10	0	**10**	0
1:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	0	20	0	**20**	1
1:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	0	14	0	**14**	0
1:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	29	0	**29**	1	13	0	**13**	0
2:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	19	0	**19**	0	9	0	**9**	0
2:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	13	0	**13**	0	18	1	**19**	0
2:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	2	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	22	0	**22**	1	10	0	**10**	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	20	0	**20**	0	14	0	**14**	0
3:00 PM	0	0	**0**	0	0	0	**0**	1	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	13	0	**13**	0	15	0	**15**	0
3:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	31	0	**31**	0	12	0	**12**	0
3:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	2	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	15	0	**15**	0	17	0	**17**	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	23	0	**23**	0	14	0	**14**	0
4:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	26	1	**27**	2	4	0	**4**	0
4:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	16	0	**16**	0
4:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	24	0	**24**	0	11	0	**11**	0
4:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	12	0	**12**	0	11	0	**11**	0
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	14	0	**14**	0	9	0	**9**	0
5:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	9	2	**11**	0
5:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	3	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	22	0	**22**	0	14	0	**14**	0
5:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	23	0	**23**	0	18	0	**18**	0
6:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	22	0	**22**	0	15	0	**15**	0
6:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	23	0	**23**	1	14	0	**14**	0
6:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	1	13	0	**13**	3	13	0	**13**	0
12 hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**4**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**944**	**4**	**948**	**15**	**612**	**6**	**618**	**2**
AM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**118**	**1**	**119**	**0**	**72**	**0**	**72**	**0**
PM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**116**	**0**	**116**	**1**	**86**	**0**	**86**	**0**

AUSTRAFFIC VIDEO INTERSECTION COUNT

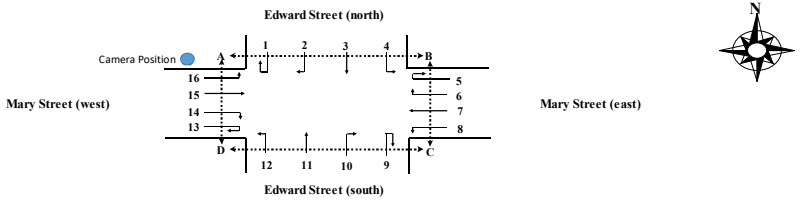
Site No.: 2 **Weather:** Fine
Location: Mary Street/Albert Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 11:15 AM*
PM Peak: *Hour ending - 12:45 PM*



TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	3	0	**3**	0	0	0	**0**	0	5	0	3	0	19	0	8	1	1	0	0	0	0	0	1	0
7:00 AM	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	1	0	**1**	0	0	0	**0**	0	15	0	7	0	15	0	24	0	5	0	0	0	13	0	7	0
7:15 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	13	0	3	0	19	0	16	0	2	0	2	0	8	0	0	0
7:30 AM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	3	0	**3**	0	0	0	**0**	0	8	0	5	0	13	0	15	0	5	0	2	0	4	0	6	0
7:45 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	14	0	5	0	20	0	22	2	2	0	3	0	5	0	4	0
8:00 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	2	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	12	0	1	0	36	0	43	0	3	1	4	0	6	0	2	0
8:15 AM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	17	1	11	0	25	0	38	0	6	0	3	0	7	1	10	0
8:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	11	0	4	0	38	0	31	0	3	0	0	0	3	0	6	0
8:45 AM	0	0	**0**	0	5	0	**5**	1	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	2	0	**2**	0	4	0	**4**	1	0	0	**0**	0	19	0	9	0	41	1	54	0	2	0	4	0	5	0	5	0
9:00 AM	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	12	0	**12**	0	0	0	**0**	0	13	0	3	0	34	0	55	1	3	0	4	0	2	0	2	0
9:15 AM	0	0	**0**	0	2	1	**3**	1	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	19	0	3	0	41	0	56	0	2	0	3	0	4	0	1	0
9:30 AM	0	0	**0**	0	8	0	**8**	1	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	32	0	15	0	32	5	71	0	7	0	1	0	19	0	8	0
9:45 AM	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	2	0	**2**	0	6	0	**6**	0	0	0	**0**	0	28	0	8	0	62	1	62	1	2	0	1	0	5	0	1	0
10:00 AM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	1	6	0	**6**	0	0	0	**0**	0	1	0	**1**	0	10	0	**10**	0	0	0	**0**	0	32	0	12	0	56	0	84	1	3	0	1	0	17	0	9	0
10:15 AM	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	2	1	**3**	0	12	0	**12**	0	0	0	**0**	0	38	0	11	0	43	0	87	1	6	0	4	0	9	0	6	0
10:30 AM	0	0	**0**	0	15	0	**15**	0	0	0	**0**	0	13	0	**13**	0	0	0	**0**	0	1	0	**1**	0	20	0	**20**	0	0	0	**0**	0	30	0	12	0	57	0	72	0	2	0	1	0	10	0	4	0
10:45 AM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	12	0	**12**	0	0	0	**0**	0	26	0	13	1	50	0	107	1	4	0	6	0	14	0	7	0
11:00 AM	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	2	0	**2**	0	7	0	**7**	0	0	0	**0**	0	17	1	14	0	56	0	53	0	14	0	2	0	9	0	13	0
11:15 AM	0	0	**0**	0	15	0	**15**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	4	0	**4**	0	6	0	**6**	0	0	0	**0**	0	26	0	17	0	71	0	70	0	3	0	4	0	9	0	6	0
11:30 AM	0	0	**0**	0	14	0	**14**	0	0	0	**0**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	1	0	0	**0**	0	23	0	22	0	70	1	95	0	4	0	6	0	6	0	10	0
11:45 AM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	12	0	**12**	0	0	0	**0**	0	26	0	35	0	66	0	67	0	6	1	7	0	19	0	14	0
12:00 PM	0	0	**0**	0	16	0	**16**	0	0	0	**0**	2	8	0	**8**	0	0	0	**0**	0	5	0	**5**	0	12	0	**12**	0	0	0	**0**	0	28	1	20	0	61	0	78	2	16	0	2	0	15	0	13	0
12:15 PM	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	1	0	**1**	0	9	0	**9**	1	0	0	**0**	0	24	0	17	0	72	1	96	3	3	0	5	2	10	0	11	0
12:30 PM	0	0	**0**	0	16	0	**16**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	2	0	**2**	0	8	0	**8**	0	0	0	**0**	0	22	0	13	1	84	0	71	1	2	0	6	1	13	0	8	0
12:45 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	3	0	**3**	0	8	0	**8**	0	0	0	**0**	0	27	0	22	0	71	0	78	0	6	0	4	0	20	0	12	0
1:00 PM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	12	0	**12**	0	0	0	**0**	0	30	0	30	0	59	0	69	0	1	0	0	0	7	0	4	0
1:15 PM	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	1	0	**1**	0	16	0	**16**	0	0	0	**0**	0	34	2	27	2	57	0	64	1	3	0	0	0	13	1	16	0
1:30 PM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	1	0	**1**	0	9	0	**9**	0	0	0	**0**	0	36	1	9	0	66	3	69	2	3	0	3	0	19	0	5	0
1:45 PM	0	0	**0**	0	7	1	**8**	0	0	0	**0**	1	4	0	**4**	0	0	0	**0**	0	4	0	**4**	0	9	0	**9**	0	0	0	**0**	0	26	1	20	0	61	0	74	2	14	0	4	0	13	1	11	0
2:00 PM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	2	0	**2**	0	7	0	**7**	0	0	0	**0**	0	15	0	35	0	77	0	73	0	4	0	3	0	9	0	24	0
2:15 PM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	13	0	**13**	0	0	0	**0**	0	0	0	**0**	0	13	0	**13**	0	0	0	**0**	0	12	0	27	1	52	2	64	3	3	0	2	0	4	0	17	0
2:30 PM	0	0	**0**	0	10	0	**10**	1	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	1	0	**1**	1	9	0	**9**	0	0	0	**0**	0	11	1	15	1	69	1	52	1	4	0	0	0	4	0	10	0
2:45 PM	0	0	**0**	0	6	1	**7**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	0	0	**0**	0	25	0	18	0	72	0	53	2	10	0	2	0	13	0	5	0
3:00 PM	0	0	**0**	0	12	0	**12**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	1	0	**1**	0	8	1	**9**	0	0	0	**0**	1	27	0	32	1	69	2	73	1	5	0	6	0	7	0	15	1
3:15 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	1	2	0	**2**	0	0	0	**0**	0	1	0	**1**	0	6	0	**6**	0	0	0	**0**	0	25	0	19	0	64	1	54	3	2	0	0	0	11	0	7	0
3:30 PM	0	0	**0**	0	2	0	**2**	0	0	0	**0**	2	4	0	**4**	0	0	0	**0**	0	3	0	**3**	0	4	0	**4**	1	0	0	**0**	0	24	0	31	0	78	6	65	1	0	1	3	0	11	0	15	0
3:45 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	7	0	**7**	0	0	0	**0**	0	28	0	22	1	59	2	63	1	3	0	3	0	9	0	9	0
4:00 PM	0	0	**0**	0	12	0	**12**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	4	0	**4**	0	8	0	**8**	0	0	0	**0**	0	28	0	19	0	54	0	56	3	5	0	1	0	9	0	4	0
4:15 PM	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	1	0	**1**	0	10	0	**10**	0	0	0	**0**	0	16	0	27	0	69	1	56	0	6	0	5	0	9	0	14	0
4:30 PM	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	2	0	**2**	0	6	0	**6**	0	0	0	**0**	0	20	1	43	2	58	0	53	0	1	0	5	0	10	0	20	0
4:45 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	5	0	**5**	0	0	0	**0**	0	1	0	**1**	0	10	0	**10**	0	0	0	**0**	0	20	0	32	2	56	0	50	0	2	0	5	1	2	0	18	1
5:00 PM	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	8	1	36	1	52	2	42	2	3	0	1	0	2	0	19	0
5:15 PM	0	0	**0**	0	5	1	**6**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	1	0	**1**	0	8	1	**9**	0	0	0	**0**	0	20	1	44	1	77	2	48	1	3	0	4	0	5	0	19	0
5:30 PM	0	0	**0**	0	11	0	**11**	0	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	1	0	**1**	0	10	0	**10**	0	0	0	**0**	0	19	0	52	0	76	0	44	1	9	0	2	0	9	0	13	0
5:45 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	10	0	**10**	0	0	0	**0**	0	10	1	58	0	58	0	59	2	6	2	9	1	2	1	14	0
6:00 PM	0	0	**0**	0	12	0	**12**	1	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	5	0	**5**	0	12	0	**12**	0	0	0	**0**	0	41	0	29	0	67	3	69	0	9	0	2	0	6	0	16	0
6:15 PM	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	5	0	**5**	1	0	0	**0**	1	22	1	35	1	61	0	42	1	3	1	3	1	2	1	15	0
6:30 PM	0	0	**0**	0	8	0	**8**	0	0	0	**0**	0	7	0	**7**	0	0	0	**0**	0	2	0	**2**	0	6	0	**6**	3	0	0	**0**	1	22	1	40	1	50	0	66	3	12	0	5	1	6	0	9	0
12 hr Total	0	0	**0**	0	333	4	**337**	5	0	0	**0**	9	241	0	**241**	0	0	0	**0**	0	74	1	**75**	1	365	2	**367**	8	0	0	**0**	3	1044	14	985	16	2613	34	2811	44	223	6	143	7	414	5	465	2
AM Peak	0	0	**0**	0	45	0	**45**	0	0	0	**0**	0	28	0	**28**	0	0	0	**0**	0	8	0	**8**	0	45	0	**45**	0	0	0	**0**	0	99	1	56	1	234	0	302	1	23	0	13	0	42	0	30	0
PM Peak	0	0	**0**	0	44	0	**44**	0	0	0	**0**	2	29	0	**29**	0	0	0	**0**	0	11	0	**11**	0	37	0	**37**	1	0	0	**0**	0	101	1	72	1	288	1	323	6	27	0	17	3	58	0	44	0

AUSTRAFFIC VIDEO INTERSECTION COUNT

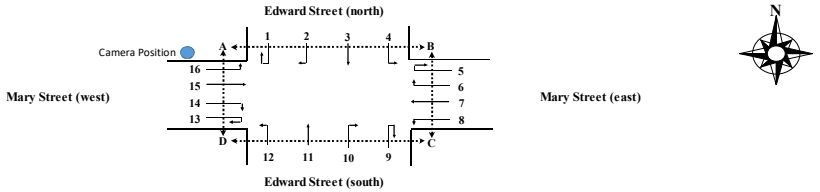
Site No.: 3 **Weather:** Fine
Location: Mary Street/Edward Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 12:00 PM*
PM Peak: *Hour ending - 1:15 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8			
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*
6:45 AM	0	0	**0**	0	5	0	**5**	0	16	1	**17**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	1	**6**	0	10	0	**10**	7
7:00 AM	0	0	**0**	0	4	0	**4**	0	17	0	**17**	0	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	8	0	**8**	0	10	0	**10**	3
7:15 AM	0	0	**0**	0	1	0	**1**	0	22	0	**22**	3	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	10	0	**10**	4
7:30 AM	0	0	**0**	0	5	0	**5**	0	18	0	**18**	0	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	1	9	0	**9**	4
7:45 AM	0	0	**0**	0	5	2	**7**	1	16	2	**18**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	18	0	**18**	20
8:00 AM	0	0	**0**	0	2	1	**3**	0	25	1	**26**	2	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	17	1	**18**	2
8:15 AM	0	0	**0**	0	6	0	**6**	0	21	0	**21**	1	1	0	**1**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	16	1	**17**	2
8:30 AM	0	0	**0**	0	2	0	**2**	1	36	0	**36**	3	2	0	**2**	0	0	0	**0**	0	0	0	**0**	0	12	0	**12**	0	19	1	**20**	2
8:45 AM	0	0	**0**	0	10	0	**10**	1	40	1	**41**	1	1	1	**2**	0	0	0	**0**	0	0	0	**0**	0	11	0	**11**	0	14	0	**14**	3
9:00 AM	0	0	**0**	0	5	0	**5**	0	31	1	**32**	1	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	18	0	**18**	0	30	0	**30**	4
9:15 AM	0	0	**0**	0	5	0	**5**	0	46	0	**46**	1	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	13	0	**13**	0	20	0	**20**	4
9:30 AM	0	0	**0**	0	13	0	**13**	0	41	1	**42**	0	3	0	**3**	0	0	0	**0**	0	0	0	**0**	0	20	0	**20**	0	28	0	**28**	1
9:45 AM	0	0	**0**	0	13	0	**13**	0	58	0	**58**	0	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	20	0	**20**	1	40	0	**40**	2
10:00 AM	0	0	**0**	0	9	0	**9**	0	68	0	**68**	0	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	23	0	**23**	0	36	0	**36**	2
10:15 AM	0	0	**0**	0	10	0	**10**	0	77	0	**77**	1	5	0	**5**	0	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	39	0	**39**	0
10:30 AM	0	0	**0**	0	7	0	**7**	0	75	2	**77**	3	5	0	**5**	0	0	0	**0**	0	0	0	**0**	0	23	0	**23**	0	31	0	**31**	0
10:45 AM	0	0	**0**	0	17	0	**17**	1	93	2	**95**	0	4	0	**4**	0	0	0	**0**	0	0	0	**0**	0	36	0	**36**	0	40	0	**40**	0
11:00 AM	0	0	**0**	0	14	0	**14**	0	96	0	**96**	0	13	0	**13**	0	0	0	**0**	0	0	0	**0**	0	32	1	**33**	0	35	1	**36**	1
11:15 AM	0	0	**0**	0	15	0	**15**	0	95	0	**95**	4	14	0	**14**	0	0	0	**0**	0	0	0	**0**	0	42	0	**42**	0	50	0	**50**	0
11:30 AM	0	0	**0**	0	15	1	**16**	0	97	0	**97**	1	23	0	**23**	0	0	0	**0**	0	0	0	**0**	0	27	0	**27**	1	31	0	**31**	3
11:45 AM	0	0	**0**	0	17	0	**17**	0	105	0	**105**	1	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	26	1	**27**	0	48	0	**48**	0
12:00 PM	0	0	**0**	0	14	0	**14**	0	82	1	**83**	1	15	0	**15**	0	0	0	**0**	0	0	0	**0**	0	42	0	**42**	0	39	0	**39**	0
12:15 PM	0	0	**0**	0	17	0	**17**	2	98	0	**98**	2	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	28	0	**28**	0	49	1	**50**	2
12:30 PM	0	0	**0**	0	15	0	**15**	0	112	2	**114**	0	14	0	**14**	1	0	0	**0**	0	0	0	**0**	0	34	0	**34**	0	40	0	**40**	1
12:45 PM	0	0	**0**	0	17	0	**17**	0	101	0	**101**	1	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	36	0	**36**	0	53	1	**54**	0
1:00 PM	0	0	**0**	0	11	0	**11**	0	99	0	**99**	2	16	0	**16**	0	0	0	**0**	0	0	0	**0**	0	34	0	**34**	1	42	0	**42**	0
1:15 PM	0	0	**0**	0	8	0	**8**	1	118	0	**118**	3	16	0	**16**	1	0	0	**0**	0	0	0	**0**	0	31	0	**31**	0	29	0	**29**	0
1:30 PM	0	0	**0**	0	20	0	**20**	0	109	0	**109**	1	13	0	**13**	0	0	0	**0**	0	0	0	**0**	0	20	0	**20**	0	41	0	**41**	0
1:45 PM	0	0	**0**	0	17	0	**17**	0	89	0	**89**	0	8	0	**8**	1	0	0	**0**	0	0	0	**0**	0	29	0	**29**	1	52	0	**52**	0
2:00 PM	0	0	**0**	0	12	0	**12**	0	80	1	**81**	1	11	0	**11**	0	0	0	**0**	0	0	0	**0**	0	16	0	**16**	0	37	0	**37**	0
2:15 PM	0	0	**0**	0	5	0	**5**	0	110	0	**110**	1	14	0	**14**	1	0	0	**0**	0	0	0	**0**	0	23	1	**24**	0	51	0	**51**	0
2:30 PM	0	0	**0**	0	10	0	**10**	1	99	1	**100**	0	10	0	**10**	1	0	0	**0**	0	0	0	**0**	0	24	0	**24**	0	43	0	**43**	0
2:45 PM	0	0	**0**	0	11	0	**11**	0	99	0	**99**	1	12	0	**12**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	0	32	0	**32**	0
3:00 PM	0	0	**0**	0	10	0	**10**	0	92	2	**94**	0	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	22	0	**22**	0	41	0	**41**	0
3:15 PM	0	0	**0**	0	10	0	**10**	1	103	0	**103**	1	13	0	**13**	0	0	0	**0**	0	0	0	**0**	0	31	0	**31**	0	52	1	**53**	0
3:30 PM	0	0	**0**	0	16	0	**16**	0	86	0	**86**	0	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	20	0	**20**	1	41	0	**41**	0
3:45 PM	0	0	**0**	0	11	0	**11**	0	95	0	**95**	2	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	0	43	0	**43**	0
4:00 PM	0	0	**0**	0	7	0	**7**	0	88	0	**88**	0	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	18	0	**18**	1	56	0	**56**	0
4:15 PM	0	0	**0**	0	14	0	**14**	0	119	0	**119**	0	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	22	0	**22**	1	53	0	**53**	0
4:30 PM	0	0	**0**	0	9	0	**9**	0	110	1	**111**	3	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	25	0	**25**	1	47	0	**47**	0
4:45 PM	0	0	**0**	0	7	0	**7**	1	113	2	**115**	0	10	0	**10**	0	0	0	**0**	0	0	0	**0**	0	19	0	**19**	0	35	0	**35**	1
5:00 PM	0	0	**0**	0	5	0	**5**	1	95	0	**95**	1	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	16	0	**16**	0	41	0	**41**	0
5:15 PM	0	0	**0**	0	7	0	**7**	1	116	0	**116**	1	8	0	**8**	0	0	0	**0**	0	0	0	**0**	0	26	1	**27**	0	34	0	**34**	1
5:30 PM	0	0	**0**	0	6	0	**6**	1	102	1	**103**	1	14	0	**14**	0	0	0	**0**	0	0	0	**0**	0	29	0	**29**	0	49	0	**49**	0
5:45 PM	0	0	**0**	0	14	0	**14**	0	75	0	**75**	2	14	0	**14**	0	0	0	**0**	0	0	0	**0**	0	26	0	**26**	0	50	0	**50**	0
6:00 PM	0	0	**0**	0	8	0	**8**	0	103	0	**103**	1	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	32	0	**32**	0	39	0	**39**	0
6:15 PM	0	0	**0**	0	13	0	**13**	1	86	1	**87**	2	10	0	**10**	0	0	0	**0**	0	0	0	**0**	0	21	0	**21**	0	35	0	**35**	0
6:30 PM	0	0	**0**	0	14	0	**14**	3	78	0	**78**	0	11	0	**11**	1	0	0	**0**	0	0	0	**0**	0	19	0	**19**	1	41	0	**41**	0
12 hr Total	**0**	**0**	**0**	**0**	**488**	**4**	**492**	**17**	**3750**	**23**	**3773**	**49**	**398**	**1**	**399**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1065**	**5**	**1070**	**10**	**1716**	**7**	**1723**	**69**
AM Peak	**0**	**0**	**0**	**0**	**61**	**1**	**62**	**0**	**379**	**1**	**380**	**7**	**61**	**0**	**61**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**137**	**1**	**138**	**1**	**168**	**0**	**168**	**3**
PM Peak	**0**	**0**	**0**	**0**	**51**	**0**	**51**	**1**	**430**	**2**	**432**	**6**	**55**	**0**	**55**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**135**	**0**	**135**	**1**	**164**	**1**	**165**	**1**

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 3 **Weather:** Fine
Location: Mary Street/Edward Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 12:00 PM*
PM Peak: *Hour ending - 1:15 PM*



TIME (1/4 hr end)	Movement 9				Movement 10				Movement 11				Movement 12				Movement 13				Movement 14				Movement 15				Movement 16				Pedestrian Movements													
																																	A - B		B - A		B - C		C - B		C - D		D - C		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	0	0	**0**	0	0	0	0	0	3	0	5	0	1	0	0	0	5	1	8	0
7:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	2	0	**2**	0	0	0	**0**	0	2	0	1	0	1	0	1	0	3	0	1	0	6	0	2	0
7:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	0	0	**0**	0	0	0	3	0	3	0	1	0	0	0	4	0	3	2	7	0
7:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	0	0	**0**	0	0	0	2	0	3	0	3	0	5	0	4	0	13	0	4	0
7:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	0	0	**0**	0	4	0	1	0	9	0	10	0	7	0	1	0	31	0	13	0
8:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	5	0	**5**	0	0	0	**0**	0	8	0	3	0	8	0	10	0	4	2	7	0	8	0	6	0
8:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	10	0	**10**	0	0	0	**0**	0	0	0	2	0	6	0	6	0	10	0	4	0	8	0	18	0
8:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	2	0	**2**	0	0	0	**0**	0	3	0	1	0	8	0	9	0	5	0	6	0	11	2	19	0
8:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	8	0	**8**	2	0	0	**0**	0	6	0	2	0	11	0	8	0	4	0	3	0	11	0	17	0
9:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	11	0	**11**	0	0	0	**0**	0	3	0	2	0	7	1	8	0	5	0	0	0	15	0	22	0
9:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	1	**4**	0	3	0	**3**	0	0	0	**0**	0	3	0	7	0	7	0	11	0	2	0	3	0	18	0	33	0
9:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	11	0	**11**	0	0	0	**0**	0	1	1	15	1	9	1	21	0	7	1	5	2	11	1	23	0
9:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	15	0	**15**	1	0	0	**0**	0	3	0	6	0	23	0	29	0	6	0	9	0	23	0	17	1
10:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	10	0	**10**	0	0	0	**0**	0	7	0	5	0	24	0	23	0	13	0	10	0	29	0	18	3
10:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	12	0	**12**	0	0	0	**0**	0	15	0	2	0	14	0	11	0	11	0	2	0	32	0	10	0
10:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	26	0	**26**	0	0	0	**0**	0	5	1	14	0	15	0	19	0	3	1	2	0	21	3	29	0
10:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	17	0	**17**	0	0	0	**0**	0	6	0	3	0	15	1	11	0	8	1	2	0	29	0	21	0
11:00 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	13	0	**13**	0	0	0	**0**	0	9	0	2	1	10	0	25	1	17	0	7	0	19	0	27	1
11:15 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	13	0	**13**	0	0	0	**0**	0	5	0	10	0	18	1	24	1	8	0	16	0	20	1	25	1
11:30 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	14	0	**14**	1	0	0	**0**	0	6	0	2	1	17	0	13	0	19	0	15	0	33	0	35	0
11:45 AM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	1	**6**	0	16	0	**16**	0	0	0	**0**	0	12	0	10	0	23	0	16	0	4	0	12	0	30	3	32	0
12:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	9	0	**9**	0	20	0	**20**	1	0	0	**0**	0	10	0	4	0	33	0	18	0	17	1	8	0	28	0	29	1
12:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	16	0	**16**	1	0	0	**0**	0	3	0	8	0	11	1	19	0	8	1	3	3	38	1	31	3
12:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	18	0	**18**	1	0	0	**0**	0	3	0	16	0	14	0	30	0	22	0	9	0	42	1	24	3
12:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	11	0	**11**	0	0	0	**0**	0	10	0	7	0	26	0	10	0	10	0	12	0	24	0	39	0
1:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	14	0	**14**	0	0	0	**0**	0	7	0	3	0	19	0	6	0	5	0	10	0	14	3	39	1
1:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	16	0	**16**	0	0	0	**0**	0	7	0	7	1	15	0	14	2	13	0	4	0	30	0	26	1
1:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	6	0	**6**	0	0	0	**0**	0	9	1	3	0	29	0	14	1	3	1	15	0	33	1	30	0
1:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	8	0	**8**	0	13	1	**14**	0	0	0	**0**	0	9	0	9	0	25	0	14	0	19	0	7	0	31	0	20	0
2:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	12	0	**12**	0	0	0	**0**	0	7	0	2	0	11	0	9	0	12	0	21	1	31	0	42	0
2:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	9	0	**9**	0	0	0	**0**	0	19	0	11	0	31	0	17	0	7	0	4	0	40	0	53	0
2:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	15	0	**15**	0	0	0	**0**	0	3	2	5	0	10	0	25	0	13	0	5	1	51	3	29	0
2:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	16	0	**16**	0	0	0	**0**	0	22	0	7	1	28	0	16	0	12	2	6	0	28	2	32	0
3:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	12	0	**12**	0	0	0	**0**	0	2	0	2	1	10	0	9	0	11	0	7	1	22	0	25	0
3:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	11	0	**11**	0	0	0	**0**	0	3	0	9	0	10	0	10	1	7	1	4	0	12	1	36	0
3:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	1	**5**	0	10	0	**10**	3	0	0	**0**	0	8	1	12	1	25	0	22	0	17	1	5	0	26	0	27	0
3:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	16	0	**16**	0	0	0	**0**	0	6	0	3	0	19	0	13	0	17	0	15	0	32	0	32	2
4:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	12	0	**12**	0	0	0	**0**	0	5	0	4	0	24	0	21	0	5	0	7	0	12	0	21	1
4:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	13	0	**13**	0	0	0	**0**	0	3	1	7	0	7	1	20	0	9	0	10	0	13	0	28	0
4:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	8	0	**8**	0	0	0	**0**	0	7	0	6	0	10	1	21	0	11	0	9	1	17	1	33	0
4:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	2	0	**2**	0	15	0	**15**	0	0	0	**0**	0	6	0	4	1	19	1	20	0	10	1	10	1	19	1	26	1
5:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	14	0	**14**	0	0	0	**0**	0	1	0	8	0	15	0	20	0	7	0	7	0	23	0	44	0
5:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	7	0	**7**	0	9	0	**9**	0	0	0	**0**	0	3	0	9	0	12	0	22	0	14	0	14	1	37	1	29	0
5:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	5	0	**5**	0	11	0	**11**	1	0	0	**0**	0	5	0	10	0	13	0	12	0	15	1	7	1	16	1	35	0
5:45 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	4	0	**4**	0	14	0	**14**	0	0	0	**0**	0	12	0	4	0	23	0	13	2	11	0	4	1	19	0	25	1
6:00 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	6	0	**6**	0	17	0	**17**	1	0	0	**0**	0	4	0	15	0	18	0	23	0	7	0	9	0	12	0	37	1
6:15 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	1	0	**1**	0	12	0	**12**	0	0	0	**0**	0	5	0	5	0	18	0	17	0	9	1	11	0	20	0	33	0
6:30 PM	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	3	0	**3**	0	10	1	**11**	0	0	0	**0**	0	4	1	5	1	13	0	15	0	9	0	8	0	14	0	18	0
12 hr Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**186**	**3**	**189**	**0**	**551**	**2**	**553**	**12**	**0**	**0**	**0**	**0**	**281**	**8**	**276**	**9**	**722**	**8**	**714**	**8**	**442**	**15**	**344**	**13**	**1060**	**29**	**1229**	**21**
AM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**26**	**1**	**27**	**0**	**63**	**0**	**63**	**2**	**0**	**0**	**0**	**0**	**33**	**0**	**26**	**1**	**91**	**1**	**71**	**1**	**48**	**1**	**51**	**0**	**111**	**4**	**121**	**2**
PM Peak	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**17**	**0**	**59**	**0**	**59**	**1**	**0**	**0**	**0**	**0**	**27**	**0**	**33**	**1**	**74**	**0**	**60**	**2**	**50**	**0**	**35**	**0**	**110**	**4**	**128**	**5**

APPENDIX

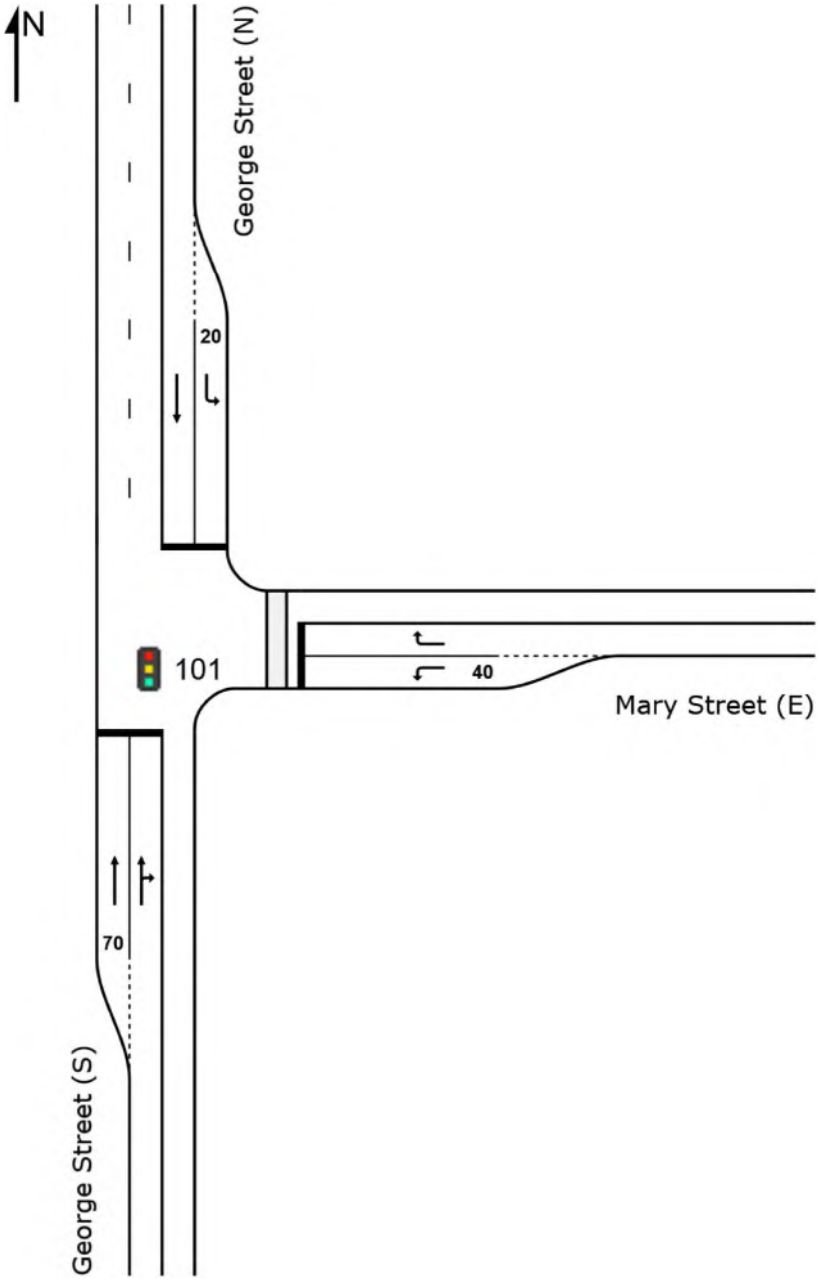
B

SIDRA SUMMARY RESULTS

SITE LAYOUT

Site: 101 [2020 BG AM]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated



LANE SUMMARY

Site: 101 [2020 BG AM]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: George Street (S)													
Lane 1	195	1.5	1158	0.168	100	9.4	LOS A	4.2	29.5	Short	70	0.0	NA
Lane 2	40	0.4	236	0.168	100	26.4	LOS C	1.0	7.0	Full	80	0.0	0.0
Approach	235	1.3		0.168		12.3	LOS B	4.2	29.5				
East: Mary Street (E)													
Lane 1	51	0.0	520	0.097	100	34.1	LOS C	1.8	12.7	Short	40	0.0	NA
Lane 2	111	1.0	516	0.214	100	35.3	LOS D	4.1	29.2	Full	190	0.0	0.0
Approach	161	0.7		0.214		34.9	LOS C	4.1	29.2				
North: George Street (N)													
Lane 1	32	0.0	594	0.053	100	30.2	LOS C	1.1	7.4	Short	20	0.0	NA
Lane 2	148	0.0	702	0.211	100	23.7	LOS C	5.0	34.9	Full	80	0.0	0.0
Approach	180	0.0		0.211		24.9	LOS C	5.0	34.9				
Intersection	576	0.7		0.214		22.5	LOS C	5.0	34.9				

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

PHASING SUMMARY

Site: 101 [2020 BG AM]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

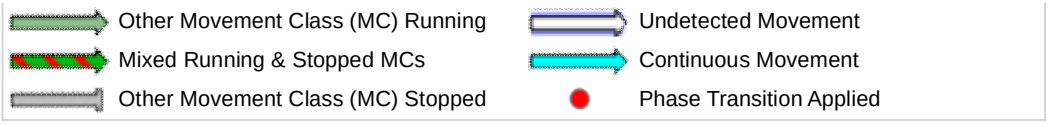
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	42	54	88
Green Time (sec)	36	6	28	6
Phase Time (sec)	42	12	34	12
Phase Split	42%	12%	34%	12%

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

Output Phase Sequence

REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101 [2020 BG PM]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: George Street (S)													
Lane 1	183	0.0	1404	0.130	71[5]	4.5	LOS A	2.7	18.9	Short	70	0.0	NA
Lane 2	40	2.6	219	0.183	100	31.0	LOS C	1.3	9.2	Full	80	0.0	0.0
Approach	223	0.5		0.183		9.3	LOS A	2.7	18.9				
East: Mary Street (E)													
Lane 1	39	0.0	297	0.131	100	45.0	LOS D	1.7	11.6	Short	40	0.0	NA
Lane 2	63	0.0	297	0.213	100	45.7	LOS D	2.7	19.2	Full	190	0.0	0.0
Approach	102	0.0		0.213		45.4	LOS D	2.7	19.2				
North: George Street (N)													
Lane 1	14	0.0	817	0.017	100	21.8	LOS C	0.4	2.6	Short	20	0.0	NA
Lane 2	206	0.0	926[1]	0.223	100	16.1	LOS B	5.8	40.5	Full	80	0.0	0.0
Approach	220	0.0		0.223		16.4	LOS B	5.8	40.5				
Intersection	545	0.2		0.223		18.9	LOS B	5.8	40.5				

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

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

PHASING SUMMARY

Site: 101 [2020 BG PM]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

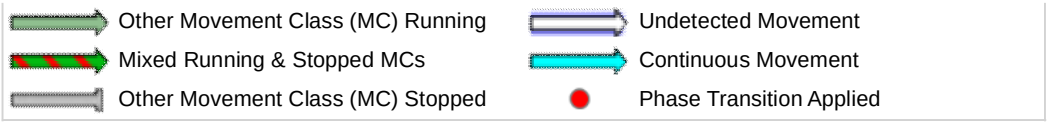
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	54	66	88
Green Time (sec)	48	6	16	6
Phase Time (sec)	54	12	22	12
Phase Split	54%	12%	22%	12%

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

Output Phase Sequence

REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101 [2020 BG AM + Dev]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: George Street (S)													
Lane 1	204	1.5	1158	0.176	88[5]	9.5	LOS A	4.4	31.0	Short	70	0.0	NA
Lane 2	41	25.6	204	0.201	100	27.9	LOS C	1.0	8.9	Full	80	0.0	0.0
Approach	245	5.6		0.201		12.5	LOS B	4.4	31.0				
East: Mary Street (E)													
Lane 1	51	0.0	520	0.097	100	34.1	LOS C	1.8	12.7	Short	40	0.0	NA
Lane 2	111	1.0	516	0.214	100	35.3	LOS D	4.1	29.2	Full	190	0.0	0.0
Approach	161	0.7		0.214		34.9	LOS C	4.1	29.2				
North: George Street (N)													
Lane 1	32	0.0	576	0.055	100	31.0	LOS C	1.1	7.5	Short	20	0.0	NA
Lane 2	148	0.0	680[1]	0.218	100	24.5	LOS C	5.1	35.5	Full	80	0.0	0.0
Approach	180	0.0		0.218		25.6	LOS C	5.1	35.5				
Intersection	586	2.5		0.218		22.7	LOS C	5.1	35.5				

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

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

PHASING SUMMARY

Site: 101 [2020 BG AM + Dev]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

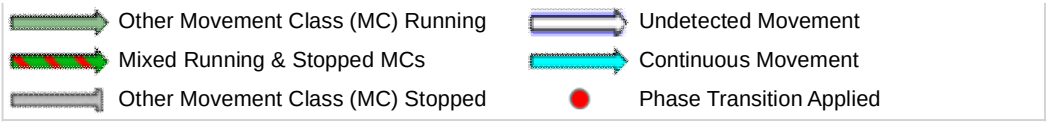
Phase Timing Summary

Phase	A	B	C	D
Phase Change Time (sec)	0	41	54	88
Green Time (sec)	35	7	28	6
Phase Time (sec)	41	13	34	12
Phase Split	41%	13%	34%	12%

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

Output Phase Sequence

REF: Reference Phase
VAR: Variable Phase



LANE SUMMARY

Site: 101 [2020 BG PM + Dev]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: George Street (S)													
Lane 1	183	0.0	1424	0.129	61[5]	4.2	LOS A	2.6	18.2	Short	70	0.0	NA
Lane 2	51	22.9	239	0.211	100	29.3	LOS C	1.6	13.1	Full	80	0.0	0.0
Approach	234	5.0		0.211		9.7	LOS A	2.6	18.2				
East: Mary Street (E)													
Lane 1	39	0.0	279	0.140	100	46.0	LOS D	1.7	11.8	Short	40	0.0	NA
Lane 2	63	0.0	279	0.227	100	46.7	LOS D	2.8	19.4	Full	190	0.0	0.0
Approach	102	0.0		0.227		46.5	LOS D	2.8	19.4				
North: George Street (N)													
Lane 1	14	0.0	780	0.018	100	23.0	LOS C	0.4	2.7	Short	20	0.0	NA
Lane 2	206	0.0	886[1]	0.233	100	17.3	LOS B	6.0	42.1	Full	80	0.0	0.0
Approach	220	0.0		0.233		17.7	LOS B	6.0	42.1				
Intersection	556	2.1		0.233		19.6	LOS B	6.0	42.1				

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

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

PHASING SUMMARY

Site: 101 [2020 BG PM + Dev]

George Street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Split Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

Phase Timing Summary

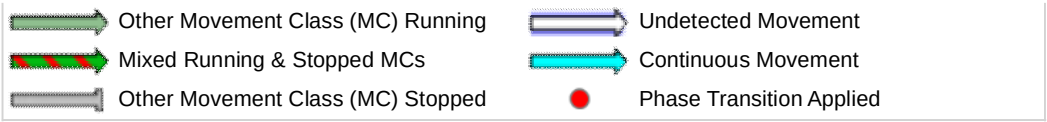
Phase	A	B	C	D
Phase Change Time (sec)	0	52	67	88
Green Time (sec)	46	9	15	6
Phase Time (sec)	52	15	21	12
Phase Split	52%	15%	21%	12%

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

Output Phase Sequence

REF: Reference Phase
VAR: Variable Phase

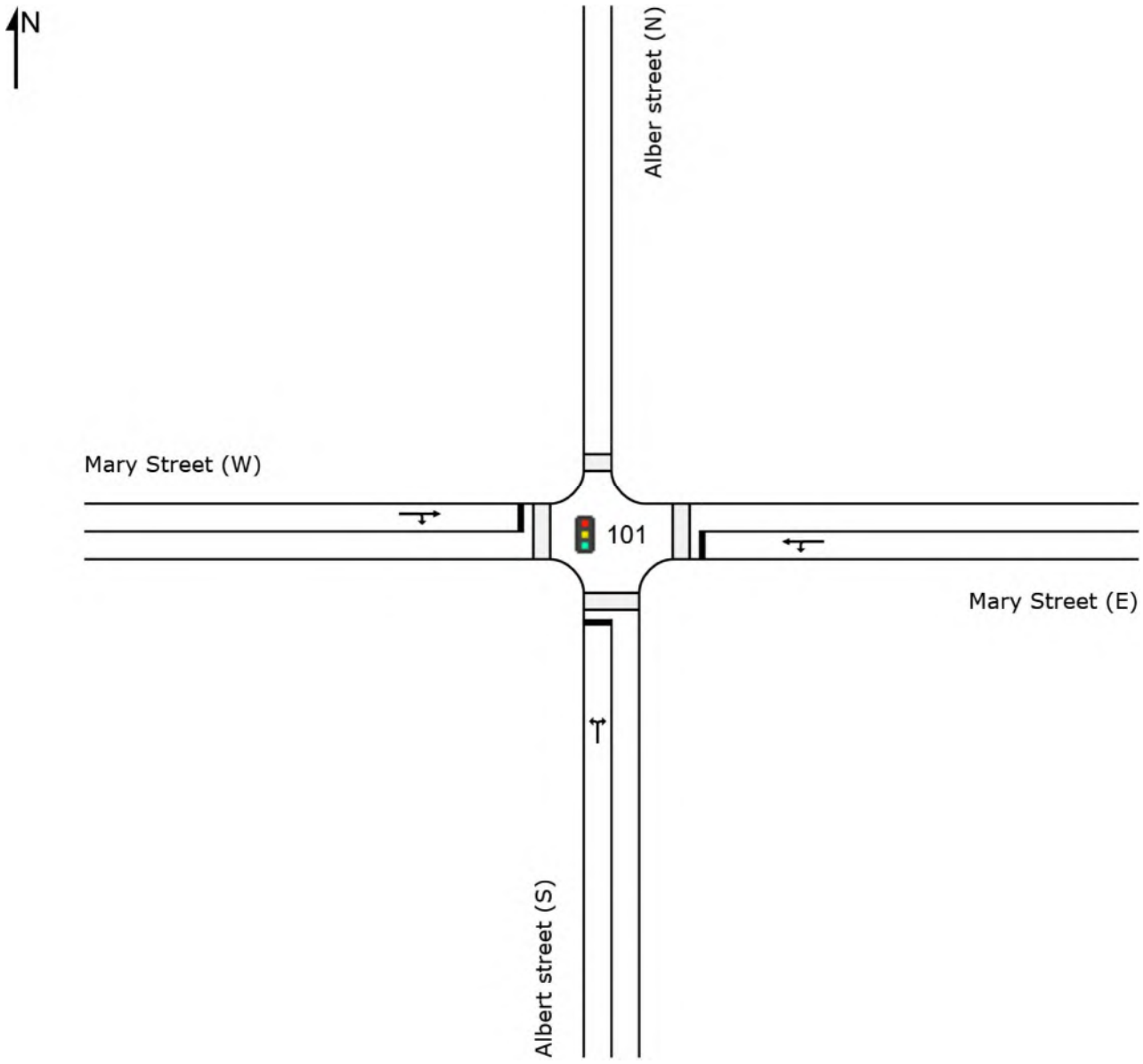
Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane
Stopped Movement
Turn On Red



SITE LAYOUT

Site: 101 [2020 BG AM]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated



LANE SUMMARY

Site: 101 [2020 BG AM]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Albert street (S)													
Lane 1	78	0.0	297	0.262	100	45.9	LOS D	3.4	23.9	Full	85	0.0	0.0
Approach	78	0.0		0.262		45.9	LOS D	3.4	23.9				
East: Mary Street (E)													
Lane 1	202	0.5	784	0.258	100	22.6	LOS C	6.5	45.4	Full	195	0.0	0.0
Approach	202	0.5		0.258		22.6	LOS C	6.5	45.4				
West: Mary Street (W)													
Lane 1	52	0.0	672	0.077	100	21.5	LOS C	1.6	11.0	Full	195	0.0	0.0
Approach	52	0.0		0.077		21.5	LOS C	1.6	11.0				
Intersection	332	0.3		0.262		27.9	LOS C	6.5	45.4				

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

PHASING SUMMARY

Site: 101 [2020 BG AM]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

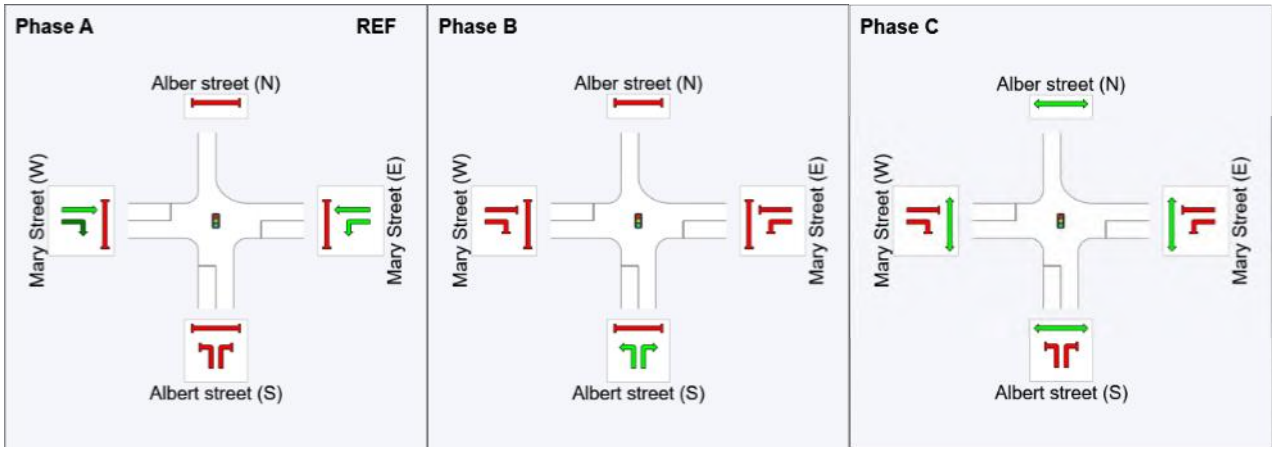
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	47	69
Green Time (sec)	41	16	25
Phase Time (sec)	47	22	31
Phase Split	47%	22%	31%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Albert street (S)													
Lane 1	45	2.3	274	0.165	100	46.1	LOS D	2.0	14.0	Full	85	0.0	0.0
Approach	45	2.3		0.165		46.1	LOS D	2.0	14.0				
East: Mary Street (E)													
Lane 1	119	1.8	718	0.166	100	24.0	LOS C	3.8	27.1	Full	195	0.0	0.0
Approach	119	1.8		0.166		24.0	LOS C	3.8	27.1				
West: Mary Street (W)													
Lane 1	34	3.1	671	0.050	100	21.5	LOS C	1.0	7.4	Full	195	0.0	0.0
Approach	34	3.1		0.050		21.5	LOS C	1.0	7.4				
Intersection	198	2.1		0.166		28.6	LOS C	3.8	27.1				

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

PHASING SUMMARY

Site: 101 [2020 BG PM]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

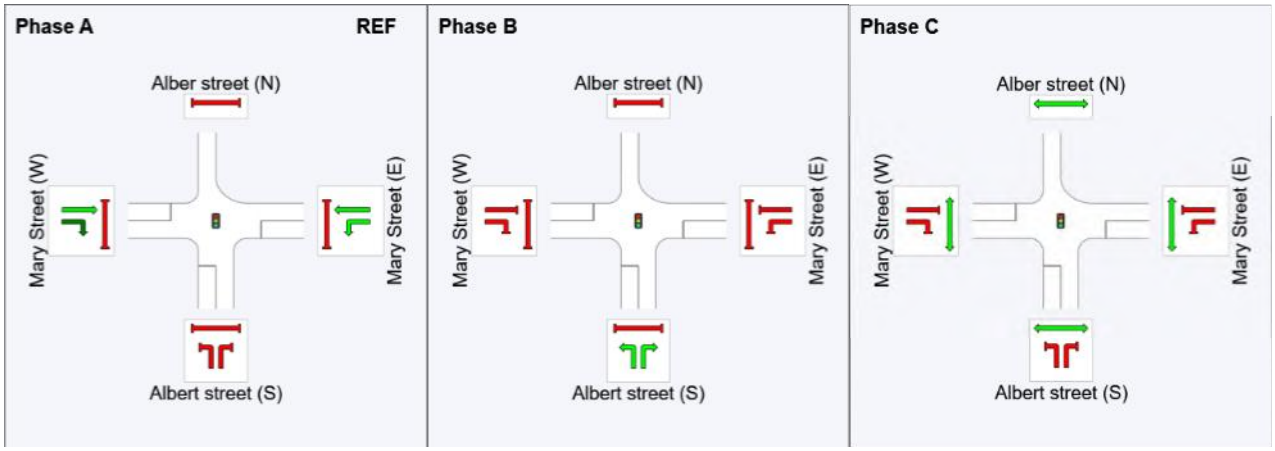
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	44	65
Green Time (sec)	38	15	29
Phase Time (sec)	44	21	35
Phase Split	44%	21%	35%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG AM +Dev]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Albert street (S)													
Lane 1	78	0.0	297	0.262	100	45.9	LOS D	3.4	23.9	Full	85	0.0	0.0
Approach	78	0.0		0.262		45.9	LOS D	3.4	23.9				
East: Mary Street (E)													
Lane 1	202	0.5	784	0.258	100	22.6	LOS C	6.5	45.4	Full	195	0.0	0.0
Approach	202	0.5		0.258		22.6	LOS C	6.5	45.4				
West: Mary Street (W)													
Lane 1	62	16.9	629	0.099	100	21.0	LOS C	1.9	15.1	Full	195	0.0	0.0
Approach	62	16.9		0.099		21.0	LOS C	1.9	15.1				
Intersection	342	3.4		0.262		27.6	LOS C	6.5	45.4				

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

PHASING SUMMARY

Site: 101 [2020 BG AM +Dev]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

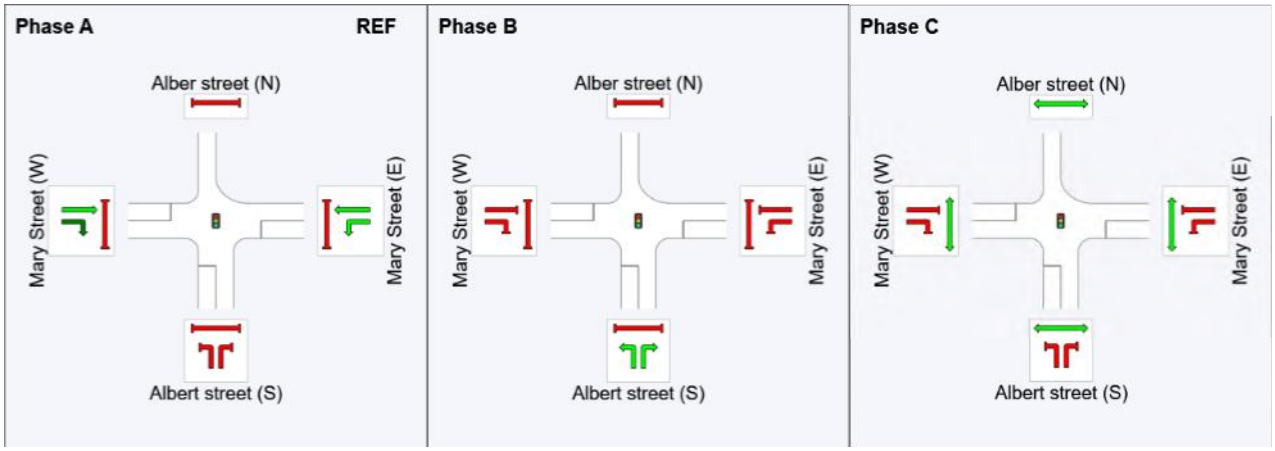
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	47	69
Green Time (sec)	41	16	25
Phase Time (sec)	47	22	31
Phase Split	47%	22%	31%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM +Dev]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
South: Albert street (S)													
Lane 1	45	2.3	274	0.165	100	46.1	LOS D	2.0	14.0	Full	85	0.0	0.0
Approach	45	2.3		0.165		46.1	LOS D	2.0	14.0				
East: Mary Street (E)													
Lane 1	119	1.8	718	0.166	100	24.0	LOS C	3.8	27.1	Full	195	0.0	0.0
Approach	119	1.8		0.166		24.0	LOS C	3.8	27.1				
West: Mary Street (W)													
Lane 1	44	26.2	599	0.074	100	21.6	LOS C	1.4	11.7	Full	195	0.0	0.0
Approach	44	26.2		0.074		21.6	LOS C	1.4	11.7				
Intersection	208	7.1		0.166		28.3	LOS C	3.8	27.1				

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

PHASING SUMMARY

Site: 101 [2020 BG PM +Dev]

Albert street/Mary Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

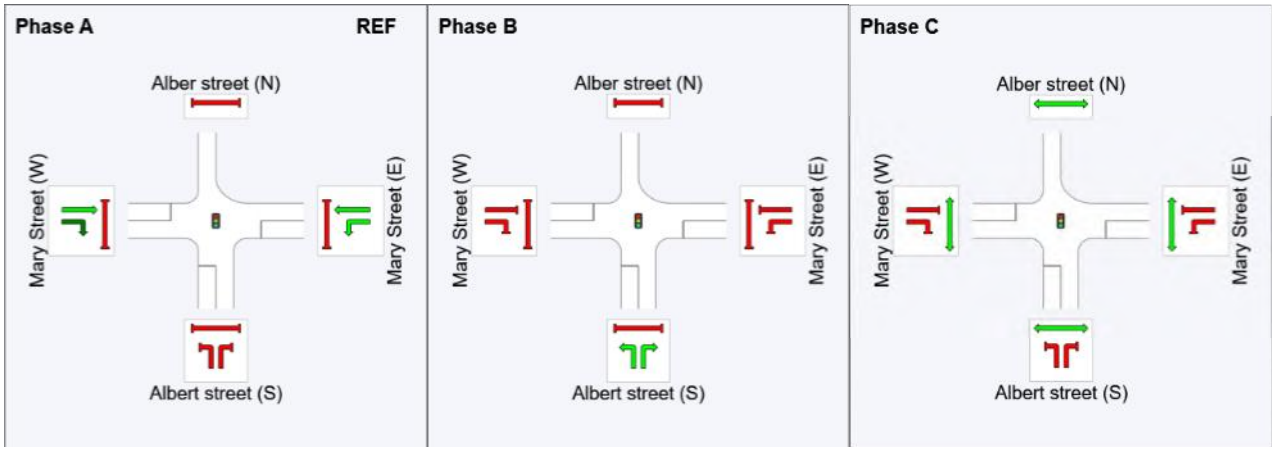
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	44	65
Green Time (sec)	38	15	29
Phase Time (sec)	44	21	35
Phase Split	44%	21%	35%

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

Output Phase Sequence



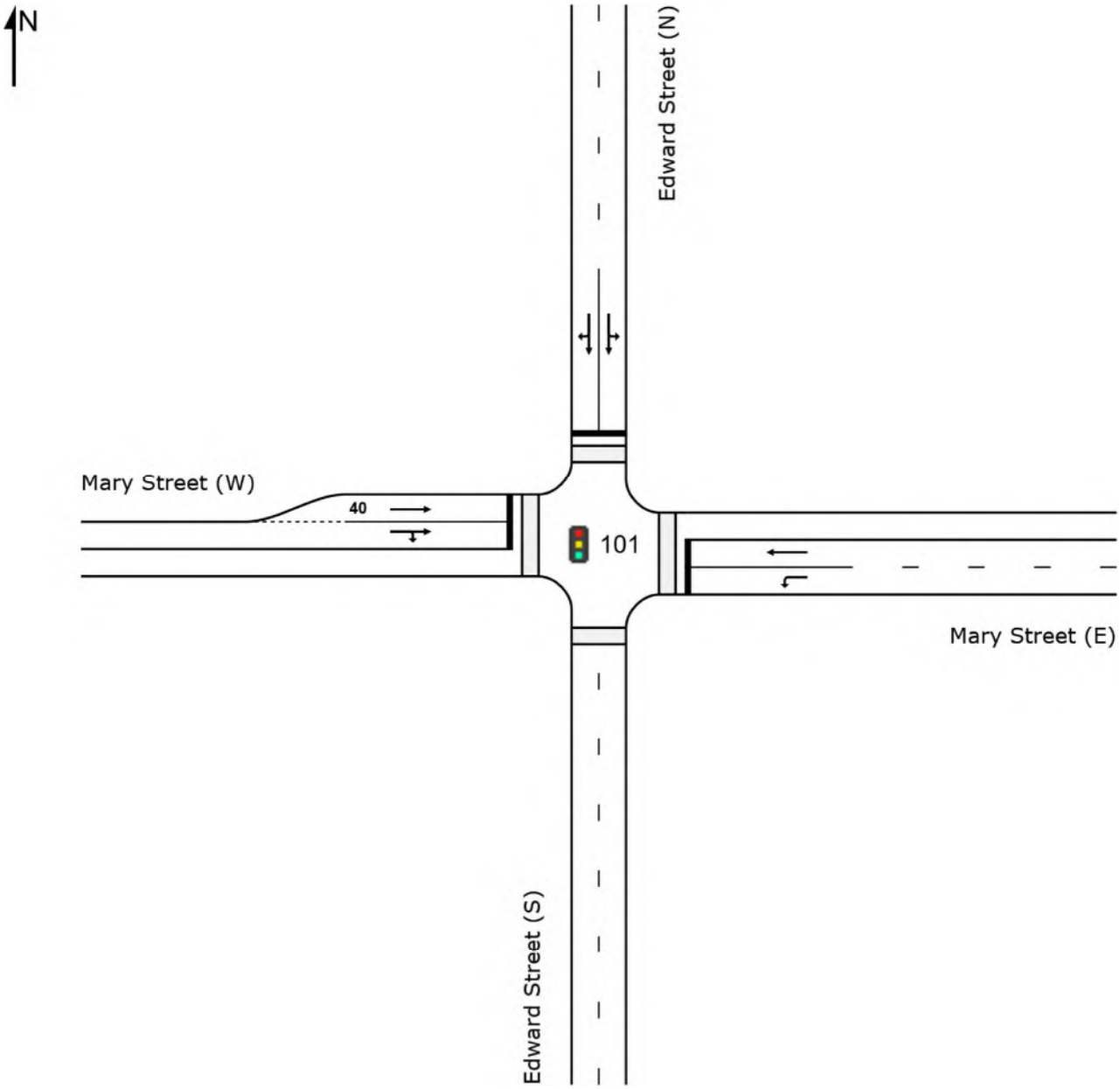
REF: Reference Phase
VAR: Variable Phase

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

SITE LAYOUT

Site: 101 [2020 BG AM]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated



LANE SUMMARY

Site: 101 [2020 BG AM]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Mary Street (E)													
Lane 1	177	0.0	520	0.340	100	35.2	LOS D	6.9	48.4	Full	55	0.0	0.0
Lane 2	145	0.7	660	0.220	100	25.2	LOS C	5.0	35.5	Full	55	0.0	0.0
Approach	322	0.3		0.340		30.7	LOS C	6.9	48.4				
North: Edward Street (N)													
Lane 1	341	0.2	1002	0.340	100	15.9	LOS B	9.6	67.3	Full	85	0.0	0.0
Lane 2	188	0.7	553	0.340	100	32.0	LOS C	7.2	51.0	Full	85	0.0	0.0
Approach	529	0.4		0.340		21.6	LOS C	9.6	67.3				
West: Mary Street (W)													
Lane 1	25	0.0	663	0.038	20[6]	23.4	LOS C	0.8	5.7	Short	40	0.0	NA
Lane 2	70	1.5	366	0.190	100	35.4	LOS D	2.7	19.4	Full	195	0.0	0.0
Approach	95	1.1		0.190		32.2	LOS C	2.7	19.4				
Intersection	946	0.4		0.340		25.8	LOS C	9.6	67.3				

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

6 Lane under-utilisation due to downstream effects

PHASING SUMMARY

Site: 101 [2020 BG AM]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

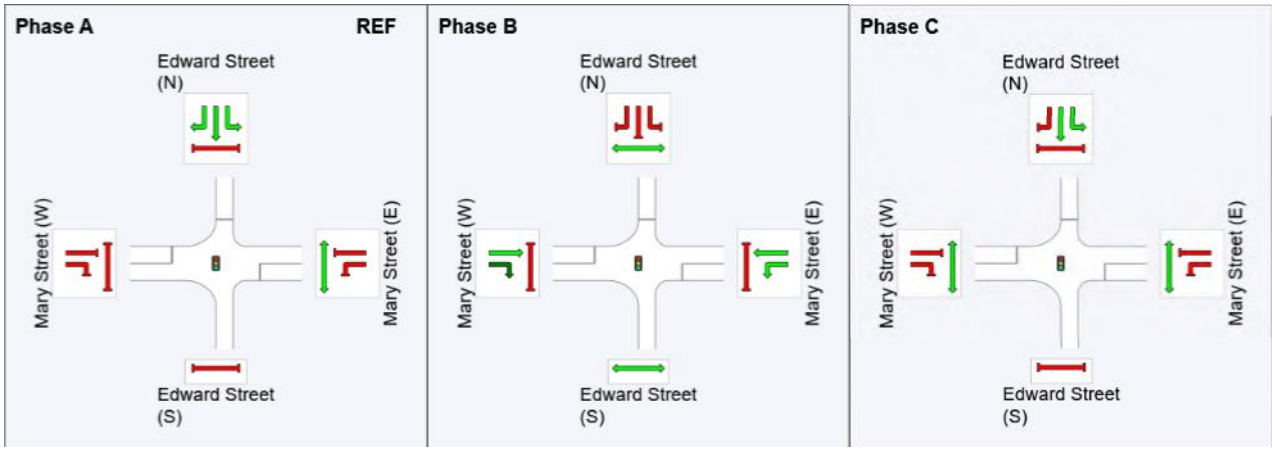
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	41	81
Green Time (sec)	35	34	13
Phase Time (sec)	41	40	19
Phase Split	41%	40%	19%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Mary Street (E)													
Lane 1	165	0.0	501	0.330	100	35.8	LOS D	6.5	45.6	Full	55	0.0	0.0
Lane 2	92	1.1	639	0.143	100	25.2	LOS C	3.1	22.1	Full	55	0.0	0.0
Approach	257	0.4		0.330		32.0	LOS C	6.5	45.6				
North: Edward Street (N)													
Lane 1	337	0.6	1040	0.324	100	14.2	LOS B	9.0	63.7	Full	85	0.0	0.0
Lane 2	187	0.6	578	0.324	100	30.1	LOS C	7.1	49.9	Full	85	0.0	0.0
Approach	524	0.6		0.324		19.9	LOS B	9.0	63.7				
West: Mary Street (W)													
Lane 1	15	0.0	644	0.023	20[6]	23.9	LOS C	0.5	3.4	Short	40	0.0	NA
Lane 2	47	2.2	405	0.116	100	33.1	LOS C	1.8	12.8	Full	195	0.0	0.0
Approach	62	1.7		0.116		30.9	LOS C	1.8	12.8				
Intersection	843	0.6		0.330		24.4	LOS C	9.0	63.7				

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

6 Lane under-utilisation due to downstream effects

PHASING SUMMARY

Site: 101 [2020 BG PM]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

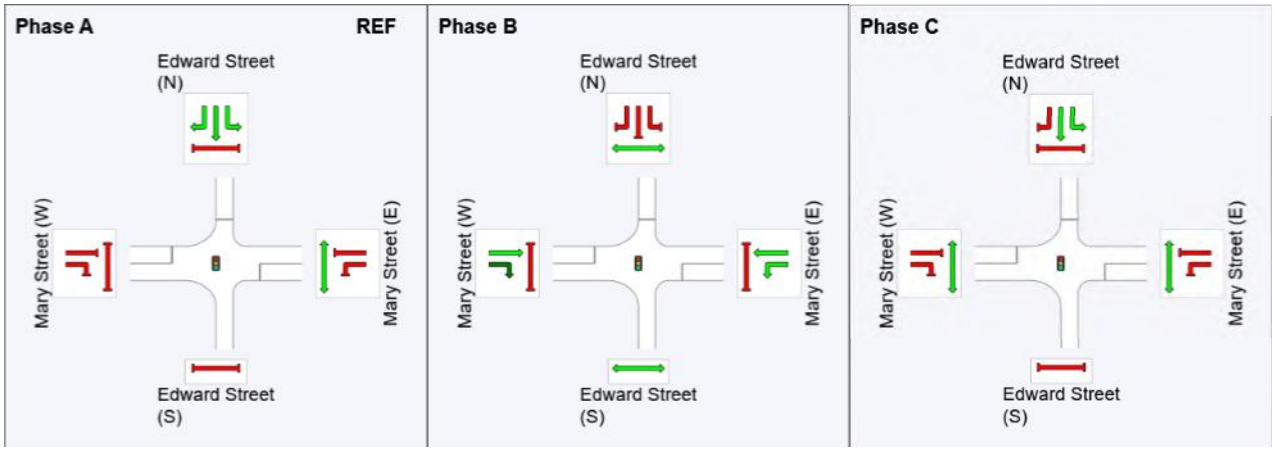
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	42	81
Green Time (sec)	36	33	13
Phase Time (sec)	42	39	19
Phase Split	42%	39%	19%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG AM + Dev]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Mary Street (E)													
Lane 1	177	0.0	520	0.340	100	35.2	LOS D	6.9	48.4	Full	55	0.0	0.0
Lane 2	145	0.7	660	0.220	100	25.2	LOS C	5.0	35.5	Full	55	0.0	0.0
Approach	322	0.3		0.340		30.7	LOS C	6.9	48.4				
North: Edward Street (N)													
Lane 1	341	0.2	1002	0.340	100	15.9	LOS B	9.6	67.3	Full	85	0.0	0.0
Lane 2	188	0.7	553	0.340	100	32.0	LOS C	7.2	51.0	Full	85	0.0	0.0
Approach	529	0.4		0.340		21.6	LOS C	9.6	67.3				
West: Mary Street (W)													
Lane 1	32	0.0	663	0.048	20[6]	23.5	LOS C	1.0	7.2	Short	40	0.0	NA
Lane 2	73	15.8	306	0.240	100	37.8	LOS D	3.0	23.8	Full	195	0.0	0.0
Approach	105	11.0		0.240		33.5	LOS C	3.0	23.8				
Intersection	957	1.5		0.340		26.0	LOS C	9.6	67.3				

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

6 Lane under-utilisation due to downstream effects

PHASING SUMMARY

Site: 101 [2020 BG AM + Dev]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Timings based on settings in the Site Phasing & Timing dialog
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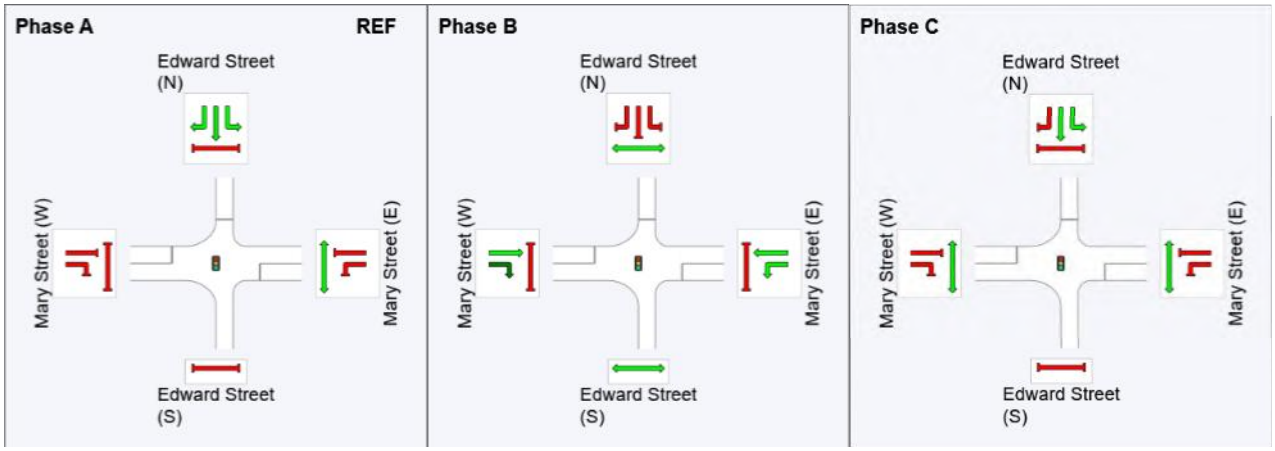
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	41	81
Green Time (sec)	35	34	13
Phase Time (sec)	41	40	19
Phase Split	41%	40%	19%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM + Dev]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Mary Street (E)													
Lane 1	165	0.0	501	0.330	100	35.8	LOS D	6.5	45.6	Full	55	0.0	0.0
Lane 2	92	1.1	639	0.143	100	25.2	LOS C	3.1	22.1	Full	55	0.0	0.0
Approach	257	0.4		0.330		32.0	LOS C	6.5	45.6				
North: Edward Street (N)													
Lane 1	337	0.6	1040	0.324	100	14.2	LOS B	9.0	63.7	Full	85	0.0	0.0
Lane 2	187	0.6	578	0.324	100	30.1	LOS C	7.1	49.9	Full	85	0.0	0.0
Approach	524	0.6		0.324		19.9	LOS B	9.0	63.7				
West: Mary Street (W)													
Lane 1	21	0.0	644	0.033	20[6]	24.1	LOS C	0.7	4.9	Short	40	0.0	NA
Lane 2	51	22.6	308	0.166	100	36.8	LOS D	2.0	17.1	Full	195	0.0	0.0
Approach	73	15.9		0.166		33.1	LOS C	2.0	17.1				
Intersection	854	1.8		0.330		24.6	LOS C	9.0	63.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Lane LOS values are based on average delay per lane.
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HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

6 Lane under-utilisation due to downstream effects

PHASING SUMMARY

Site: 101 [2020 BG PM + Dev]

Mary Street/Edward Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

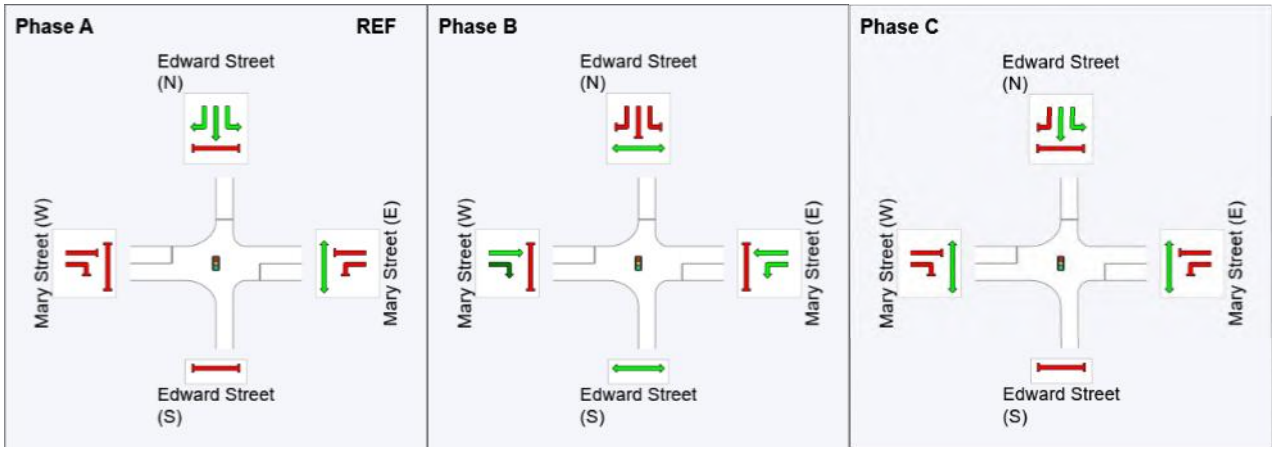
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

Phase Timing Summary

Phase	A	B	C
Phase Change Time (sec)	0	42	81
Green Time (sec)	36	33	13
Phase Time (sec)	42	39	19
Phase Split	42%	39%	19%

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

Output Phase Sequence



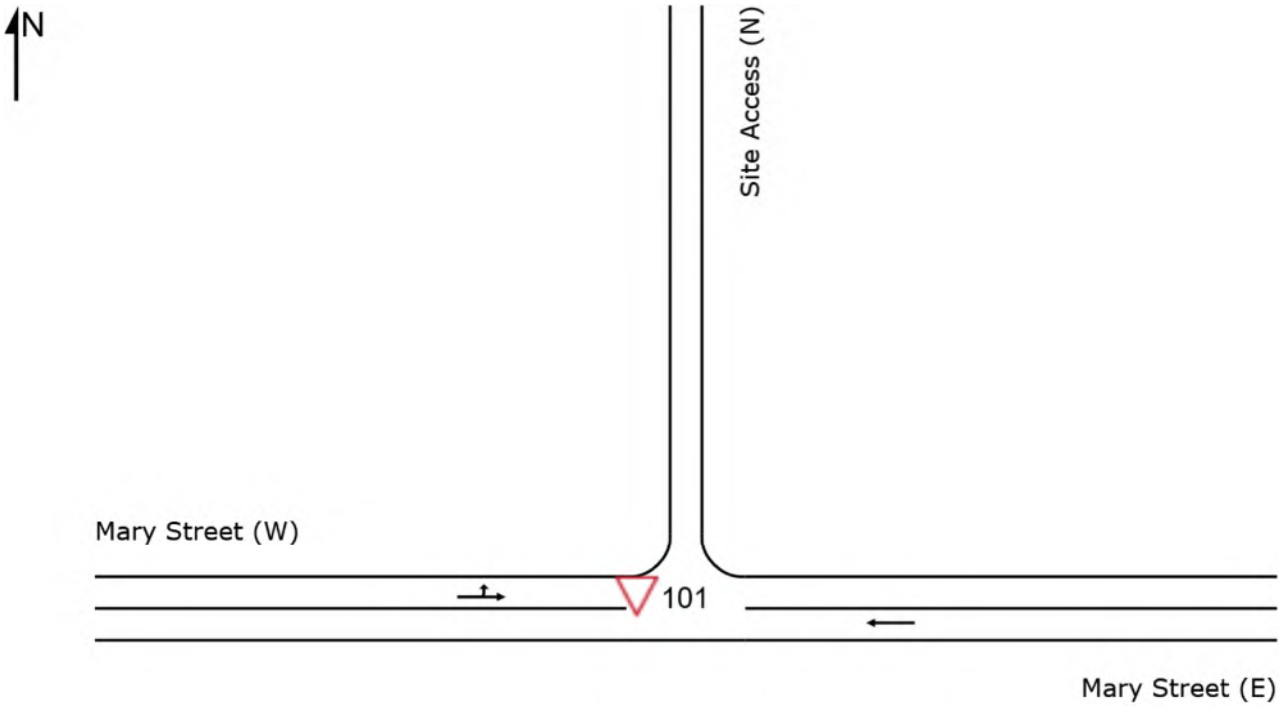
REF: Reference Phase
VAR: Variable Phase

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

SITE LAYOUT

Site: 101 [2020 BG AM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)



LANE SUMMARY

Site: 101 [2020 BG AM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Mary Street (E)													
Lane 1	211	1.0	1937	0.109	100	0.0	LOS A	0.0	0.0	Full	170	0.0	0.0
Approach	211	1.0		0.109		0.0	NA	0.0	0.0				
West: Mary Street (W)													
Lane 1	118	17.9	1727	0.068	100	0.3	LOS A	0.0	0.0	Full	5	0.0	0.0
Approach	118	17.9		0.068		0.3	NA	0.0	0.0				
Intersection	328	7.1		0.109		0.1	NA	0.0	0.0				

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

LANE SUMMARY

Site: 101 [2020 BG PM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

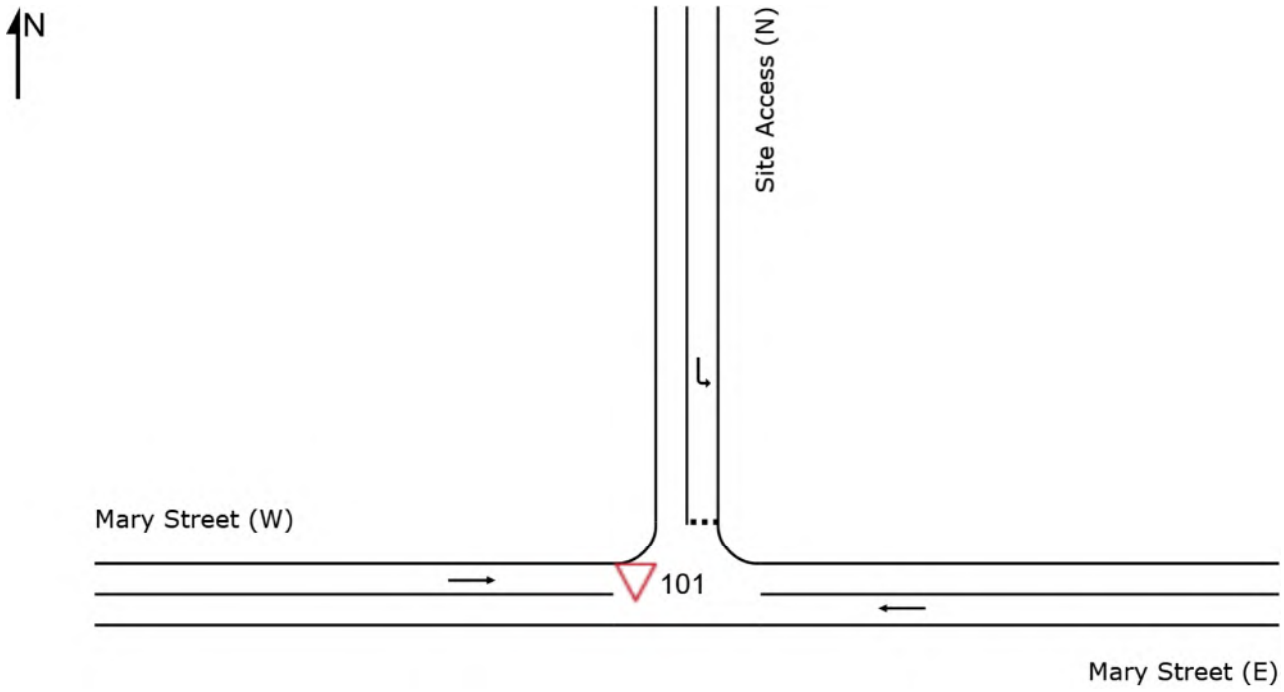
	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Mary Street (E)													
Lane 1	121	0.9	1939	0.062	100	0.0	LOS A	0.0	0.0	Full	170	0.0	0.0
Approach	121	0.9		0.062		0.0	NA	0.0	0.0				
West: Mary Street (W)													
Lane 1	77	30.1	1603	0.048	100	0.5	LOS A	0.0	0.0	Full	5	0.0	0.0
Approach	77	30.1		0.048		0.5	NA	0.0	0.0				
Intersection	198	12.2		0.062		0.1	NA	0.0	0.0				

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

SITE LAYOUT

Site: 101 [2020 BG AM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)



LANE SUMMARY

Site: 101 [2020 BG AM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Mary Street (E)													
Lane 1	211	1.0	1937	0.109	100	0.0	LOS A	0.0	0.0	Full	170	0.0	0.0
Approach	211	1.0		0.109		0.0	NA	0.0	0.0				
North: Site Access (N)													
Lane 1	11	100.0	966	0.011	100	2.9	LOS A	0.0	0.6	Full	10	0.0	0.0
Approach	11	100.0		0.011		2.9	LOS A	0.0	0.6				
West: Mary Street (W)													
Lane 1	107	9.8	1833	0.059	100	0.0	LOS A	0.0	0.0	Full	5	0.0	0.0
Approach	107	9.8		0.059		0.0	NA	0.0	0.0				
Intersection	328	7.1		0.109		0.1	NA	0.0	0.6				

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

LANE SUMMARY

Site: 101 [2020 BG PM + Dev]

Mary Street/Site Access
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Mary Street (E)													
Lane 1	121	0.9	1939	0.062	100	0.0	LOS A	0.0	0.0	Full	170	0.0	0.0
Approach	121	0.9		0.062		0.0	NA	0.0	0.0				
North: Site Access (N)													
Lane 1	11	100.0	1010	0.010	100	2.7	LOS A	0.0	0.6	Full	10	0.0	0.0
Approach	11	100.0		0.010		2.7	LOS A	0.0	0.6				
West: Mary Street (W)													
Lane 1	66	19.0	1735	0.038	100	0.0	LOS A	0.0	0.0	Full	5	0.0	0.0
Approach	66	19.0		0.038		0.0	NA	0.0	0.0				
Intersection	198	12.2		0.062		0.1	NA	0.0	0.6				

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

Attachment D Technical Report - Traffic and Transport (Roma Street Railway Station Worksite)

Traffic Impact Assessment

Cross River Rail Roma Street Precinct

T0920001

Prepared for

CBGU Joint Venture

20 January 2021

Cardno

Table of Contents

Appendices

Tables

Figures

1 Introduction

Cardno has been commissioned by CBGU Joint Venture to undertake a Traffic Impact Assessment (TIA) in relation to the proposed construction activities for the Cross River Rail project.

The purpose of this assessment is limited to potential traffic impacts associated with the proposal to include haulage on Sundays and considers road design and traffic operations.

1.1 Context

The construction of the future Roma Street Station of the Cross River Rail project is bound by Countess Street, Parkland Boulevard and Roma Street.

The assessment for the Roma Street precinct considers Sunday haulage and deliveries between 9:00am and 6:30pm. This assessment is based on 10 heavy vehicles per hour (total movements per hour). The assessment considers impacts on key intersections along Roma Street, at Herschel Street and Parkland Boulevard.

1.2 References

The following documents have been referred to in preparing this assessment:

- Brisbane City Council City Plan 2014 Interactive Mapping (2020)
- Department of Transport and Main Road Guidelines for Assessment of Road Impacts of Development
- Department of Transport and Main Road Guide to Traffic Impact Assessments
- Queensland Government Queensland Globe (2020)

1.3 Limitations

Cardno has completed this traffic report in accordance with the usual care and thoroughness of the consulting profession. The assessment is based on accepted traffic engineering practises and standards applicable at the time of undertaking the assessment. The assessment was completed in December 2020, and is based upon the conditions encountered and project information available at the time. Cardno disclaims responsibility for any changes to project planning or road conditions that may occur after completion of the assessment.

2 Existing Situation

2.1 Site Location

The location of the site and the surrounding road network is illustrated on Figure 2-1.

Figure 2-1 Site Location

Source: Nearmap

2.2 Existing Road Network

2.2.1 Road Hierarchy

In accordance with Brisbane City Council's road hierarchy mapping, the road classification for each of the study roads is outlined in Table 2-1.

Table 2-1 Road Hierarchy

Road Names	Road Hierarchy
Herschel Street	Neighbourhood road
George Street	Suburban road
Parkland Boulevard	Neighbourhood road
Countess Street	Arterial Road
Makerston Street	Neighbourhood road
Roma Street	Suburban road

Figure 2-2 illustrates the road hierarchy in context with the site.

Figure 2-2 Road Hierarchy

Source: Nearmap

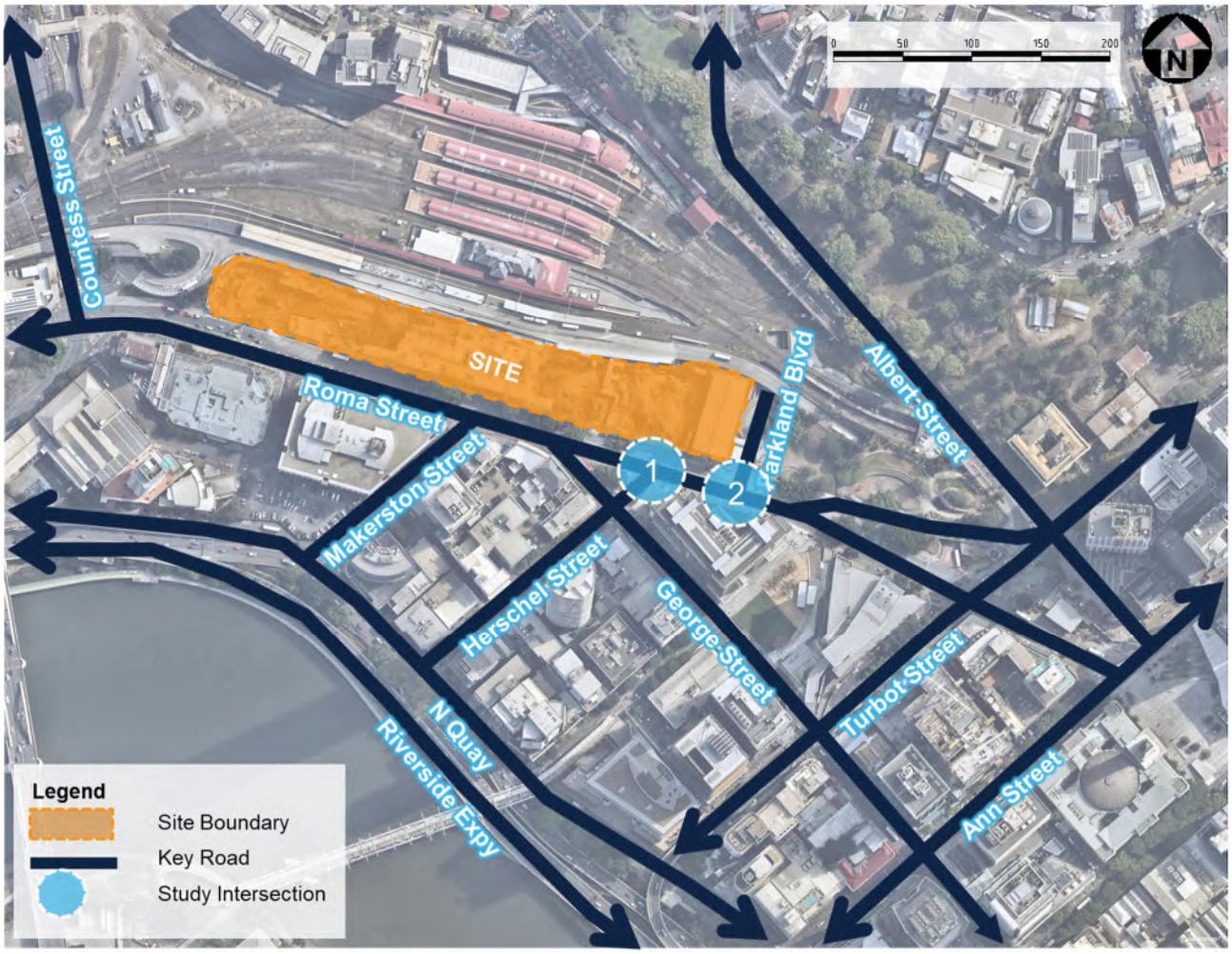
2.2.2 Key Intersections

Two key intersections have been included in this assessment:

1. Roma Street/Herschel Street
2. Roma Street/Parkland Boulevard

Figure 2-3 illustrates the locations of these intersections.

Figure 2-3 Key Intersections



Source: Nearmap

2.3 Planned Road/Intersection Upgrades

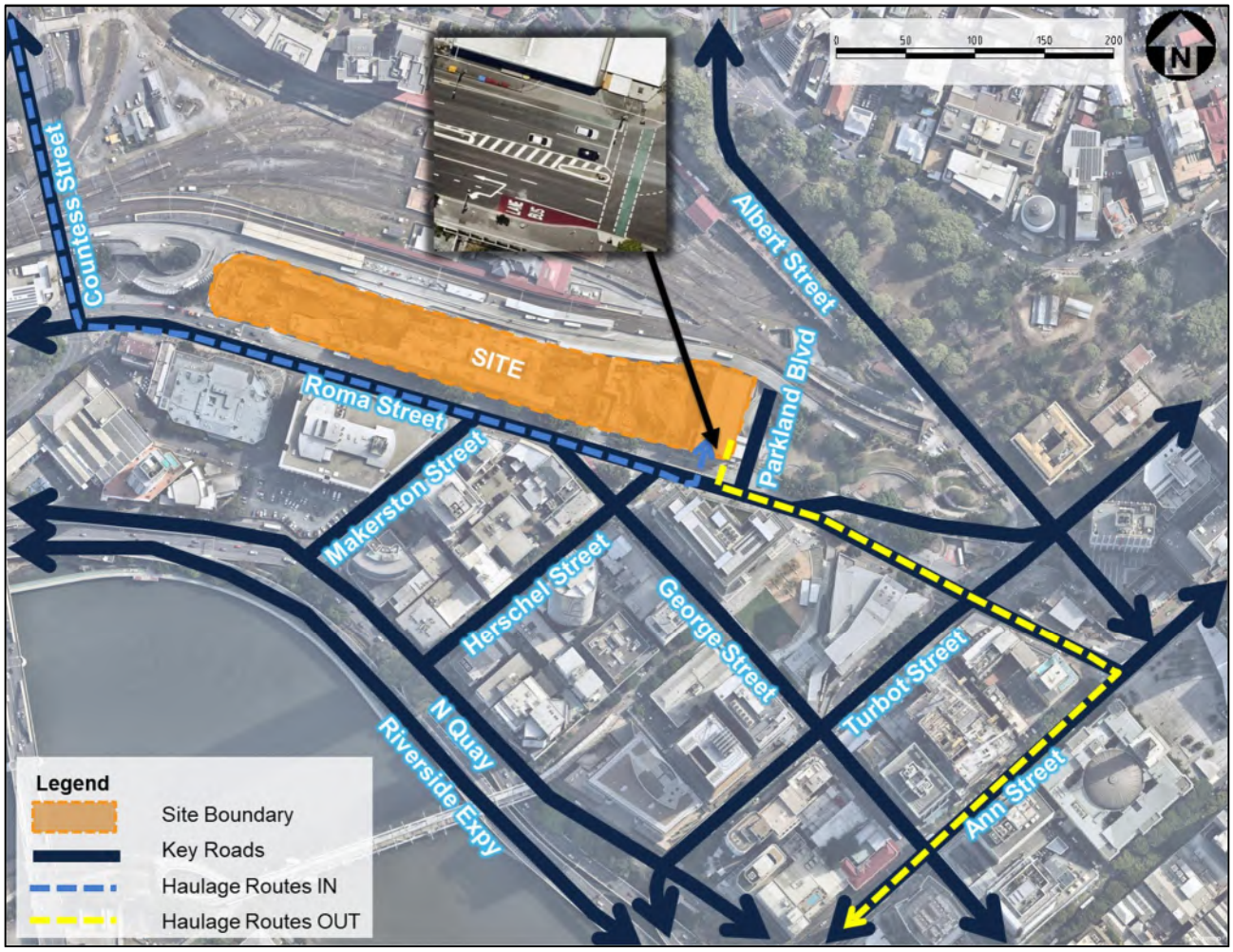
Review of the Brisbane City Council planning scheme identifies that there are no planned road upgrades on the roads in the vicinity of the key intersections.

3 Proposed Development

3.1 Site Access

The development is proposing to utilise the existing left-in left-out access on Roma Street located between Herschel Street and Parkland Boulevard. The site access location and proposed haulage route movements are illustrated on Figure 3-1.

Figure 3-1 Haulage Route and Access Location



Source: Nearmap

4 Traffic Assumptions and Characteristics

4.1 Background Traffic Volumes

To understand the existing traffic conditions, a 12-hour traffic survey was undertaken by Austraffic between 6:30AM – 6:30PM on Sunday 29th November 2020, for the following intersections:

- Roma Street/Herschel Street
- Roma Street/Parkland Boulevard

A review of the survey indicated that the AM and PM peak period as a network was as follows:

- 10:30 AM – 11:30 AM
- 3:45 PM – 4:45 PM

Detailed traffic count information is included in **Appendix A.**

4.2 Assessed Intersections

As outlined in Figure 2-3, the following intersections formed the scope of this study:

1. Roma Street/Herschel Street
2. Roma Street/Parkland Boulevard

In addition, the site access on Roma Street has been assessed.

4.3 Project Traffic Volumes

The total number of construction vehicles expected for the project are 10 heavy vehicles per hour (vph). Accordingly, the assessment has been prepared on the basis that 10 vph enter the site and 10 vph exit from the site for each assessment peak hour.

4.3.1 Trip Distribution

The access to the construction site is restricted to left-in left-out, thus it is anticipated that all vehicles will access the site from the west and exit to the east, as per the route diagram in Figure 3-1.

4.3.2 Directional Distribution

A summary of the in / out splits adopted for the construction vehicles are summarised in Table 4-14-1.

Table 4-1 Construction Traffic In / Out Splits

Site Traffic	AM Peak		PM Peak	
	IN	OUT	IN	OUT
Construction Vehicles	50%	50%	50%	50%

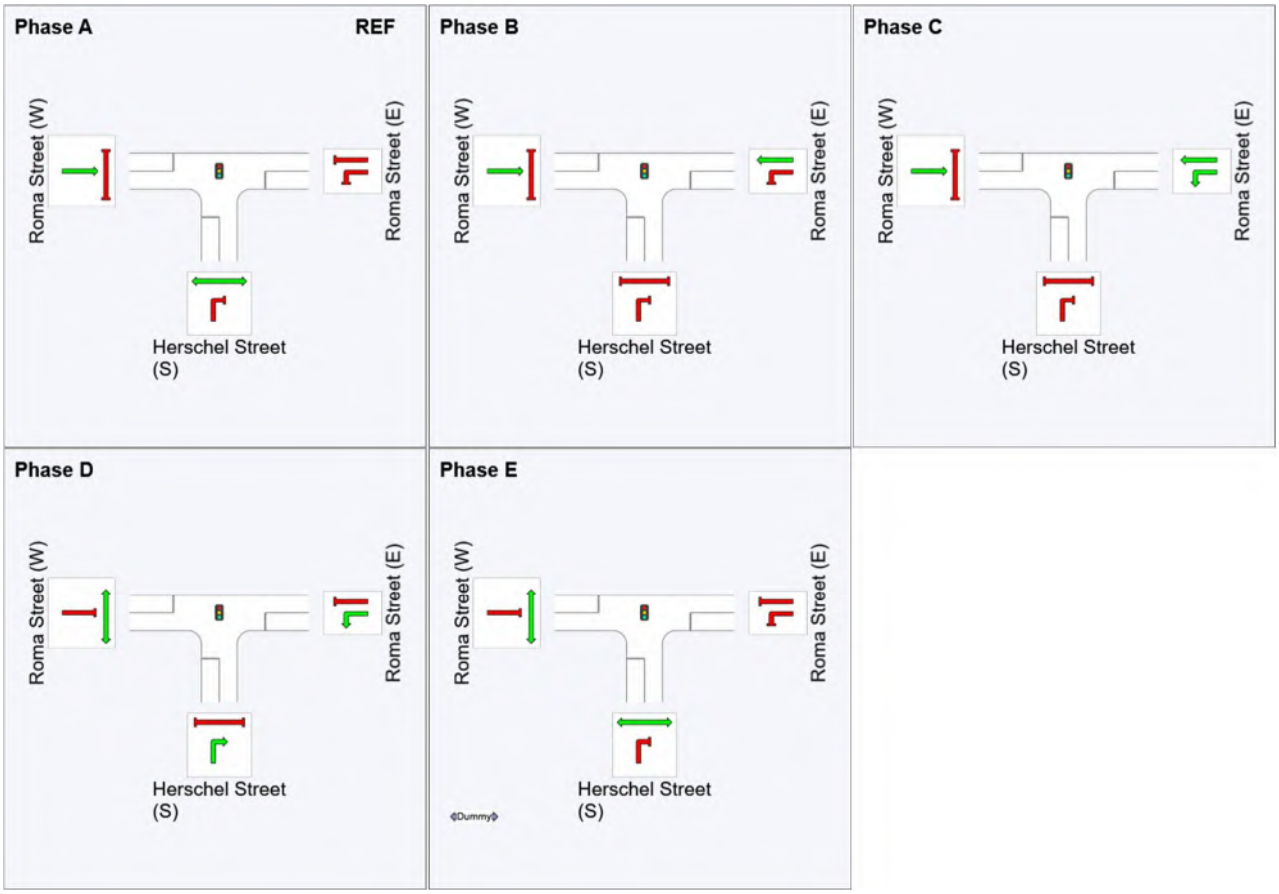
4.4 Signal Phasing

Signal phasing plans have been received from Council and reviewed to inform the SIDRA analysis for the two signalised intersections:

- Roma Street/Herschel Street
- Roma Street/Parkland Boulevard

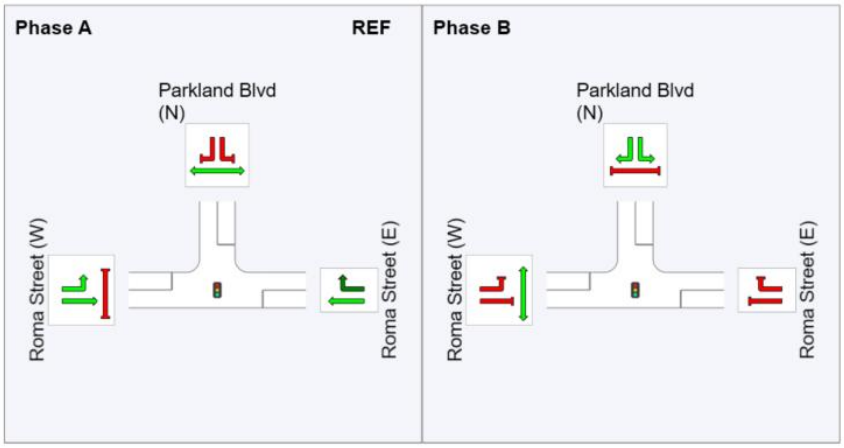
The phasing adopted for the study intersections are outlined in Figure 4-1 and Figure 4-2. Timing has been optimised for each intersection considering the assessed day is a Sunday.

Figure 4-1 Roma Street / Herschel Street Phasing



Note: B phase is not used during construction activities and has not been modelled, E phase is only used for CRR construction access egress movements and has only been modelled for the 'With Construction' traffic scenarios

Figure 4-2 Roma Street / Parkland Boulevard Phasing



5 Operational Assessment

5.1 Assessment Scenarios

The following assessment scenarios have been adopted for this assessment:

- 2020 Background (without construction traffic) – volumes as per surveys
- 2020 Background (with construction traffic) – survey volumes with the addition of construction volumes as advised

5.2 Assessment Criteria

The performance of the study intersections have been analysed using SIDRA Intersection 8 (SIDRA). SIDRA is an industry recognised analysis tool that estimates the capacity and performance of intersections based on input parameters, including geometry and traffic volumes, and provides estimates of an intersection's Degree of Saturation (DOS), queues and delays.

5.2.1 Intersection Delay

The TMR Guide to Traffic Impact Assessments (GTIA) recognises the intersection delay as a greater indicator of intersection performance in comparison to the previous TMR Guidelines for Assessment of Road Impacts of Development (GARID) significance on the degree of saturation (DOS).

The desired outcome outlined by the GTIA is to ensure that the sum of all intersection delays on the base traffic within the study area does not significantly worsen (i.e. does not increase average delays by more than 5% in aggregate) as a result of the development. The proposed development should seek to achieve no net worsening to efficiency across the impact assessment area.

Intersection mitigation measures (avoid, manage or mitigate) must be considered where the sum of all intersection delays on the base traffic is greater than 5% in aggregate. Furthermore, for priority controlled intersections, where the average peak hour delays for any movement exceeds 42 seconds, the intersection should be upgraded for safety reasons.

5.2.2 Intersection Degree of Saturation

While the movement delay is considered to provide a better indication of intersection performance and safety for priority controlled intersections and roundabouts, the DOS should still be considered when assessing the performance of the intersection. Table 5-1 provides the DOS thresholds adopted for the assessment.

Table 5-1 Adopted Intersection Performance Threshold – Degree of Saturation

Intersection Treatment	DOS Threshold
Signalised Intersections	Less than or equal to 0.90
Roundabouts	Less than or equal to 0.85
Priority controlled intersections	Less than or equal to 0.80

Source: TMR Guidelines for Assessment of Road Impacts Development

The guideline notes that a DOS exceeding the values indicated in Table 5-1 indicates that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience increasing delays and queueing.

5.3 Modelling Parameters

A summary of the SIDRA Modelling parameters adopted for this assessment are summarised below:

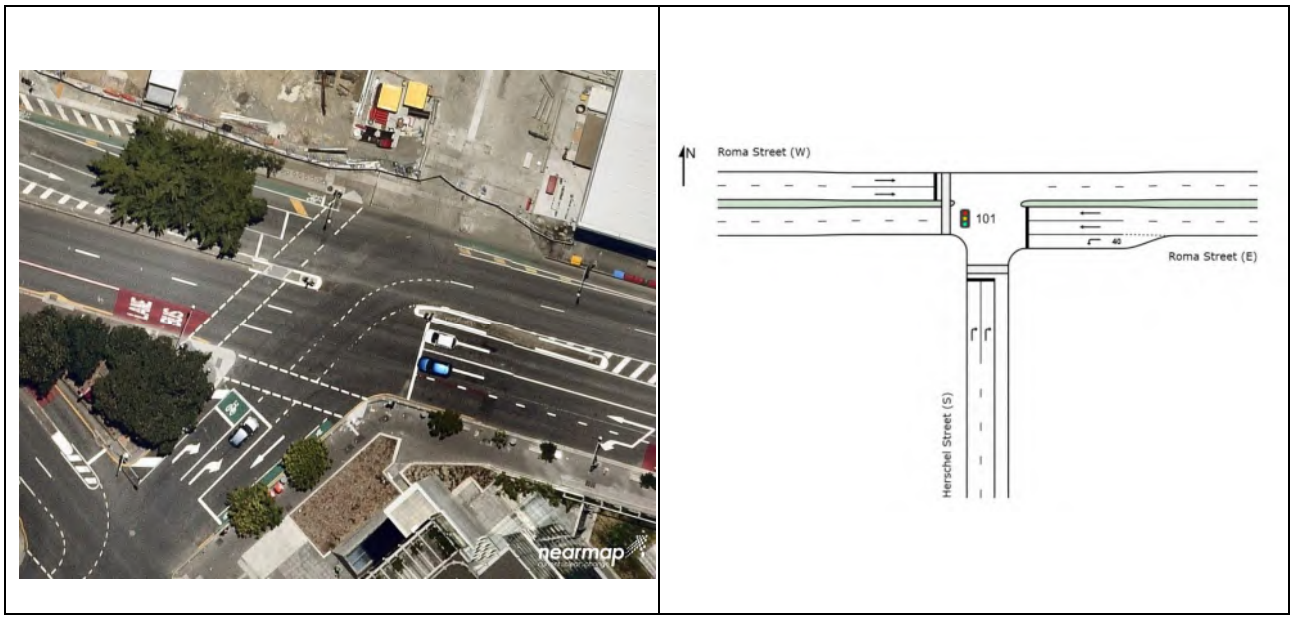
- Peak Flow Factor – 0.95 (30min/60min)
- Basic Saturation Flow – 1,950tcu/hr.
- Existing heavy vehicle proportions for all movements

A copy of the SIDRA summary results are included at **Appendix B**.

5.4 Roma Street / Herschel Street

The current configuration of this intersection is a three-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated on Figure 5-1.

Figure 5-1 Current and SIDRA Assessed Layout – Roma Street / Herschel Street Intersection



The results of the SIDRA assessment, for all assessed scenarios, are summarised in Table 5-2.

Table 5-2 SIDRA Results – Roma Street / Herschel Street Intersection

Scenarios	Sunday AM Peak			Sunday PM Peak		
	DOS	Delay (sec)	95th %ile Queue (m)	DOS	Delay (sec)	95th %ile Queue (m)
2020 BG	0.125	10.3	16.9	0.123	12.3	18.8
2020 BG + Construction Vehicles	0.150	11.1	24.5	0.165	16.0	29.9

The results of the analysis indicate that the three-way signalised arrangement operates within the typical performance thresholds (DOS ≤ 0.90 for signalised), for all assessed scenarios. It is noted that with the inclusion of the proposed additional construction traffic, the average delay and 95th percentile queue are increased to some extent when compared to the background scenarios.

This is a result of the introduction of the construction traffic related E phase to the signal timings, which introduces slight delays to vehicle movements. In particular, during the AM peak, the Herschel Street and Roma Street western approaches experience delay increases of approximately 3 seconds while during the PM peak, the Roma Street western approach experiences increases in delay by 7 seconds.

Conversely, as a result in the phase time adjustments, delays are improved for the Roma Street eastern approach during both peaks (reduced by 5 seconds in the AM peak and by <1 second in the PM peak), in addition to the Herschel Street approach experiencing reduced delays of up to 3 seconds during the PM peak.

Overall, the intersection is noted to operate well within acceptable thresholds and the impact of the additional heavy vehicles will have a minor impact.

5.5 Roma Street / Parkland Boulevard

The current configuration of this intersection is a three-way signalised arrangement. The aerial and SIDRA assessed layout are illustrated on Figure 5-2.

Figure 5-2 Current and SIDRA Assessed Layout – Roma Street / Parkland Boulevard Intersection

The results of the SIDRA assessment, for all assessed scenarios, are summarised in Table 5-3.

Table 5-3 SIDRA Results – Roma Street / Parkland Boulevard Intersection

Scenarios	Sunday AM Peak			Sunday PM Peak		
	DOS	Delay (sec)	95th %ile Queue (m)	DOS	Delay (sec)	95th %ile Queue (m)
2020 BG	0.171	11.7	29.4	0.159	12.0	27.2
2020 BG + Construction Vehicles	0.176	11.4	30.1	0.164	11.7	27.9

The results of the analysis indicate that the three-way signalised arrangement operates within the typical performance thresholds (DOS ≤ 0.90 for signalised), for all assessed scenarios. It is noted that with the inclusion of the additional construction traffic, the average delay and 95th percentile queue are not significantly impacted, when compared to the background scenarios. While there is a slight increase to DOS, the results indicate that the intersection will operate well within acceptable thresholds.

With respect to delays, the Parkland Boulevard approach experiences delay increases of approximately 1 second during both the AM and PM peaks. The Roma Street approaches (east and west) experience minor improvements of less than 1 second per peak period. This is due to a minor phase time change as a result of the additional vehicles. Nonetheless, the overall intersection is noted to operate well within acceptable thresholds and the impact of the additional heavy vehicles will have a minor impact.

5.6 Summary of Operational Assessment

Following review of the operational analysis results, a summary of the outcomes has been prepared to review the impact of Sunday haulage activities. The performance of each intersection with respect to the impact of the operations has been compared to the baseline scenarios.

For the purposes of this assessment, the following threshold criteria have been adopted to understand the comparative extent of impacts for each intersection. Three different outcomes have been proposed, negligible, moderate and significant impacts. The assessment assigns the highest impact level which has been triggered for the parameters to each intersection.

Table 5-4 Adopted Assessment Thresholds

Parameter	Negligible Impact	Moderate Impact	Significant Impact
DOS	<0.05 increase in DOS	<0.1 increase in DOS	>0.1 increase in DOS
Delay	<5 sec increase in delays	<10 sec increase in delays	>10 sec increase in delays
Queues	<19m increase in queues *(equivalent to one design vehicle)*	<38m increase in queues *(equivalent to two design vehicles)*	>38m increase or causes queue blockage *(equivalent to two design vehicles)*

Based on these thresholds, the following outcomes have been determined.

Table 5-5 Summary of SIDRA Results

Intersection	Sunday AM Peak	Sunday PM Peak
Roma Street / Herschel Street	Negligible impact	Negligible impact
Roma Street / Parkland Boulevard	Negligible impact	Negligible impact

The results indicate that all intersections have a negligible impact. Furthermore, the operation of the study intersections are well within acceptable limits for DOS, delay and queuing which indicates the additional construction traffic can be accommodated on the external network.

6 Conclusions and Recommendations

Cardno has prepared this traffic impact assessment to document the impact of Sunday haulage activities and outcomes for the identified construction vehicle access routes for the future Roma Street Station.

6.1 Traffic Analysis

Following review of the operational analysis results, a summary of the outcomes has been prepared to compare the existing traffic with CRR Roma Street station construction traffic. Table 6-1 identifies the impact of each intersections at respect to the worsened operations compared to the baseline scenarios.

Table 6-1 Summary of SIDRA Results

Intersection	Sunday AM Peak	Sunday PM Peak
Roma Street / Herschel Street	Negligible impact	Negligible impact
Roma Street / Parkland Boulevard	Negligible impact	Negligible impact

The results indicate that all intersections have a negligible impact. Furthermore, the operation of the study intersections are well within acceptable limits for DOS, delay and queuing which indicates the additional construction traffic can be accommodated on the external network.

6.2 Overall Summary

The proposed change to introduce construction activities for the Roma Street precinct during Sundays 9:00am to 6:30pm has been assessed with respect to traffic operations for the key road study area. This assessment has determined that there would be no significant impact to the road network as a result of the proposed heavy vehicle movements. As such, there will be no traffic based impediment to allowing this change to occur.

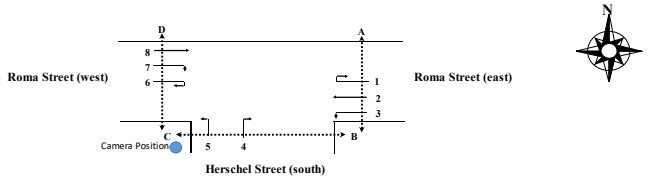
APPENDIX

A

TRAFFIC SURVEY DATA

AUSTRAFFIC VIDEO INTERSECTION COUNT

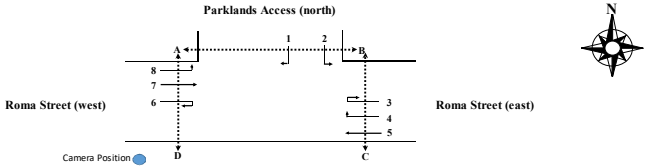
Site No.: 4 **Weather:** Fine
Location: Roma Street/Herschel Street, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 11:30 AM*
PM Peak: *Hour ending - 12:15 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements											
																																	A - B		B - A		B - C		C - B		C - D		D - C	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	0	0	**0**	0	6	0	**6**	0	2	0	**2**	3	4	1	**5**	4	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	14	0	**14**	1	0	0	0	0	6	0	1	0	6	0	1	0
7:00 AM	0	0	**0**	0	4	1	**5**	1	4	0	**4**	8	3	0	**3**	8	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	22	2	**24**	1	0	0	0	0	2	0	4	0	0	0	3	0
7:15 AM	0	0	**0**	0	8	2	**10**	0	2	0	**2**	2	4	0	**4**	2	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	16	0	**16**	1	0	0	0	0	1	0	5	0	2	0	6	0
7:30 AM	0	0	**0**	0	11	1	**12**	0	2	0	**2**	5	7	0	**7**	3	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	24	2	**26**	0	0	0	0	0	4	0	1	0	4	0	1	0
7:45 AM	0	0	**0**	0	5	0	**5**	1	1	1	**2**	0	4	0	**4**	4	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	22	1	**23**	0	0	0	0	0	3	1	6	0	3	1	6	0
8:00 AM	0	0	**0**	0	15	0	**15**	2	1	0	**1**	6	7	0	**7**	3	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	44	0	**44**	1	0	0	0	0	3	0	4	0	3	0	4	0
8:15 AM	0	0	**0**	0	10	0	**10**	5	7	0	**7**	6	4	0	**4**	8	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	25	3	**28**	1	0	0	0	0	7	0	3	0	7	0	4	0
8:30 AM	0	0	**0**	0	12	1	**13**	0	3	0	**3**	20	10	0	**10**	11	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	36	3	**39**	1	0	0	0	0	3	0	6	0	3	0	8	0
8:45 AM	0	0	**0**	0	11	1	**12**	3	5	0	**5**	7	12	0	**12**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	40	3	**43**	1	0	0	1	0	3	0	7	1	3	0	10	1
9:00 AM	0	0	**0**	0	14	0	**14**	0	3	0	**3**	9	9	0	**9**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	40	2	**42**	0	0	0	0	0	4	0	3	0	5	0	3	0
9:15 AM	0	0	**0**	0	13	0	**13**	0	7	1	**8**	8	12	0	**12**	9	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	61	2	**63**	1	0	0	0	0	8	0	8	0	8	0	7	0
9:30 AM	0	0	**0**	0	21	0	**21**	0	5	0	**5**	7	15	0	**15**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	55	5	**60**	0	0	0	0	0	7	2	7	1	7	1	7	1
9:45 AM	0	0	**0**	0	28	0	**28**	0	12	0	**12**	1	19	0	**19**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	72	3	**75**	2	0	0	0	0	6	0	10	0	5	0	11	0
10:00 AM	0	0	**0**	0	25	0	**25**	0	5	1	**6**	0	13	0	**13**	3	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	68	2	**70**	0	0	0	0	0	10	0	5	0	9	0	5	0
10:15 AM	0	0	**0**	0	31	3	**34**	1	8	0	**8**	4	11	0	**11**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	56	2	**58**	1	0	0	0	0	6	0	11	0	9	0	14	0
10:30 AM	0	0	**0**	0	20	0	**20**	0	13	0	**13**	3	14	0	**14**	2	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	57	2	**59**	1	0	0	0	0	7	0	4	0	7	0	4	0
10:45 AM	0	0	**0**	0	35	0	**35**	0	9	0	**9**	2	11	0	**11**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	91	4	**95**	0	0	0	0	0	2	0	8	0	2	0	9	0
11:00 AM	0	0	**0**	0	27	2	**29**	1	10	0	**10**	1	15	0	**15**	2	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	77	3	**80**	0	0	0	0	0	2	0	10	0	4	0	12	0
11:15 AM	0	0	**0**	0	31	1	**32**	0	5	0	**5**	2	15	0	**15**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	76	1	**77**	0	0	0	1	0	11	0	4	0	10	0	5	0
11:30 AM	0	0	**0**	0	24	1	**25**	1	10	0	**10**	4	12	0	**12**	3	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	82	5	**87**	0	0	0	0	0	3	0	13	0	2	0	11	0
11:45 AM	0	0	**0**	0	32	0	**32**	0	7	0	**7**	3	13	0	**13**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	69	5	**74**	0	0	0	0	0	8	1	9	0	10	1	9	0
12:00 PM	0	0	**0**	0	32	0	**32**	0	9	0	**9**	0	15	0	**15**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	87	4	**91**	0	0	0	0	0	12	0	10	0	5	0	11	0
12:15 PM	0	0	**0**	0	27	1	**28**	0	6	1	**7**	0	14	0	**14**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	74	2	**76**	1	0	0	0	0	3	0	15	0	3	0	14	0
12:30 PM	0	0	**0**	0	23	2	**25**	0	9	0	**9**	0	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	67	3	**70**	1	1	1	0	0	16	1	6	0	15	0	6	0
12:45 PM	0	0	**0**	0	30	0	**30**	0	6	0	**6**	0	28	0	**28**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	74	4	**78**	1	0	0	0	0	6	0	13	0	2	0	13	0
1:00 PM	0	0	**0**	0	22	3	**25**	1	5	0	**5**	1	14	0	**14**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	75	7	**82**	1	0	0	0	0	8	1	8	0	10	1	7	0
1:15 PM	0	0	**0**	0	25	0	**25**	0	7	0	**7**	0	10	0	**10**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	79	3	**82**	1	0	0	0	0	13	2	19	0	14	2	18	0
1:30 PM	0	0	**0**	0	37	0	**37**	1	3	0	**3**	0	12	0	**12**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	73	2	**75**	0	0	0	0	0	16	0	12	0	16	0	12	0
1:45 PM	1	0	**1**	0	38	0	**38**	0	7	2	**9**	0	11	0	**11**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	77	5	**82**	0	0	0	0	0	13	2	4	0	14	0	4	0
2:00 PM	0	0	**0**	0	30	1	**31**	0	9	1	**10**	0	13	0	**13**	2	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	63	4	**67**	0	0	0	0	0	0	0	9	0	0	0	13	0
2:15 PM	0	0	**0**	0	22	5	**27**	0	16	0	**16**	0	6	0	**6**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	62	5	**67**	0	0	0	0	0	10	0	7	0	8	0	8	0
2:30 PM	0	0	**0**	0	19	0	**19**	1	5	0	**5**	0	15	0	**15**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	60	4	**64**	2	0	0	0	0	4	1	5	0	4	1	5	0
2:45 PM	0	0	**0**	0	22	0	**22**	3	10	0	**10**	0	15	0	**15**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	64	7	**71**	2	0	0	0	0	1	0	1	0	1	0	4	0
3:00 PM	1	0	**1**	0	28	2	**30**	1	7	0	**7**	0	14	0	**14**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	59	2	**61**	0	0	0	0	0	7	0	8	0	7	0	9	0
3:15 PM	0	0	**0**	0	26	0	**26**	0	9	1	**10**	3	10	0	**10**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	62	1	**63**	0	0	0	0	0	8	0	7	0	8	0	7	0
3:30 PM	0	0	**0**	0	33	0	**33**	2	5	0	**5**	2	15	0	**15**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	69	3	**72**	0	0	0	0	0	4	0	17	0	4	0	19	0
3:45 PM	0	0	**0**	0	24	0	**24**	0	6	0	**6**	1	16	0	**16**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	56	1	**57**	0	0	0	0	0	13	0	13	0	12	0	13	0
4:00 PM	0	0	**0**	0	28	0	**28**	0	6	0	**6**	1	15	0	**15**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	75	2	**77**	0	0	0	0	0	10	1	8	0	10	1	9	0
4:15 PM	0	0	**0**	0	22	1	**23**	0	0	0	**0**	1	9	0	**9**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	73	4	**77**	2	0	0	0	0	14	0	16	0	13	0	15	0
4:30 PM	0	0	**0**	0	33	0	**33**	0	6	0	**6**	0	17	0	**17**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	83	2	**85**	0	0	0	0	0	11	0	3	0	10	0	3	0
4:45 PM	0	0	**0**	0	31	0	**31**	2	8	0	**8**	1	16	0	**16**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	65	3	**68**	1	0	0	0	0	8	0	13	0	9	0	11	0
5:00 PM	0	0	**0**	0	19	0	**19**	0	8	1	**9**	0	8	0	**8**	4	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	64	1	**65**	0	1	0	0	0	4	1	5	0	4	1	7	0
5:15 PM	0	0	**0**	0	14	2	**16**	0	11	0	**11**	0	17	0	**17**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	62	1	**63**	1	0	0	0	0	2	0	6	0	1	0	4	0
5:30 PM	0	0	**0**	0	33	0	**33**	0	8	0	**8**	3	10	0	**10**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	69	2	**71**	1	0	0	0	0	2	1	3	0	3	0	5	0
5:45 PM	0	0	**0**	0	21	1	**22**	0	13	0	**13**	3	10	0	**10**	1	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	51	4	**55**	0	0	0	0	0	12	1	8	0	12	0	8	0
6:00 PM	0	0	**0**	0	30	0	**30**	0	8	1	**9**	0	7	0	**7**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	69	2	**71**	0	0	0	0	0	8	0	11	0	7	0	11	0
6:15 PM	0	0	**0**	0	23	0	**23**	1	11	0	**11**	0	15	0	**15**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	54	1	**55**	1	0	0	0	0	4	0	19	1	4	0	21	1
6:30 PM	0	0	**0**	0	22	0	**22**	0	6	0	**6**	0	11	0	**11**	0	0	0	**0**	0	0	0	**0**	0	0	0	**0**	0	63	2	**65**	1	0	0	0	0	2	1	6	0	1	0	5	0
12 hr Total	2	0	2	0	1097	31	1128	27	325	10	335	117	566	1	567	79	0	0	0	0	0	0	0	0	0	0	0	0	2876	131	3007	28	2	1	2	0	317	16	351	3	306	9	402	3
AM Peak	0	0	0	0	117	4	121	2	34	0	34	9	53	0	53	5	0	0	0	0	0	0	0	0	0	0	0	0	326	13	339	0	0	0	1	0	18	0	35	0	18	0	37	0
PM Peak	0	0	0	0	115	2	117	1	32	1	33	7	54	0	54	5	0	0	0	0	0	0	0	0	0	0	0	0	312	16	328	1	0	0	0	0	26	1	47	0	20	1	45	0

AUSTRAFFIC VIDEO INTERSECTION COUNT

Site No.: 5 **Weather:** Fine
Location: Roma Street/Parklands Access, Brisbane
Day/Date: Sunday, 29 November 2020
AM Peak: *Hour ending - 11:30 AM*
PM Peak: *Hour ending - 1:45 PM*



TIME (1/4 hr end)	Movement 1				Movement 2				Movement 3				Movement 4				Movement 5				Movement 6				Movement 7				Movement 8				Pedestrian Movements											
																																	A - B		B - A		B - C		C - B		D - A		A - D	
	Light Vehicles	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Light Vehicles*	*Heavy Vehicles*	***Total***	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*	*Pedestrians*	*Cyclists*
6:45 AM	2	0	**2**	2	4	0	**4**	0	0	0	**0**	0	2	0	**2**	2	6	0	**6**	2	0	0	**0**	0	16	0	**16**	1	3	1	**4**	5	1	0	0	0	0	5	0	0	0	0	1	0
7:00 AM	2	0	**2**	8	1	0	**1**	3	0	0	**0**	0	1	0	**1**	28	6	1	**7**	1	0	0	**0**	0	21	2	**23**	1	4	0	**4**	8	0	0	3	0	0	0	0	0	1	4	3	0
7:15 AM	1	1	**2**	3	5	1	**6**	2	1	0	**1**	0	0	0	**0**	3	9	1	**10**	0	0	0	**0**	0	17	0	**17**	2	2	0	**2**	1	3	0	0	0	0	0	0	0	6	1	2	0
7:30 AM	1	0	**1**	5	3	0	**3**	6	0	0	**0**	0	0	0	**0**	5	12	1	**13**	0	0	0	**0**	0	28	2	**30**	1	3	0	**3**	2	1	0	1	0	1	0	2	0	4	0	6	0
7:45 AM	1	0	**1**	1	0	0	**0**	2	0	0	**0**	0	2	0	**2**	3	7	1	**8**	1	0	0	**0**	0	25	1	**26**	0	1	0	**1**	4	1	0	3	0	0	0	0	2	0	3	4	0
8:00 AM	1	0	**1**	10	7	0	**7**	3	0	0	**0**	0	2	0	**2**	10	13	0	**13**	0	0	0	**0**	0	47	0	**47**	1	4	0	**4**	3	0	0	1	0	0	0	1	0	0	0	1	0
8:15 AM	5	0	**5**	7	2	0	**2**	21	2	0	**2**	0	2	0	**2**	10	12	0	**12**	5	0	0	**0**	0	26	2	**28**	1	2	1	**3**	4	0	0	0	0	0	1	0	0	0	2	0	0
8:30 AM	3	1	**4**	27	5	0	**5**	1	0	0	**0**	0	0	0	**0**	7	12	0	**12**	1	0	0	**0**	0	40	3	**43**	1	7	0	**7**	11	5	1	2	0	0	0	0	0	2	1	3	1
8:45 AM	3	0	**3**	8	8	0	**8**	2	0	0	**0**	0	1	0	**1**	5	13	1	**14**	4	0	0	**0**	0	44	2	**46**	0	9	1	**10**	0	2	0	0	0	0	0	0	0	3	3	2	1
9:00 AM	3	0	**3**	10	3	1	**4**	10	0	0	**0**	2	3	0	**3**	10	14	0	**14**	0	0	0	**0**	0	43	2	**45**	1	6	0	**6**	0	2	0	0	0	1	0	0	0	5	4	0	0
9:15 AM	4	0	**4**	10	9	0	**9**	4	0	0	**0**	0	3	0	**3**	7	17	1	**18**	0	0	0	**0**	0	62	2	**64**	0	10	0	**10**	8	0	0	2	0	0	0	0	0	3	1	0	0
9:30 AM	7	0	**7**	7	4	0	**4**	3	0	0	**0**	0	5	1	**6**	4	19	0	**19**	0	0	0	**0**	0	60	4	**64**	0	11	1	**12**	3	2	0	1	0	0	0	0	0	2	3	5	2
9:45 AM	8	0	**8**	3	11	1	**12**	17	0	0	**0**	0	4	0	**4**	3	32	0	**32**	0	0	0	**0**	0	76	1	**77**	0	15	2	**17**	3	1	0	2	2	0	0	1	0	1	2	2	4
10:00 AM	5	1	**6**	0	6	0	**6**	5	0	0	**0**	0	4	0	**4**	10	27	0	**27**	1	0	0	**0**	0	71	1	**72**	2	14	1	**15**	1	0	1	4	0	0	0	0	0	2	1	1	0
10:15 AM	4	3	**7**	7	11	0	**11**	6	0	0	**0**	0	4	0	**4**	0	32	0	**32**	1	0	0	**0**	0	57	2	**59**	1	9	0	**9**	0	3	0	2	1	0	0	0	0	1	5	2	1
10:30 AM	8	0	**8**	3	3	0	**3**	0	0	0	**0**	0	6	0	**6**	0	26	0	**26**	0	0	0	**0**	0	66	2	**68**	1	6	0	**6**	2	6	0	5	0	1	0	0	0	2	0	3	0
10:45 AM	9	0	**9**	23	5	1	**6**	2	1	0	**1**	0	6	0	**6**	1	34	0	**34**	0	0	0	**0**	0	92	2	**94**	0	12	2	**14**	0	2	0	4	0	0	0	1	0	4	0	7	0
11:00 AM	6	2	**8**	1	18	0	**18**	7	0	0	**0**	0	3	0	**3**	0	32	0	**32**	2	0	0	**0**	0	81	3	**84**	2	11	0	**11**	0	6	0	1	1	1	0	0	0	5	2	0	0
11:15 AM	3	0	**3**	5	14	0	**14**	3	0	0	**0**	0	1	0	**1**	2	31	1	**32**	0	0	0	**0**	0	79	1	**80**	0	13	0	**13**	0	3	0	5	0	0	0	0	0	2	0	2	0
11:30 AM	9	0	**9**	4	5	0	**5**	1	0	0	**0**	0	2	1	**3**	1	27	1	**28**	1	0	0	**0**	0	77	5	**82**	0	10	0	**10**	3	2	0	1	0	0	0	0	0	3	2	3	0
11:45 AM	7	0	**7**	3	10	0	**10**	2	1	0	**1**	0	3	0	**3**	0	33	0	**33**	0	0	0	**0**	0	75	4	**79**	1	12	1	**13**	0	0	0	8	0	0	0	0	0	1	0	6	0
12:00 PM	6	0	**6**	1	6	1	**7**	4	0	0	**0**	0	5	0	**5**	0	34	0	**34**	0	0	0	**0**	0	74	3	**77**	0	24	1	**25**	0	6	0	5	0	0	0	0	0	4	2	2	0
12:15 PM	7	1	**8**	0	10	0	**10**	2	0	0	**0**	0	4	0	**4**	2	27	1	**28**	0	0	0	**0**	0	71	2	**73**	1	20	0	**20**	0	1	0	1	1	0	0	0	0	1	0	1	1
12:30 PM	9	1	**10**	3	8	0	**8**	0	0	0	**0**	0	5	0	**5**	0	22	1	**23**	2	0	0	**0**	0	69	3	**72**	1	6	0	**6**	0	4	1	2	0	0	0	0	0	1	1	2	0
12:45 PM	6	1	**7**	0	11	0	**11**	0	0	0	**0**	0	2	0	**2**	0	30	0	**30**	0	0	0	**0**	0	84	2	**86**	1	14	2	**16**	0	2	0	2	0	0	0	0	0	1	1	1	0
1:00 PM	5	1	**6**	2	9	0	**9**	0	0	0	**0**	0	7	0	**7**	0	24	1	**25**	2	0	0	**0**	0	81	7	**88**	1	13	0	**13**	1	2	0	6	0	0	0	1	0	1	0	4	0
1:15 PM	7	0	**7**	0	8	0	**8**	0	0	0	**0**	0	5	0	**5**	0	25	0	**25**	0	0	0	**0**	0	81	1	**82**	1	11	2	**13**	0	5	0	1	0	0	0	0	0	3	0	1	0
1:30 PM	11	0	**11**	0	6	0	**6**	0	0	0	**0**	0	5	0	**5**	0	27	0	**27**	1	1	0	**1**	0	66	2	**68**	0	16	0	**16**	0	0	0	2	0	2	1	1	0	1	1	2	0
1:45 PM	11	2	**13**	1	9	0	**9**	1	1	0	**1**	0	9	0	**9**	0	33	0	**33**	0	0	0	**0**	0	72	1	**73**	0	19	4	**23**	0	0	0	2	0	0	0	0	0	0	1	2	0
2:00 PM	6	2	**8**	1	10	0	**10**	0	1	0	**1**	0	13	0	**13**	1	33	0	**33**	0	0	0	**0**	0	67	3	**70**	0	11	1	**12**	2	5	0	3	0	0	0	1	0	1	1	3	0
2:15 PM	9	4	**13**	1	5	0	**5**	1	1	0	**1**	0	5	0	**5**	1	30	1	**31**	0	0	0	**0**	0	59	4	**63**	1	9	1	**10**	0	1	0	7	0	0	0	0	0	0	1	2	0
2:30 PM	1	0	**1**	0	6	0	**6**	1	0	0	**0**	0	5	0	**5**	0	23	0	**23**	2	1	0	**1**	0	63	4	**67**	2	11	0	**11**	1	4	1	6	0	0	0	0	0	2	1	0	0
2:45 PM	8	0	**8**	0	7	0	**7**	0	0	0	**0**	0	5	0	**5**	0	23	0	**23**	3	0	0	**0**	0	69	6	**75**	2	10	1	**11**	0	0	0	2	1	0	0	0	0	1	0	0	1
3:00 PM	5	1	**6**	0	4	1	**5**	1	0	0	**0**	0	2	0	**2**	0	33	1	**34**	1	0	0	**0**	0	61	2	**63**	0	13	0	**13**	1	2	0	4	0	1	0	0	0	4	1	3	0
3:15 PM	11	0	**11**	3	14	1	**15**	0	0	0	**0**	0	10	0	**10**	0	20	1	**21**	0	0	0	**0**	0	56	1	**57**	0	17	0	**17**	1	5	0	3	0	0	0	0	0	3	0	0	0
3:30 PM	7	0	**7**	2	7	0	**7**	0	0	0	**0**	0	3	0	**3**	0	32	0	**32**	0	0	0	**0**	0	67	3	**70**	0	15	0	**15**	1	2	0	1	0	0	0	0	0	5	0	1	0
3:45 PM	6	0	**6**	1	11	0	**11**	0	0	0	**0**	0	5	0	**5**	0	26	0	**26**	0	0	0	**0**	0	64	1	**65**	0	10	0	**10**	0	1	0	2	0	0	0	0	0	2	0	2	0
4:00 PM	6	0	**6**	3	8	0	**8**	2	2	0	**2**	0	4	0	**4**	0	27	0	**27**	0	0	0	**0**	0	73	2	**75**	0	17	0	**17**	0	2	0	6	0	0	0	0	0	1	0	5	0
4:15 PM	3	0	**3**	1	7	0	**7**	1	0	0	**0**	0	2	0	**2**	1	22	1	**23**	0	0	0	**0**	0	68	4	**72**	2	15	0	**15**	0	3	0	4	0	0	0	0	0	5	1	3	0
4:30 PM	9	0	**9**	0	15	0	**15**	1	0	0	**0**	0	9	1	**10**	1	29	0	**29**	0	0	0	**0**	0	74	2	**76**	0	23	0	**23**	0	2	0	3	0	1	0	0	0	5	2	2	0
4:45 PM	7	0	**7**	4	12	1	**13**	3	0	0	**0**	0	3	1	**4**	2	31	0	**31**	2	0	0	**0**	0	64	2	**66**	1	14	1	**15**	0	5	0	11	0	0	0	0	0	1	0	8	1
5:00 PM	7	0	**7**	1	7	0	**7**	0	1	0	**1**	0	1	0	**1**	2	19	1	**20**	1	0	0	**0**	0	61	1	**62**	1	15	0	**15**	0	0	0	12	0	0	0	0	0	0	3	1	1
5:15 PM	5	2	**7**	0	4	0	**4**	1	0	0	**0**	0	3	0	**3**	3	23	0	**23**	0	0	0	**0**	0	61	1	**62**	5	16	0	**16**	0	0	0	9	1	0	0	1	0	1	1	3	0
5:30 PM	5	0	**5**	4	10	0	**10**	0	0	0	**0**	0	5	0	**5**	1	33	0	**33**	0	0	0	**0**	0	65	2	**67**	1	13	0	**13**	0	3	0	4	0	0	0	0	0	0	1	3	0
5:45 PM	5	1	**6**	3	13	0	**13**	1	2	0	**2**	0	4	0	**4**	0	29	0	**29**	0	0	0	**0**	0	54	2	**56**	0	8	2	**10**	1	4	2	5	0	0	1	1	0	6	4	2	0
6:00 PM	7	1	**8**	0	12	1	**13**	0	0	0	**0**	0	8	1	**9**	2	31	0	**31**	0	0	0	**0**	0	65	2	**67**	0	11	0	**11**	0	3	0	5	2	2	0	0	0	3	1	6	2
6:15 PM	10	0	**10**	0	4	0	**4**	0	0	0	**0**	0	5	0	**5**	2	23	0	**23**	1	0	0	**0**	0	57	1	**58**	1	12	0	**12**	0	4	0	1	1	0	0	0	0	4	0	2	0
6:30 PM	5	0	**5**	1	1	0	**1**	0	0	0	**0**	0	4	0	**4**	2	26	0	**26**	0	0	0	**0**	0	66	2	**68**	1	7	0	**7**	0	4	1	2	1	1	0	0	0	10	1	2	1
12 hr Total	**276**	**25**	**301**	**179**	**358**	**9**	**367**	**119**	**13**	**0**	**13**	**2**	**192**	**5**	**197**	**131**	**1149**	**16**	**1165**	**34**	**2**	**0**	**2**	**0**	**2915**	**107**	**3022**	**38**	**534**	**25**	**559**	**66**	**110**	**7**	**166**	**11**	**11**	**8**	**10**	**2**	**113**	**88**	**116**	**16**
AM Peak	**27**	**2**	**29**	**33**	**42**	**1**	**43**	**13**	**1**	**0**	**1**	**0**	**12**	**1**	**13**	**4**	**124**	**2**	**126**	**3**	**0**	**0**	**0**	**0**	**329**	**11**	**340**	**2**	**46**	**2**	**48**	**3**	**13**	**0**	**11**	**1**	**1**	**0**	**1**	**0**	**14**	**4**	**12**	**0**
PM Peak	**34**	**3**	**37**	**3**	**32**	**0**	**32**	**1**	**1**	**0**	**1**	**0**	**26**	**0**	**26**	**0**	**109**	**1**	**110**	**3**	**1**	**0**	**1**	**0**	**300**	**11**	**311**	**2**	**59**	**6**	**65**	**1**	**7**	**0**	**11**	**0**	**2**	**1**	**2**	**0**	**5**	**2**	**9**	**0**

APPENDIX

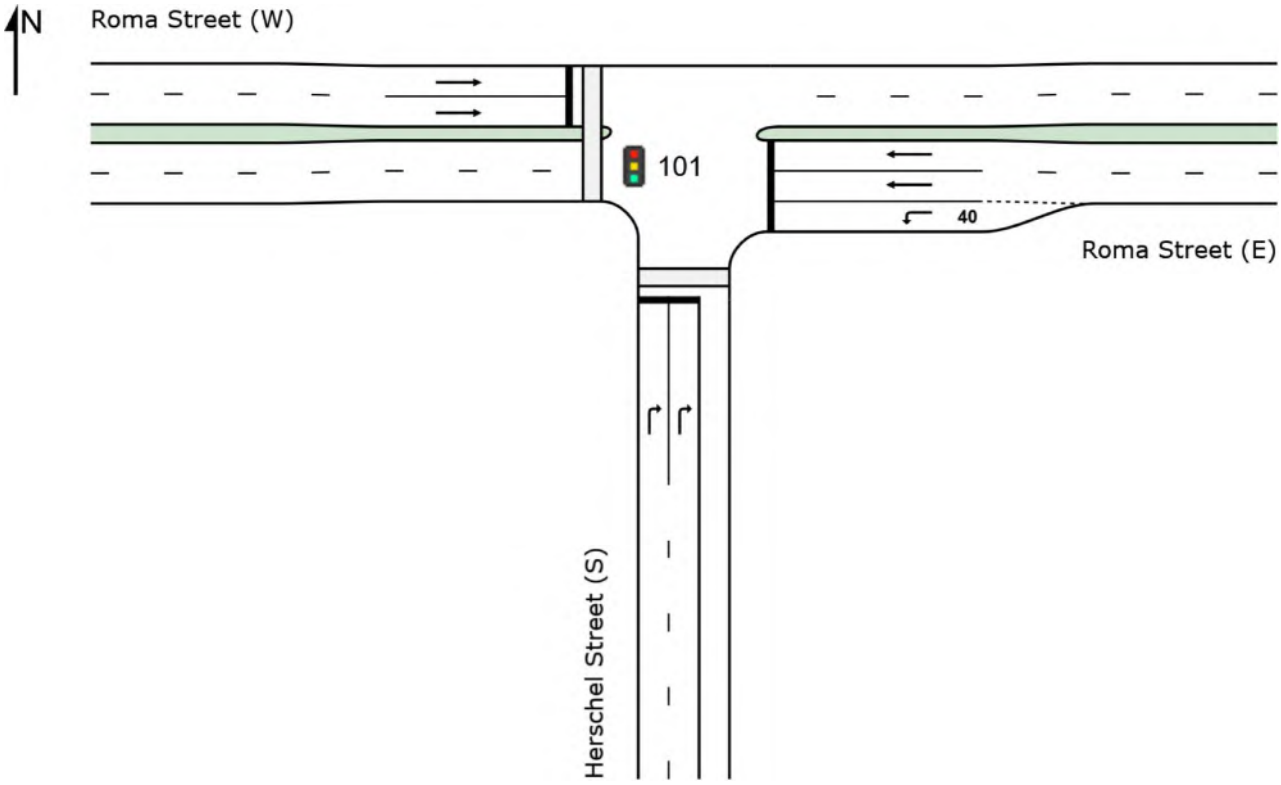
B

SIDRA SUMMARY RESULTS

SITE LAYOUT

Site: 101 [2020 BG AM]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated



LANE SUMMARY

Site: 101 [2020 BG AM]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Herschel Street (S)													
Lane 1	28	0.0	241	0.116	100	44.8	LOS D	1.2	8.6	Full	15	0.0	0.0
Lane 2	28	0.0	241	0.116	100	44.8	LOS D	1.2	8.6	Full	15	0.0	0.0
Approach	56	0.0		0.116		44.8	LOS D	1.2	8.6				
East: Roma Street (E)													
Lane 1	36	0.0	1263	0.028	100	9.2	LOS A	0.6	3.9	Short	40	0.0	NA
Lane 2	64	3.3	935	0.068	100	14.2	LOS B	1.6	11.6	Full	45	0.0	0.0
Lane 3	64	3.3	935	0.068	100	14.2	LOS B	1.6	11.6	Full	45	0.0	0.0
Approach	163	2.6		0.068		13.1	LOS B	1.6	11.6				
West: Roma Street (W)													
Lane 1	178	3.8	1427	0.125	100	3.6	LOS A	2.3	16.9	Full	105	0.0	0.0
Lane 2	178	3.8	1427	0.125	100	3.6	LOS A	2.3	16.9	Full	105	0.0	0.0
Approach	357	3.8		0.125		3.6	LOS A	2.3	16.9				
Intersection	576	3.1		0.125		10.3	LOS B	2.3	16.9				

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

PHASING SUMMARY

Site: 101 [2020 BG AM]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

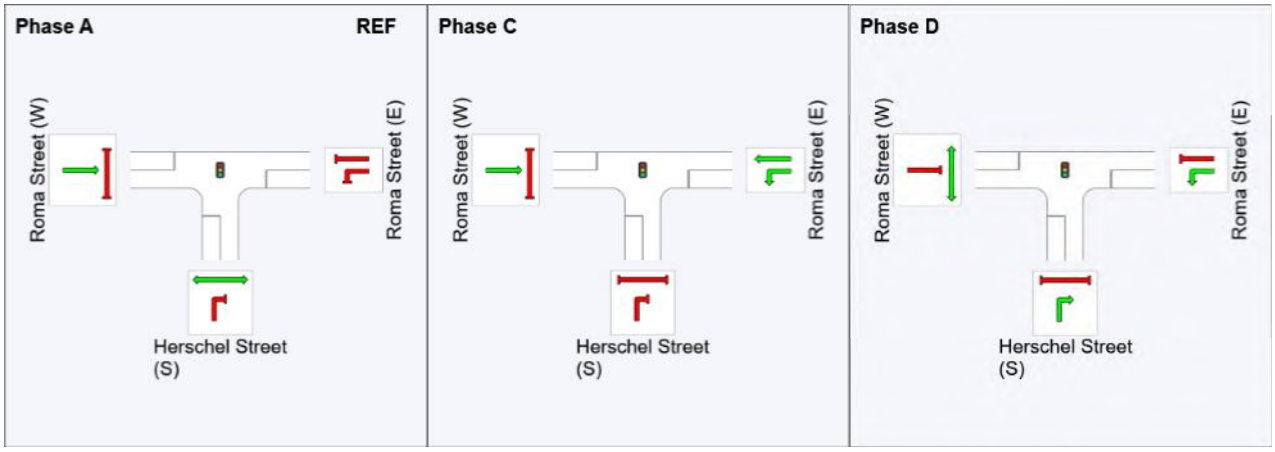
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D, E
Output Phase Sequence: A, C, D
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	26	81
Green Time (sec)	20	49	13
Phase Time (sec)	26	55	19
Phase Split	26%	55%	19%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Herschel Street (S)													
Lane 1	30	0.0	353	0.085	100	38.7	LOS D	1.2	8.5	Full	15	0.0	0.0
Lane 2	30	0.0	353	0.085	100	38.7	LOS D	1.2	8.5	Full	15	0.0	0.0
Approach	60	0.0		0.085		38.7	LOS D	1.2	8.5				
East: Roma Street (E)													
Lane 1	21	0.0	1263	0.017	100	9.1	LOS A	0.3	2.3	Short	40	0.0	NA
Lane 2	61	0.9	834	0.073	100	17.8	LOS B	1.7	12.1	Full	45	0.0	0.0
Lane 3	61	0.9	834	0.073	100	17.8	LOS B	1.7	12.1	Full	45	0.0	0.0
Approach	142	0.7		0.073		16.5	LOS B	1.7	12.1				
West: Roma Street (W)													
Lane 1	162	3.6	1315	0.123	100	5.5	LOS A	2.6	18.8	Full	105	0.0	0.0
Lane 2	162	3.6	1315	0.123	100	5.5	LOS A	2.6	18.8	Full	105	0.0	0.0
Approach	323	3.6		0.123		5.5	LOS A	2.6	18.8				
Intersection	525	2.4		0.123		12.3	LOS B	2.6	18.8				

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

PHASING SUMMARY

Site: 101 [2020 BG PM]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

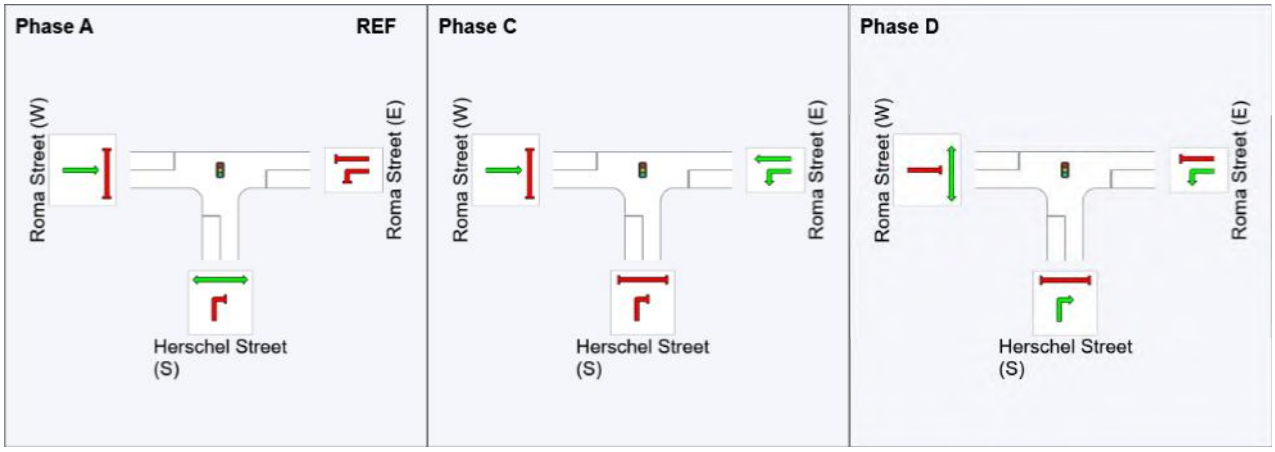
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D, E
Output Phase Sequence: A, C, D
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D
Phase Change Time (sec)	0	26	75
Green Time (sec)	20	43	19
Phase Time (sec)	26	49	25
Phase Split	26%	49%	25%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG AM - Dev - with E phase]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Herschel Street (S)													
Lane 1	28	0.0	186	0.150	100	48.4	LOS D	1.3	9.0	Full	15	0.0	0.0
Lane 2	28	0.0	186	0.150	100	48.4	LOS D	1.3	9.0	Full	15	0.0	0.0
Approach	56	0.0		0.150		48.4	LOS D	1.3	9.0				
East: Roma Street (E)													
Lane 1	36	0.0	1411	0.025	100	6.8	LOS A	0.4	2.9	Short	40	0.0	NA
Lane 2	64	3.3	1145	0.056	100	8.7	LOS A	1.3	9.0	Full	45	0.0	0.0
Lane 3	64	3.3	1145	0.056	100	8.7	LOS A	1.3	9.0	Full	45	0.0	0.0
Approach	163	2.6		0.056		8.3	LOS A	1.3	9.0				
West: Roma Street (W)													
Lane 1	184	6.6	1234	0.149	100	6.8	LOS A	3.3	24.5	Full	105	0.0	0.0
Lane 2	184	6.6	1234	0.149	100	6.8	LOS A	3.3	24.5	Full	105	0.0	0.0
Approach	367	6.6		0.149		6.8	LOS A	3.3	24.5				
Intersection	586	4.8		0.150		11.1	LOS B	3.3	24.5				

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

PHASING SUMMARY

Site: 101 [2020 BG AM - Dev - with E phase]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D, E
Output Phase Sequence: A, C, D, E
(* Variable Phase)

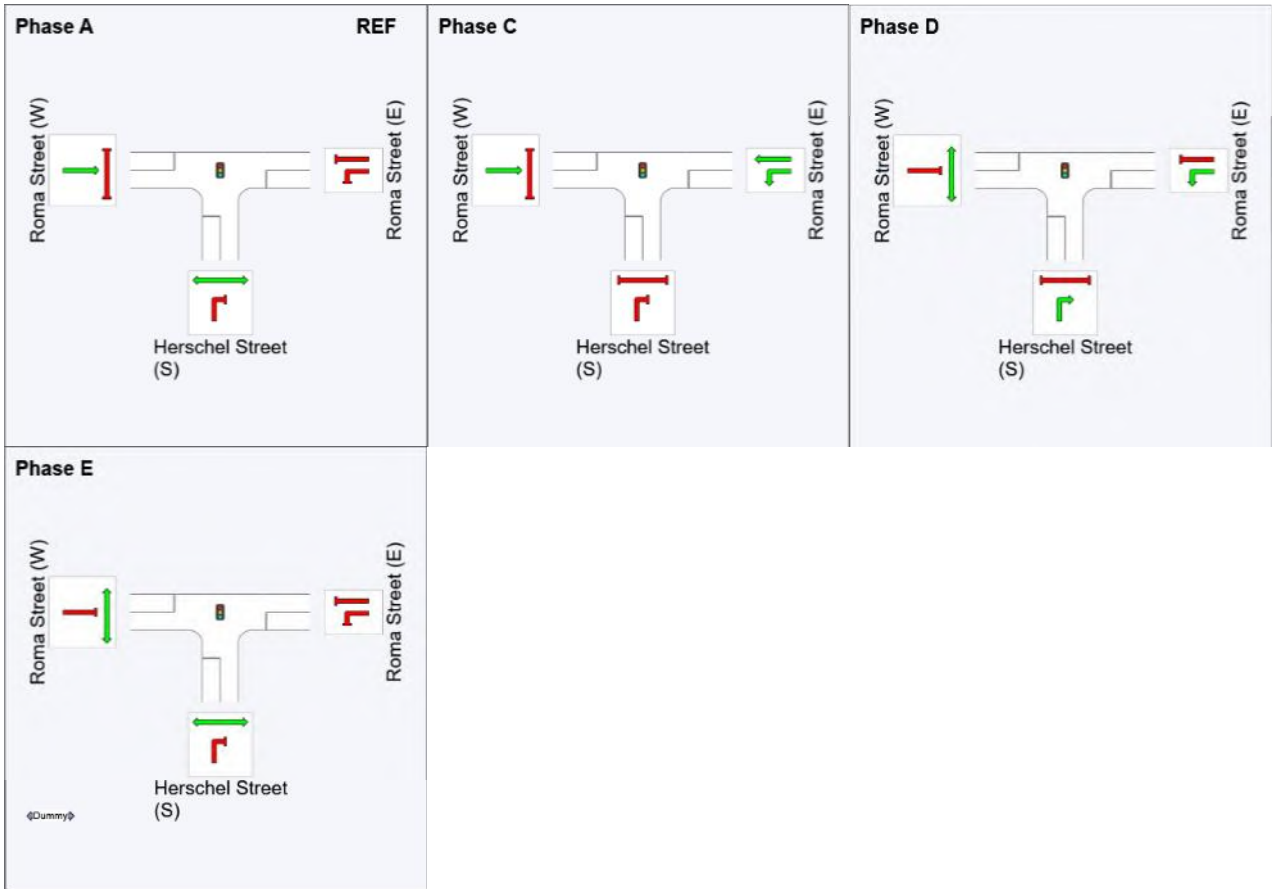
Phase Timing Summary

Phase	A	C	D	E
Phase Change Time (sec)	0	6	72	88
Green Time (sec)	***	60	10	6
Phase Time (sec)	6	66	16	12
Phase Split	6%	66%	16%	12%

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

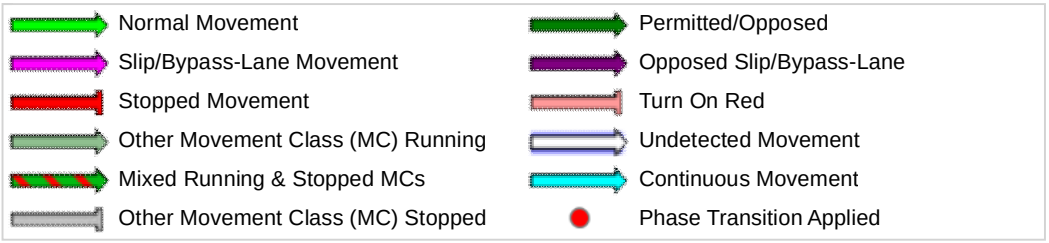
*** No green time has been calculated for this phase because the next phase starts during its intergreen time. This occurs with overlap phasing where there is no single movement connecting this phase to the next, or where the only such movement is a dummy movement with zero minimum green time specified.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

Output Phase Sequence



REF: Reference Phase

VAR: Variable Phase



LANE SUMMARY

Site: 101 [2020 BG PM - Dev - with E phase]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Herschel Street (S)													
Lane 1	30	0.0	409	0.073	100	35.9	LOS D	1.2	8.1	Full	15	0.0	0.0
Lane 2	30	0.0	409	0.073	100	35.9	LOS D	1.2	8.1	Full	15	0.0	0.0
Approach	60	0.0		0.073		35.9	LOS D	1.2	8.1				
East: Roma Street (E)													
Lane 1	21	0.0	1319	0.016	100	8.1	LOS A	0.3	2.0	Short	40	0.0	NA
Lane 2	61	0.9	834	0.073	100	17.8	LOS B	1.7	12.1	Full	45	0.0	0.0
Lane 3	61	0.9	834	0.073	100	17.8	LOS B	1.7	12.1	Full	45	0.0	0.0
Approach	142	0.7		0.073		16.3	LOS B	1.7	12.1				
West: Roma Street (W)													
Lane 1	167	6.6	1010	0.165	100	12.3	LOS B	4.0	29.9	Full	105	0.0	0.0
Lane 2	167	6.6	1010	0.165	100	12.3	LOS B	4.0	29.9	Full	105	0.0	0.0
Approach	334	6.6		0.165		12.3	LOS B	4.0	29.9				
Intersection	536	4.3		0.165		16.0	LOS B	4.0	29.9				

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

PHASING SUMMARY

Site: 101 [2020 BG PM - Dev - with E phase]

Roma Street/Herschel Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

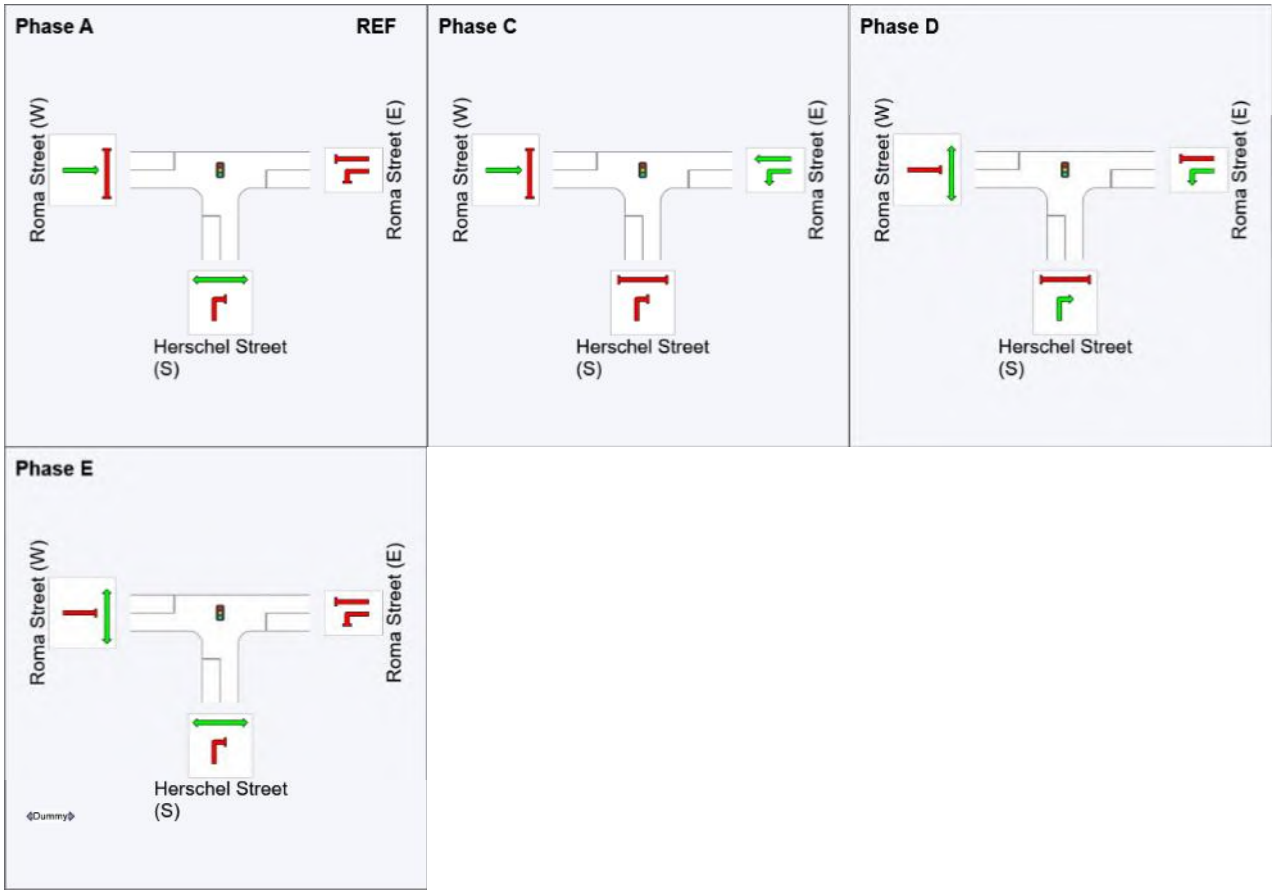
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Leading Right Turn
Reference Phase: Phase A
Input Phase Sequence: A, B*, C, D, E
Output Phase Sequence: A, C, D, E
(* Variable Phase)

Phase Timing Summary

Phase	A	C	D	E
Phase Change Time (sec)	0	11	60	88
Green Time (sec)	5	43	22	6
Phase Time (sec)	11	49	28	12
Phase Split	11%	49%	28%	12%

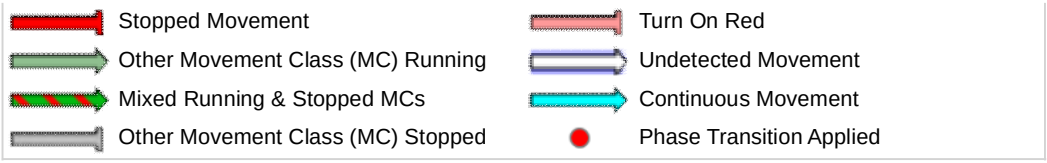
See the Phase Information section in the Detailed Output report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Phase Actuation and Phase Frequency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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

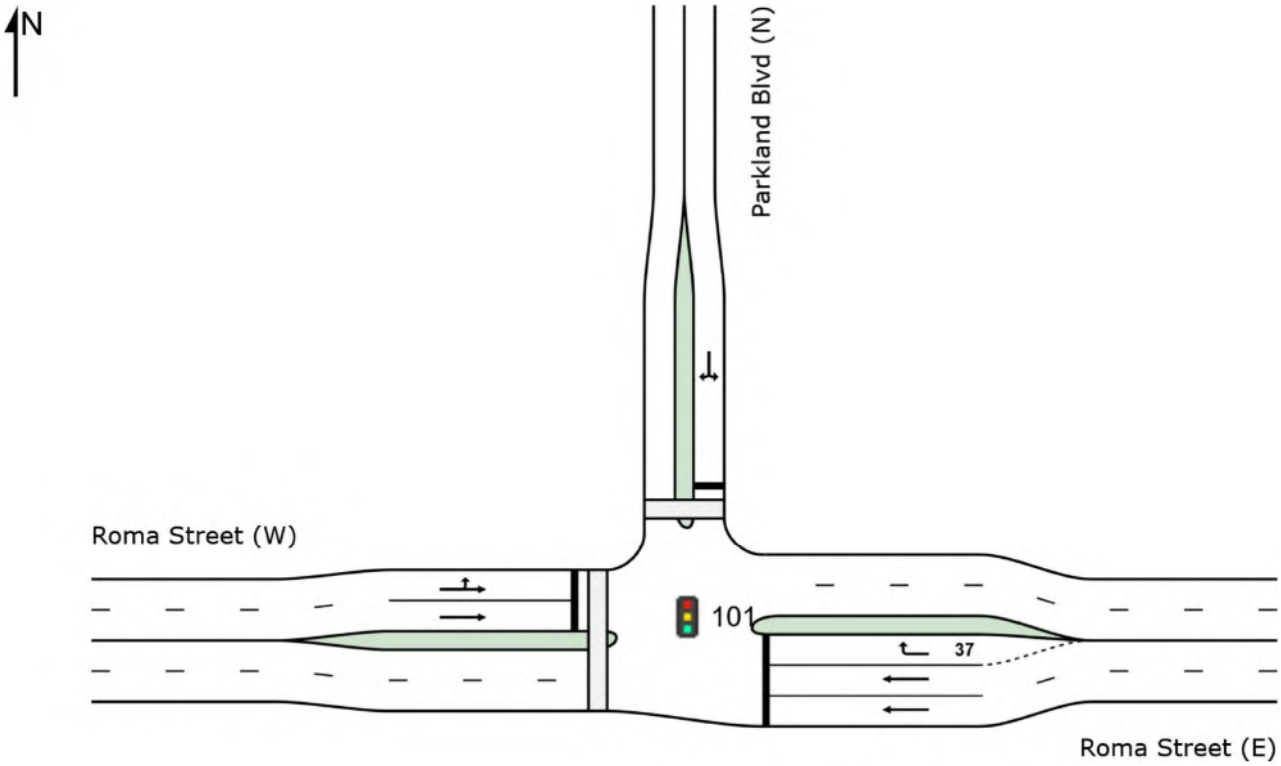
Normal Movement
Permitted/Opposed
Slip/Bypass-Lane Movement
Opposed Slip/Bypass-Lane


Stopped Movement
Other Movement Class (MC) Running
Mixed Running & Stopped MCs
Other Movement Class (MC) Stopped
Turn On Red
Undetected Movement
Continuous Movement
Phase Transition Applied

SITE LAYOUT

Site: 101 [2020 BG AM]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated



Organisation: CARDNO (QLD) PTY LTD | Created: Wednesday, 16 December 2020 1:10:24 PM
Project: G:\T0920001 - CRR Roma Street Precinct\5_PROJECT ANALYSIS\Analysis\SIDRA\Roma St Parkland Blvd.sip8

LANE SUMMARY

Site: 101 [2020 BG AM]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Roma Street (E)													
Lane 1	66	1.6	1216	0.055	100	7.4	LOS A	1.2	8.6	Full	156	0.0	0.0
Lane 2	66	1.6	1216	0.055	100	7.4	LOS A	1.2	8.6	Full	156	0.0	0.0
Lane 3	15	7.1	562	0.026	100	14.7	LOS B	0.3	2.2	Short	37	0.0	NA
Approach	147	2.1		0.055		8.2	LOS A	1.2	8.6				
North: Parkland Blvd (N)													
Lane 1	76	4.2	451	0.168	100	35.7	LOS D	2.9	21.1	Full	50	0.0	0.0
Approach	76	4.2		0.168		35.7	LOS D	2.9	21.1				
West: Roma Street (W)													
Lane 1	202	3.5	1182	0.171	100	9.0	LOS A	4.0	29.0	Full	45	0.0	0.0
Lane 2	206	3.2	1203	0.171	100	8.1	LOS A	4.1	29.4	Full	45	0.0	0.0
Approach	408	3.4		0.171		8.6	LOS A	4.1	29.4				
Intersection	632	3.2		0.171		11.7	LOS B	4.1	29.4				

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

PHASING SUMMARY

Site: 101 [2020 BG AM]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

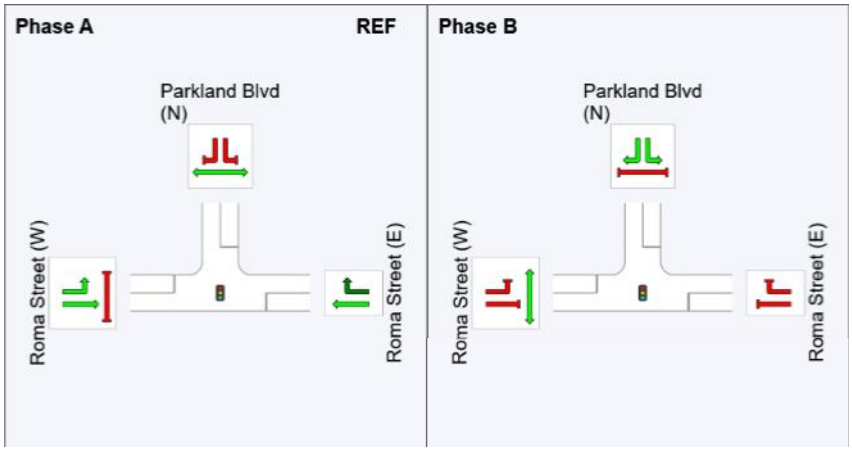
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Two-Phase
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Phase Timing Summary

Phase	A	B
Phase Change Time (sec)	0	69
Green Time (sec)	63	25
Phase Time (sec)	69	31
Phase Split	69%	31%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Roma Street (E)													
Lane 1	58	0.9	1221	0.047	100	7.4	LOS A	1.0	7.4	Full	156	0.0	0.0
Lane 2	58	0.9	1221	0.047	100	7.4	LOS A	1.0	7.4	Full	156	0.0	0.0
Lane 3	23	9.1	575	0.040	100	14.8	LOS B	0.5	3.6	Short	37	0.0	NA
Approach	139	2.3		0.047		8.6	LOS A	1.0	7.4				
North: Parkland Blvd (N)													
Lane 1	72	1.5	459	0.156	100	35.5	LOS D	2.7	19.4	Full	50	0.0	0.0
Approach	72	1.5		0.156		35.5	LOS D	2.7	19.4				
West: Roma Street (W)													
Lane 1	186	2.7	1169	0.159	100	9.5	LOS A	3.7	26.3	Full	45	0.0	0.0
Lane 2	192	3.5	1201	0.159	100	8.0	LOS A	3.8	27.2	Full	45	0.0	0.0
Approach	378	3.1		0.159		8.8	LOS A	3.8	27.2				
Intersection	588	2.7		0.159		12.0	LOS B	3.8	27.2				

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

PHASING SUMMARY

Site: 101 [2020 BG PM]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

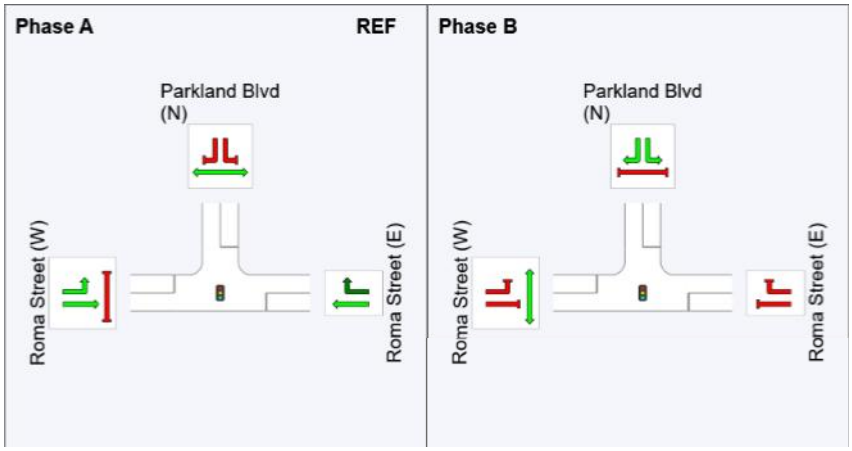
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Two-Phase
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Phase Timing Summary

Phase	A	B
Phase Change Time (sec)	0	69
Green Time (sec)	63	25
Phase Time (sec)	69	31
Phase Split	69%	31%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG AM - Dev]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
East: Roma Street (E)													
Lane 1	66	1.6	1235	0.054	100	7.0	LOS A	1.2	8.3	Full	156	0.0	0.0
Lane 2	66	1.6	1235	0.054	100	7.0	LOS A	1.2	8.3	Full	156	0.0	0.0
Lane 3	15	7.1	561	0.026	100	14.3	LOS B	0.3	2.2	Short	37	0.0	NA
Approach	147	2.1		0.054		7.8	LOS A	1.2	8.3				
North: Parkland Blvd (N)													
Lane 1	76	4.2	433	0.175	100	36.6	LOS D	3.0	21.4	Full	50	0.0	0.0
Approach	76	4.2		0.175		36.6	LOS D	3.0	21.4				
West: Roma Street (W)													
Lane 1	208	5.6	1186	0.176	100	8.6	LOS A	4.0	29.6	Full	45	0.0	0.0
Lane 2	211	6.0	1201	0.176	100	7.7	LOS A	4.1	30.1	Full	45	0.0	0.0
Approach	419	5.8		0.176		8.2	LOS A	4.1	30.1				
Intersection	642	4.8		0.176		11.4	LOS B	4.1	30.1				

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

PHASING SUMMARY

Site: 101 [2020 BG AM - Dev]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

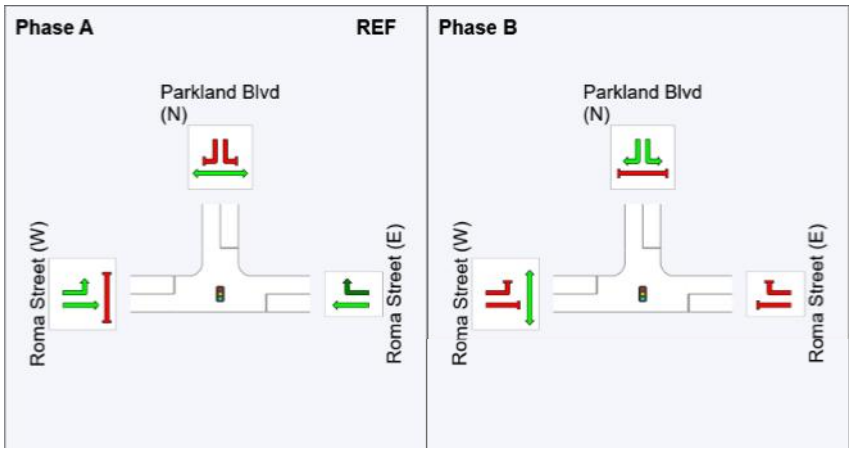
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Two-Phase
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Phase Timing Summary

Phase	A	B
Phase Change Time (sec)	0	70
Green Time (sec)	64	24
Phase Time (sec)	70	30
Phase Split	70%	30%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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

LANE SUMMARY

Site: 101 [2020 BG PM - Dev]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows Total veh/h	Demand Flows HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	95% Back of Queue Dist m	Lane Config	Lane Length m	Cap. Adj. %	Prob. Block. %
East: Roma Street (E)													
Lane 1	58	0.9	1241	0.047	100	7.0	LOS A	1.0	7.2	Full	156	0.0	0.0
Lane 2	58	0.9	1241	0.047	100	7.0	LOS A	1.0	7.2	Full	156	0.0	0.0
Lane 3	23	9.1	575	0.040	100	14.4	LOS B	0.5	3.5	Short	37	0.0	NA
Approach	139	2.3		0.047		8.2	LOS A	1.0	7.2				
North: Parkland Blvd (N)													
Lane 1	72	1.5	441	0.162	100	36.4	LOS D	2.8	19.7	Full	50	0.0	0.0
Approach	72	1.5		0.162		36.4	LOS D	2.8	19.7				
West: Roma Street (W)													
Lane 1	192	4.7	1174	0.164	100	9.1	LOS A	3.7	27.0	Full	45	0.0	0.0
Lane 2	196	6.7	1196	0.164	100	7.6	LOS A	3.8	27.9	Full	45	0.0	0.0
Approach	388	5.7		0.164		8.3	LOS A	3.8	27.9				
Intersection	599	4.4		0.164		11.7	LOS B	3.8	27.9				

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

PHASING SUMMARY

Site: 101 [2020 BG PM - Dev]

Parkland Blvd/Roma Street
Site Category: (None)
Signals - Fixed Time Isolated Cycle Time = 100 seconds (Site User-Given Cycle Time)

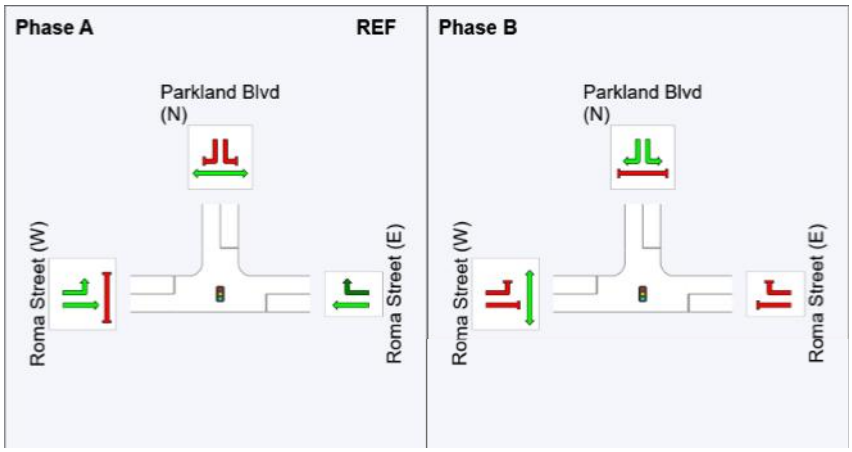
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Two-Phase
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

Phase Timing Summary

Phase	A	B
Phase Change Time (sec)	0	70
Green Time (sec)	64	24
Phase Time (sec)	70	30
Phase Split	70%	30%

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

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase

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