

Borg Panel Manufacturing, Oberon NSW

Traffic Impact Assessment Report

30011699

For: Borg Construction
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1. INTRODUCTION

1.1 Background

SMEC Australia Pty Ltd (SMEC) was engaged by Borg Construction to prepare a Traffic Impact Assessment (TIA) Report for the proposed expansion of the existing Medium-Density Fibreboard (MDF) manufacturing facility located at 124 Lowes Mount Road, Oberon NSW.

This report was prepared to support the lodgement of a development application to Oberon Council and Department of Planning and Environment seeking approval for the proposed development and addresses the requirements of the Secretary's Environmental Assessment Requirements (SEARs) dated 28 May 2015.

1.2 Scope

This report investigates the expected traffic impacts as a result of the proposed development. The purpose of the TIA is to:

- Review the existing transport network
- Determine the impacts on the road network during the construction phase
- Determine the impacts of additional traffic on the existing transport network
- Recommend mitigation and management measures to minimise the impacts identified.

The remainder of this report is structured as follows:

- **Section 2** describes the development proposal
- **Section 3** describes the existing traffic conditions based on traffic survey data collected for this study
- **Section 4** assesses the traffic impacts associated with the construction and operational phases of the proposed development at the start of the operational phase in 2019 and at the end of a 10-year period in 2029
- **Section 5** details the parking requirements as per the Oberon Council Development Control Plan (DCP)
- **Section 6** describes the mitigation and management measures recommended to minimise the impacts identified in Section 4.

2. DEVELOPMENT PROPOSAL

2.1 Site location

The subject site is located at 124 Lowes Mount Road, Oberon within the local government area (LGA) of Oberon. The site is currently occupied by a MDF processing facility and is located within the northern outskirts of the Oberon township, approximately 1.5 kilometres from the town centre.

The site comprises Lot 26 DP 1200697 and occupies an area of approximately 40 hectares.

Lowes Mount Road forms the western boundary of the site; unoccupied land is located to the north and east; and a sporting field and various light industrial sites form the southern boundary. Further south of the site are the town centre and general residential region of Oberon. The subject site and its surroundings are shown in Figure 2-1.



Figure 2-1: Subject site locality

Existing access points along Lowes Mount Road are either boom-gate operated or supervised by site personnel. Vehicles accessing the site include staff private vehicles and contractors' heavy vehicle fleet, which consists of 19 metre semi-trailers and 19-26 metre B-double trucks. Staff and visitor access are to be provided via Gate 4 while deliveries and despatch would occur via Gates 4 and 6 which are located on Lowes Mount Road. Access points are illustrated in Figure 2-2.

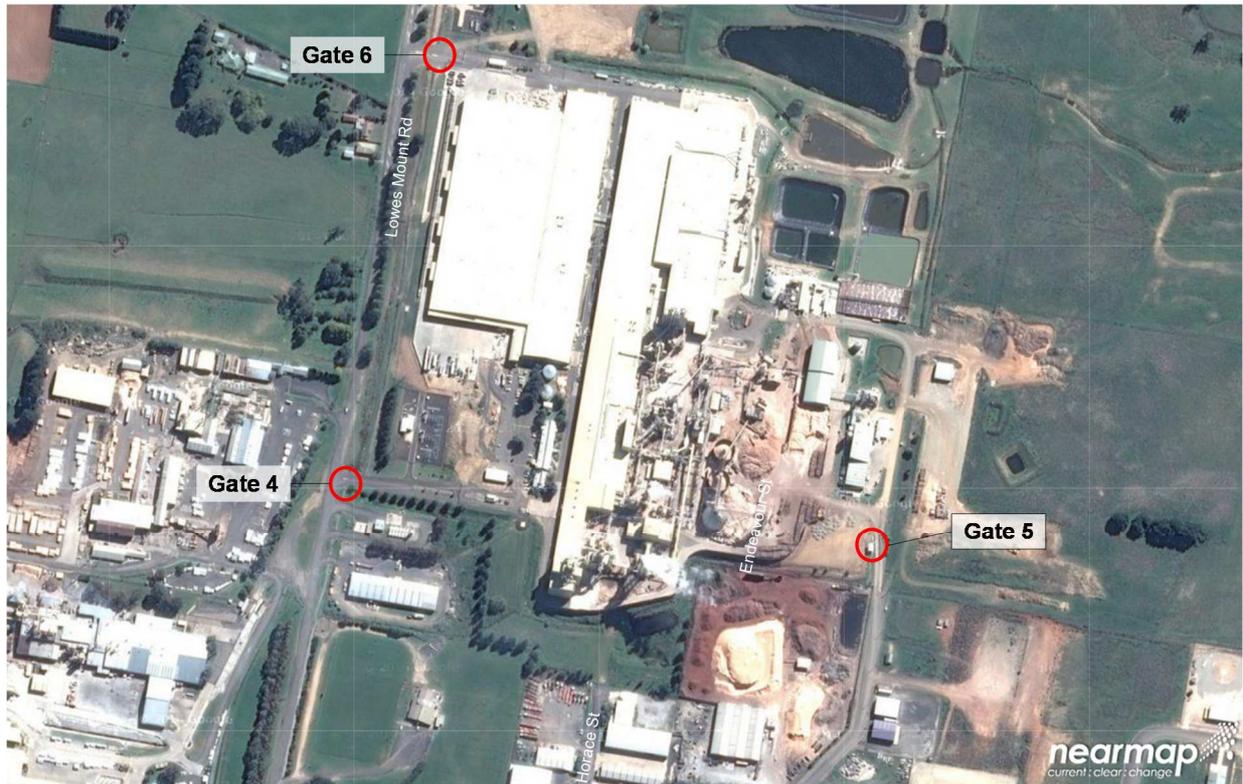


Figure 2-2: Site access

2.2 Proposed development plan

The proposed development at the Borg site will involve the expansion of existing manufacturing and storage facilities to enable greater MDF and new particle board production line. Development works will include the construction of the following key infrastructure:

- A log yard, chipping area, silos, flaking building
- Dryer and screening areas
- New production hall and administration area
- Automated moulding, particle board, laminated board and finished board warehouses
- Additional moulding operation, laminating line and sanding line
- Installation of two new paper treaters and storage system.

The extent of the proposed expansion works as well as existing and proposed infrastructure are illustrated in Figure 2-3.

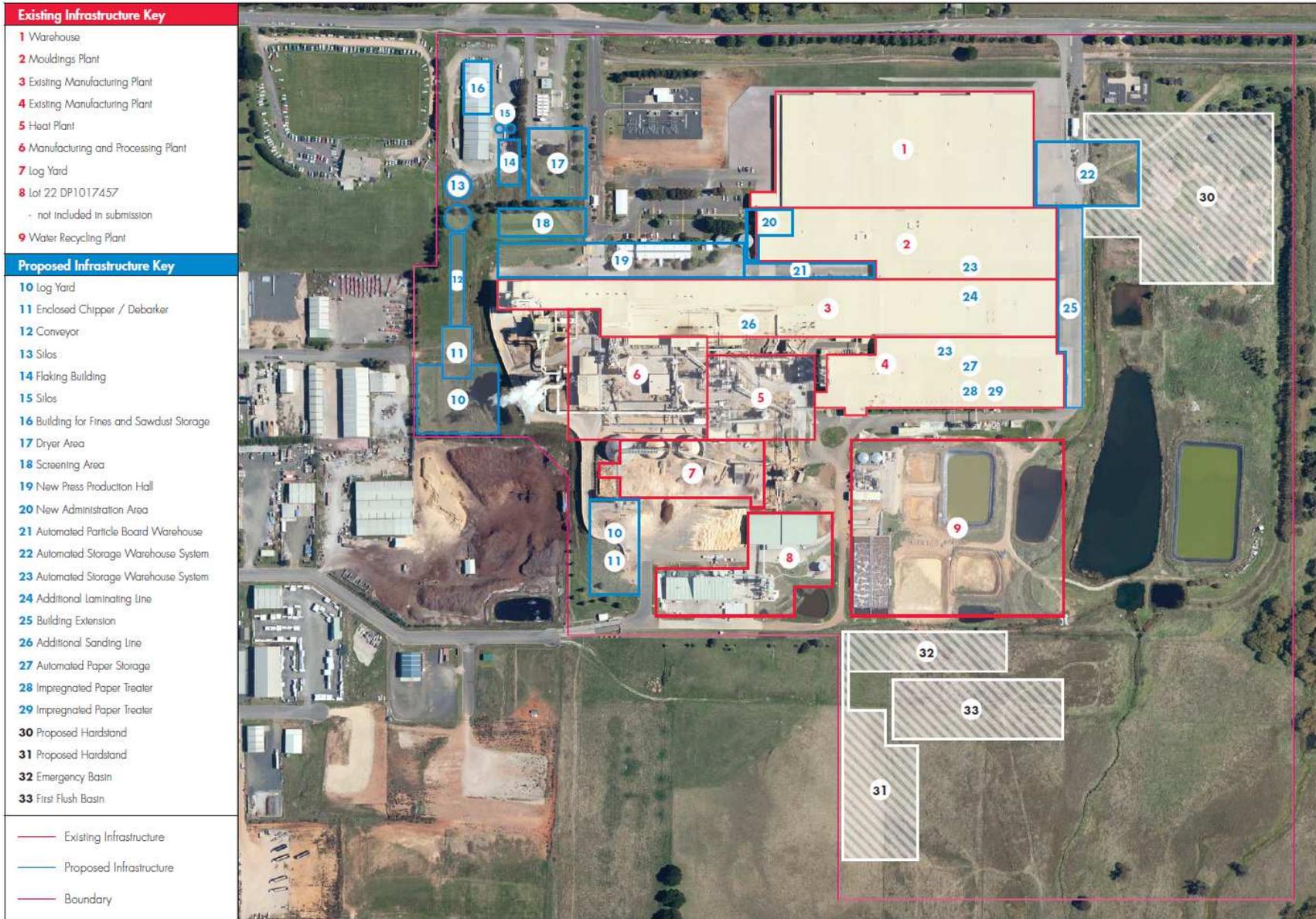


Figure 2-3: Existing and proposed infrastructure (Source: Borg Construction, 5 May 2016)

Currently, there are 114 car parking spaces supplied onsite for staff, which are accessible via Gate 4. An additional 117 car spaces are proposed to accommodate the increase in staffing in 2029. There is to be a total of 231 car spaces allocated for the future development. It is noted that the car park will also be utilised by construction personnel during the construction phase of the development while any parking overflow will be allotted in proposed hardstands.

Staff and delivery personnel will access the site via Gates 4 and 6, which are to be equipped with a new swipe-card entry system. A heavy vehicle circulation route internal to the site is proposed and will assist in the movement of trucks from the gate houses to the required destinations.

Visitor parking spaces are to be provided prior to the secured gate at Gate 4 while existing visitor spaces at Gate 6 are to be removed. The proposed onsite parking layout is contained in Appendix A.

3. EXISTING CONDITIONS ASSESSMENT

3.1 Land use

As per the Oberon Council Local Environmental Plan (LEP) 2013, the land zone classification of the subject site is IN1 General Industrial. The surrounding land uses include primary production, general and large-lot residential and forestry.

The objectives for an IN1 General Industrial zone as stated in the LEP are to offer a range of industrial and warehouse land uses, encourage employment opportunities, minimise adverse impacts of the industry on other land uses, and support and protect industrial land for such uses.

3.2 Existing road network

A site investigation was undertaken on Tuesday 25 August 2015 to identify current traffic conditions and develop an appreciation of the site and its surrounding road network. The key observations made during the site visit have been incorporated in this report.

3.2.1 *Lowes Mount Road*

Lowes Mount Road is a two-way single lane road with a north-south alignment. The carriageway width varies between 8 and 15 metres where the latter accommodates a separated right-turn lane into the subject site. Site access is provided off Lowes Mount Road via Gate 4 and Gate 6. A right-turn lane that is 60 metres in length is provided at the Gate 6 entry.

Formalised on-street parking is not provided along Lowes Mount Road. However, a wide grass verge provides sufficient parking area for vehicles adjacent to the carriageway.

Lowes Mount Road has a speed limit of 60 kilometres per hour at its southern end and 100 kilometres per hour north of the site. A pedestrian and cyclist shared path runs parallel to Lowes Mount Road along the eastern side of the road. There are no pedestrian crossing facilities within the immediate area surrounding the site.

Within the vicinity of the site, pavement linemarking is faded and raised pavement markers have reduced reflectivity due to wear by traffic. The road pavement condition varies between good and poor along its length. During the site inspection, sections of road were observed to be newly resurfaced while other areas remained damaged.

Figure 3-1 shows Lowes Mount Road within close proximity to the subject site.



Figure 3-1: Lowes Mount Road (looking south), just north of Gate 6

3.2.2 *Albion Street*

Albion Street is a single lane, two-way road with an east-west configuration. The carriageway is approximately 18 metres wide; it comprises of a single traffic lane and 4.5-metre wide kerbside lanes in both directions. Albion Street forms part of the heavy vehicle route between Oberon and the Sydney greater metropolitan area, and mostly consists of light industrial land uses.

Albion Street has a sign posted speed limit of 60 kilometres per hour within the town and 70 kilometres per hour near the town outskirts. Towards its western end, pavement linemarking is faded and the road pavement is considered to be in poor condition. Pedestrian footpaths are not provided along its length.

Figure 3-2 shows a cross-section of Albion Street near its intersection with Endeavour Street.



Figure 3-2: Albion Street (looking west) at its intersection with Endeavour Street

3.2.3 Horace Street

Horace Street has a north-south alignment and is located toward the southern boundary of the subject site. It is around 270 metres in length and is a no-through road at its northern end.

Horace Street functions as an access road for multiple industrial and warehouse facilities. The intersection of Horace Street with Albion Street is a give way control. However, there are no signs and linemarking to enforce controls at the intersection.

3.2.4 Endeavour Street

Endeavour Street has a north-south alignment with a 12-metre wide undivided carriageway. Unrestricted on-street parking is permitted along both sides of Endeavour Street.

Endeavour Street is a no-through road with a U-turn bay at its northern end. The signposted speed limit on Endeavour Street is 50 kilometres per hour. Its intersection with Albion Street is a give way control.

3.2.5 O'Connell Road

O'Connell Road is a divided two-way single-lane street with a north-south alignment. The unsealed road verge varies in width between approximately 2 and 5 metres. On-street parking is not formally provided along O'Connell Road and there are no pedestrian or cyclist facilities along the corridor.

The speed limit along O'Connell Road is 60 kilometres per hour at its southern end. The speed limit increases to 100 kilometres per hour about 300 metres north of the O'Connell Road/

Albion Street roundabout. O'Connell Road forms the heavy vehicle route between Oberon and Bathurst.

3.3 Public transport facilities

Public transport facilities are not provided within the area surrounding the proposed development site.

3.4 Pedestrian and cyclist network

A shared pedestrian and cyclist pathway is provided along the site frontage on Lowes Mount Road. The path is 1.5 metres wide and has an asphaltic surface. Footpaths and kerb ramps are generally provided on both sides of North Street and at most intersections between the site and the Oberon town centre.

The adjacent roadway is considerably elevated in comparison to the pathway and is physically separated by a wide grass verge which varies between three and eight metres. A typical cross section of the shared pedestrian and cyclist path, with warning signage of the road ahead, is shown in Figure 3-3.

Pedestrian and bicycle pathway warning signage is installed at the site access points at both Gate 4 and Gate 6 on Lowes Mount Road (Figure 3-4).



Figure 3-3: Shared path existing condition



Figure 3-4: Warning signage for shared path crossing

3.5 Intersection analysis

3.5.1 Traffic count surveys

SMEC commissioned traffic surveys at key locations surrounding the subject site. The purpose of the surveys was to determine existing traffic conditions at key intersections. Figure 3-5 illustrates the location of surveys commissioned.

Surveys were conducted at the following intersections:

- Site 1: Abercrombie Road and Rupert Street (give way)
- Site 2: O'Connell Road and Albion Street (give way)

- Site 3: Lowes Mount Road and Albion Street (give way)
- Site 4: Albion Street and Horace Street (give way)
- Site 5: Albion Street and Endeavour Street (give way)
- Site 6: North Street and Carrington Avenue (give way)
- Site 7: Oberon Street, Ross Street and unnamed road (give way)
- Site 8: Duckmaloi Road and Albion Road (give way).

These surveys were undertaken on Tuesday 25 August 2015 during the morning (6am to 9am) and afternoon (3pm to 6pm) peak periods.

Continuous mid-block traffic surveys were undertaken for a one-week period between Tuesday 25 August and Tuesday 1 September 2015, at the following locations:

- O'Connell Road (north of Albion Street)
- Lowes Mount Road (north of Albion Street)
- Duckmaloi Road (south-east of Albion Street).

Figure 3-5 shows the location of the traffic survey locations while the survey data is provided in Appendix B.

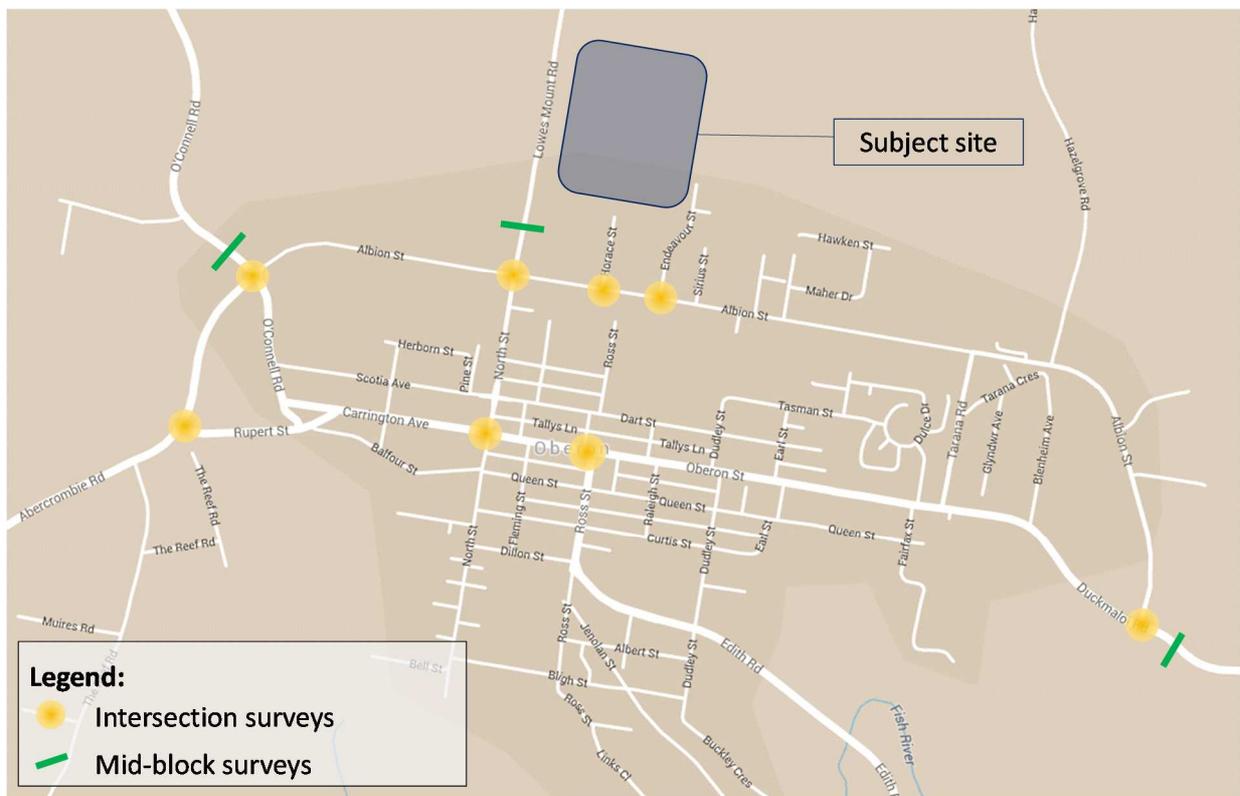


Figure 3-5: Key intersection and mid-block survey sites

3.5.2 Summary of results for existing conditions

SIDRA Intersection, version 6.1, was used to assess the performance of the eight intersections listed in Section 3.5.1 of this report. Table 3-1 indicates the Roads and Maritime Services (Roads and Maritime) levels of service criteria. Level of service D or better is generally accepted as appropriate operation.

Table 3-1: Roads and Maritime level of service criteria

Level of service	Average delay (sec)	Stop, give way or yield signs	Traffic signals and roundabouts
A	<14	Good operation	Good operation
B	15 to 28	Acceptable delays and spare capacity	Good operation with acceptable delays
C	29 to 42	Satisfactory but accident study required	Satisfactory
D	43 to 56	Near capacity, crash study required	Operating near capacity
E	57 to 70	At capacity requires other control mode	At capacity, at signals, incidents will cause excessive delays
F	>70	At capacity with long delays	At capacity with long delays

Existing vehicle turning movements at the key intersections have been included in this report as Appendix C while detailed results of the SIDRA intersection performance assessment are provided in Appendix D. Existing conditions at the key intersections for both the AM and PM peak hours are summarised in Table 3-2 and Table 3-3, respectively.

The key findings from the intersection analysis are that all intersections are currently operating at an acceptable level of service A during both AM and PM peak periods.

Table 3-2: Existing conditions – intersection analysis results, AM peak hour

Intersection	Existing conditions			
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾
Site 1: Abercrombie Road - Rupert Street	1	3.7	0.04	A
Site 2: O'Connell Road - Albion Street	3	5.4	0.08	A
Site 3: Lowes Mount Road - Albion Street	3	6.0	0.09	A
Site 4: Albion Street - Horace Street	<1	1.0	0.06	A
Site 5: Albion Street - Endeavour Street	<1	0.9	0.05	A
Site 6: North Street - Carrington Avenue	3	3.8	0.09	A

Site 7: Oberon Street - Ross Street - unnamed road	2	3.2	0.08	A
Site 8: Duckmaloi Road - Albion Road	1	2.5	0.03	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix D

Table 3-3: Existing conditions – intersection analysis results, PM peak hour

Intersection	Existing conditions			
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾
Site 1: Abercrombie Road - Rupert Street	1.2	3.8	0.05	A
Site 2: O'Connell Road - Albion Street	3.0	5.0	0.08	A
Site 3: Lowes Mount Road - Albion Street	4.2	6.2	0.11	A
Site 4: Albion Street - Horace Street	0.7	1.0	0.07	A
Site 5: Albion Street - Endeavour Street	0.7	1.1	0.07	A
Site 6: North Street - Carrington Avenue	3.0	4.1	0.10	A
Site 7: Oberon Street - Ross Street - unnamed road	4.0	3.2	0.15	A
Site 8: Duckmaloi Road - Albion Road	0.9	2.5	0.02	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix D

4. TRAFFIC IMPACT ASSESSMENT

4.1 Proposal overview

Borg Construction has proposed to expand its existing MDF panel processing facility to increase the production and manufacture of particle board. It is anticipated that the future development will be fully operational by the end of 2019. Expansion works will include the construction of new buildings as well as internal modifications to existing buildings, as explained in Section 2.2

4.2 Construction phase

4.2.1 Construction traffic generation

Construction works are expected to be conducted over a 24-month period, which is to commence in January 2017. Construction works would take place between 6am and 6pm, Monday to Saturday while no works are to be undertaken on Sundays.

The traffic generation associated with equipment transportation is assumed to be conducted during site establishment and limited to off-peak periods. This component has not been considered in the construction traffic generation since vehicles would deliver equipment once and would remain on site until the completion of the proposed development works.

An estimate of the number of peak heavy vehicle movements for construction is summarised in Table 4-1. Construction traffic generation is based on typical construction activities and the anticipated levels of staffing that are expected for the construction phase of the proposed development.

Table 4-1: Construction traffic generation

Phase	Duration of peak	Vehicle movements per day (two-way trip)	Number of personnel
Site establishment and construction	24 months	240 trips per day (light vehicles) 60 trips per day (heavy vehicles)	Maximum 120 per day

It is assumed that construction personnel would access the site prior to the general AM and PM peak periods, namely, 6am to 7am and 3pm to 4pm, respectively. Therefore, this would not have a significant impact on the existing transport network at this time.

The existing designated heavy vehicle routes to the site would be utilised by trucks associated with the construction phase. The routes include Duckmaloi Road to Albion Street and O'Connell Road to Albion Street, which form the heavy vehicle routes from the Sydney and Bathurst regions, respectively.

4.2.2 Construction impacts

The key findings of the construction phase impact assessment are:

- The construction phase is likely to have minimal impact on the existing transport network, with the majority of the vehicle movements occurring outside of the general peak periods
- No public transport provisions are required to support the construction phase of the works
- There will be no impacts on the existing pedestrian and cyclist network during construction.

4.3 Operational phase

4.3.1 Operational traffic generation

At the commencement of the proposed operational phase in 2019, there will be approximately 184 light vehicles accessing the site per day. In 2029, there will be an estimated 194 light vehicles entering the site per day. These estimates are based on the current number of staff and daily vehicle movements into the site for existing operations and the proposed operations for the expanded site.

In 2019 and 2029, there will be 109 and 160 trucks entering the site per day, respectively. Currently, truck movements to and from the site are generally uniform and occur between 6am and 6pm. Hence, heavy vehicles movements are assumed to be evenly distributed over a 12 hour period during the operational phase. Based on this, it is estimated that the number of trucks entering the site in 2019 and 2029 will be 10 and 14 trucks per peak hour, respectively.

Light vehicle movements due to site staff, and, heavy vehicle movements due to materials delivery and product export are summarised in Table 4-2 and Table 4-3, respectively.

Table 4-2: Operational traffic generation for light vehicles

Operational year	Number of personnel	Vehicle movements per day	
		One-way trip	Two-way trip
Existing	231	146	292
2019	291	184	368
2029	306	194	388

Table 4-3: Operational traffic generation for heavy vehicles

Operational year	Vehicle movements per day		Vehicle movements per peak hour	
	One-way trip	Two-way trip	One-way trip	Two-way trip
Existing	61	122	6	12
2019	109	218	10	20
2029	160	320	14	28

Figure 4-1 to Figure 4-4 illustrate an estimate of origin and destination traffic patterns for the proposed traffic generated as a result of the proposed development expansion. This estimate is based on current origin and destination data for light vehicles and heavy vehicles travelling to and from the site. The percentage split of light vehicle and heavy vehicle routes is expected to remain comparable in 2019 and 2029, and hence, has been used to evaluate the traffic impact on the road network during those years.



Figure 4-1: Light vehicle traffic distribution - AM peak period

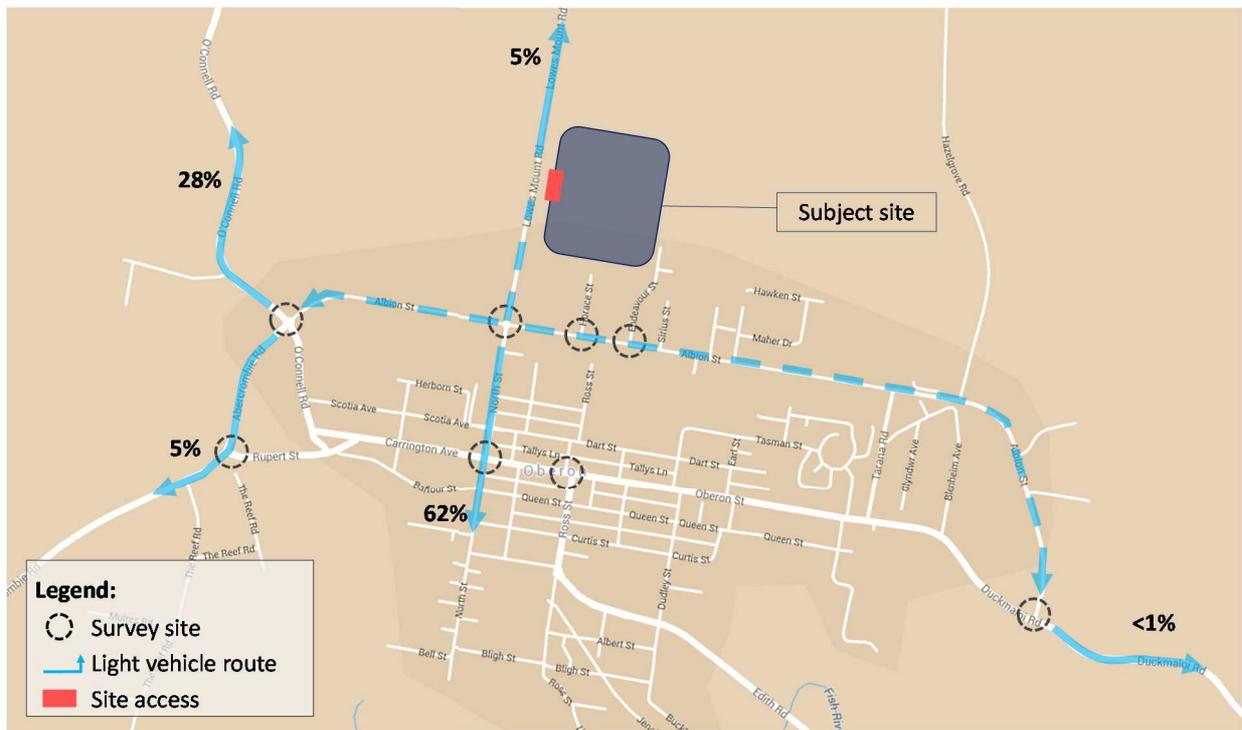


Figure 4-2: Light vehicle traffic distribution - PM peak period



Figure 4-3: Heavy vehicle traffic distribution - AM peak period



Figure 4-4: Heavy vehicle traffic distribution - PM peak period

At present, the site operates 24 hours per day, 365 days per year. No change is proposed to operating times under the development proposal. Site personnel undertake works as per the following shift times:

- Morning shift, 6:30am to 2:30pm
- Day shift, 2:30pm to 10:30pm
- Night shift, 10:30pm to 6:30am
- Full day shift, 6am to 6pm.

It has been assumed that the additional site personnel will be engaged in shift work with start and end times similar to those currently in place at the site. The forecast traffic generation attributed to additional site personnel is assumed to have no impact on the road network since arrival and departure times occur outside AM and PM peak periods. Therefore, the traffic impacts have been considered to be negligible.

It is noted that only five of the eight key intersection sites would be impacted by forecasted truck movements, as can be seen in Figure 4-3 and Figure 4-4. The intersections include Sites 2, 3, 4, 5 and 8 (refer to Section 3.5.1).

Currently, there are six trucks arriving at the site during the peak hour which generates an average arrival rate of one truck every 10 minutes. In 2029, there will be 14 trucks arriving at the site during the peak hour, generating an average arrival rate of one truck every four minutes and 17 seconds. A swipe-card entry system is to be installed at Gates 4 and 6 to accelerate heavy vehicle arrival procedures at the gatehouse. Typically, a swipe-card entry scheme would not require a truck to occupy the gatehouse for a period greater than four minutes which would remove the potential for queuing of trucks onto Lowes Mount Road. In the case that delays are experienced upon arrival, the driveway length of 110 metres prior to the gatehouses would be able to store waiting trucks clear of the roadway. Hence, this system with the proposed location of the gatehouses is considered to be appropriate for improving safety for road users within the area.

4.3.2 Site access

Existing site access arrangements will be maintained on Lowes Mount Road, that is, via Gate 4 for employees and Gate 4 and 6 for distribution trucks. Currently, log trucks access the site via Gate 5, which is to be maintained during future scenarios.

The existing geometry of access points adequately allow for 19 metre semi-trailers and 19-26 metre B-double trucks swept paths. As there are no works proposed to change the access layout and contractors' fleet, the ingress and egress swept paths are considered to be sufficient during future operational phases.

4.3.3 Operational impacts

SIDRA Intersection, version 6.1, was used to assess the operational impacts on the key intersections. A summary of the operational conditions at the key intersections during AM and PM peak periods in 2019 and 2029 are provided in Table 4-4 to Table 4-7, respectively.

The forecast vehicle turning movements at the key intersections are contained in Appendix E. These movements incorporate the additional heavy vehicle movements and existing turning movements.

Detailed results of the SIDRA intersection performance assessment for the forecast conditions in 2019 and 2029 are provided in Appendix F.

Table 4-4: Operational conditions (2019) – intersection analysis results, AM peak hour

Intersection	Forecast conditions				
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾	Current level of service
Site 1: Abercrombie Road - Rupert Street	1	3.7	0.04	A	A
Site 2: O'Connell Road - Albion Street	3	5.5	0.08	A	A
Site 3: Lowes Mount Road - Albion Street	4	6.2	0.09	A	A
Site 4: Albion Street - Horace Street	<1	0.9	0.06	A	A
Site 5: Albion Street - Endeavour Street	<1	0.8	0.06	A	A
Site 6: North Street - Carrington Avenue	3	3.8	0.09	A	A
Site 7: Oberon Street - Ross Street - unnamed road	2	3.2	0.8	A	A
Site 8: Duckmaloi Road - Albion Road	1	3.0	0.03	A	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix F.

Table 4-5: Operational conditions (2019) – intersection analysis results, PM peak hour

Intersection	Forecast conditions				
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾	Current level of service
Site 1: Abercrombie Road - Rupert Street	1	3.8	0.05	A	A
Site 2: O'Connell Road - Albion Street	3	5.1	0.08	A	A
Site 3: Lowes Mount Road - Albion Street	5	6.4	0.11	A	A

Intersection	Forecast conditions				
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾	Current level of service
Site 4: Albion Street - Horace Street	1	0.9	0.08	A	A
Site 5: Albion Street - Endeavour Street	2	1.0	0.08	A	A
Site 6: North Street - Carrington Avenue	3	4.1	0.10	A	A
Site 7: Oberon Street - Ross Street - unnamed road	4	3.2	0.15	A	A
Site 8: Duckmaloi Road - Albion Road	1	2.9	0.03	A	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix F.

Table 4-6: Operational conditions (2029) – intersection analysis results, AM peak hour

Intersection	Forecast conditions				
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾	Current level of service
Site 1: Abercrombie Road - Rupert Street	1	3.7	0.04	A	A
Site 2: O'Connell Road - Albion Street	3	5.5	0.08	A	A
Site 3: Lowes Mount Road - Albion Street	4	6.3	0.10	A	A
Site 4: Albion Street - Horace Street	<1	0.9	0.07	A	A
Site 5: Albion Street - Endeavour Street	<1	0.8	0.06	A	A
Site 6: North Street - Carrington Avenue	3	3.8	0.09	A	A
Site 7: Oberon Street - Ross Street - unnamed road	2	3.2	0.08	A	A
Site 8: Duckmaloi Road - Albion Road	2	3.1	0.04	A	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix F.

Table 4-7: Operational conditions (2029) – intersection analysis results, PM peak hour

Intersection	Forecast conditions				
	Queue length (m)	Average delay (s)	Degree of saturation	Level of service ⁽¹⁾	Current level of service
Site 1: Abercrombie Road - Rupert Street	1	3.8	0.05	A	A
Site 2: O'Connell Road - Albion Street	3	5.2	0.08	A	A
Site 3: Lowes Mount Road - Albion Street	5	6.4	0.11	A	A
Site 4: Albion Street - Horace Street	<1	0.9	0.08	A	A
Site 5: Albion Street - Endeavour Street	<1	1.0	0.08	A	A
Site 6: North Street - Carrington Avenue	3	4.1	0.10	A	A
Site 7: Oberon Street - Ross Street - unnamed road	4	3.2	0.15	A	A
Site 8: Duckmaloi Road - Albion Road	3	3.7	0.08	A	A

Note (1): The level of service is based on the worst movement of the intersection for unsignalised intersections, for details refer to Appendix F.

The key findings of the operational phase impact assessment are:

- All impacted intersections surrounding the site are operating at an acceptable level of service A during AM and PM peak periods
- All intersections experience minor increases in queue lengths and average delays, which are considered to have a negligible impact on the current road network. A comparison of data for existing conditions and 2029 operations indicates the greatest increase in queue length and average delay are 1.2 metres and 2.3 seconds, respectively, which occurs at Site 8
- Traffic generated due to additional site personnel is to occur outside of AM and PM peak periods, and therefore, is considered to have a negligible impact on the existing road network.

5. PARKING ASSESSMENT

5.1 Car parking provision

Oberon Council DCP 2001 stipulates a minimum onsite parking provision for industrial developments, specifically factories. The car parking requirement is determined by the gross floor area (GFA) of the future development, the number of factory units as part of the future development, or the number of employees per shift, whichever is greatest. The parking rates as per the DCP are as follows:

- One space per 100 m² GFA, or
- Two spaces per factory unit, or
- 0.75 spaces per employee per shift.

Automated processes, such as board moulding, laminating and finishing operations, and storage areas, for fines, sawdust and paper, will constitute a large portion of the proposed development. Hence, the number of onsite staff required would be lesser than that of a typical industrial site with manual handling processes. Therefore, determination of the required parking is considered to be more appropriately measured based on the number of employees per shift.

Based on this assumption and the number of employees as per Table 5-1, a minimum of 231 car parking spaces are required to be provided in 2029. Since it is proposed to supply 231 parking spaces, the parking provision for the proposed development is considered satisfactory.

Table 5-1: Employee shift times

Shift	Existing		2019	2029
	Number of employees	Percentage contribution	Number of employees	Number of employees
Morning	154	66%	193	203
Day	32	14%	41	43
Night	46	20%	58	61
Total	232	100%	292	307

It is noted that for the purpose of this analysis, employees working as part of the full day shift, that is, 6am to 6pm, have been allotted to the morning and night shifts accordingly.

Oberon Council's DCP does not supply a visitor parking provision for industrial developments. Similarly, the Roads and Maritime *Guide to Traffic Generating Developments* (version 2.2, October 2002) does not specify a visitor parking rate for factories. Consequently, SMEC has reviewed the number of visitor parking spaces as a proportional relationship to the increase in GFA.

Table 5-2: Visitor parking

Development	GFA (m²)	Required parking (based on GFA) (minimum)	Proposed parking
Existing	83,900	4	-
Proposed	100,550	5	5

Based on the existing visitor parking rate, there would be a need to provide a minimum of five visitor spaces for the future development. It is proposed to supply five visitor spaces, which is considered to be satisfactory.

Currently, visitor parking spaces are located at Gate 6, which is the designated access for heavy vehicles. As part of the future development, visitor spaces will be located at Gate 4, which is closer to site administration operations and will improve access to instructions from site personnel.

5.1.1 Accessible parking provision

Oberon Council's DCP does not stipulate a parking provision for accessible car parking. According to the *Australian Human Right Commission Guideline on the application of the Premises Standards* (version 2, 2013) and the *Draft Access Code for Buildings Section 1.3*, the proposed development is classified as a Class 5, 6, 7b, 8 and 9a (ie. factory) building and has a disabled car parking provision of one space for every 100 car parking spaces or part thereof.

There is a total of 231 staff car parking spaces to be provided. Applying the accessible parking rate as per the Guideline and Draft Access Code, it is required to provide three accessible spaces for the proposed development.

5.2 Car parking layout

The proposed on-site car parking is to be located towards the western boundary of the site and accessible via Gate 4 on Lowes Mount Road. The car spaces are proposed as 90-degree parking spaces off the parking aisles. AS2890.1 requires car parking spaces for employee parking to be provided as Class 1A parking spaces with a minimum aisle width of 5.8 metres wide. It is noted that easier manoeuvrability of vehicles into and out of parking spaces is achievable by supplying a 6.2m wide parking aisle. At the blind aisle adjacent to the existing main high voltage substation, the aisle is extended by a minimum of 1m beyond the end-most car parking spaces, and the end-most spaces are widened by a minimum of 300mm. Council's DCP specifies car parking spaces are to be provided with minimum dimensions of 2.5 metres wide by 5.5 metres long.

Accessible car parking spaces are to be provided in accordance with AS2890.1. Spaces are to be provided with minimum of 2.4 meters wide and 5.4 meters long with an adjacent shared area.

The proposed car park layout is in accordance with the minimum requirements as set out in Oberon Council's DCP and AS2890.1. Hence, the proposed car park layout is considered satisfactory.

6. MITIGATION AND MANGAGEMENT MEASURES

The traffic impacts during the construction and operation of the development will be negligible and will be absorbed into the existing transport network. The proposed mitigation and management measures are recommended to ensure the construction traffic and road pavement assets are managed appropriately

Preliminary mitigation measures proposed for minimising impacts due to the construction development and transportation of construction materials, components and equipment are:

- Preparation of a detailed Construction Traffic Management Plan for the construction phase of the development in accordance with Roads and Maritime's *Traffic Control at Worksites Manual* (version 4.0 June 2010), which specifies:
 - + Hours of haulage, which do not impose on peak periods and school drop-off and pick-up times
 - + Haulage routes, including the source of locations and their access points for the site
 - + Designated areas within the site for truck movements, parking, loading and unloading,
 - + Sequence for implementing traffic works and traffic management devices if required
 - + Safety principles for construction activities, such as speed limits around the site and procedures for specific activities
 - + Procedures for inspections and record keeping for maintaining traffic control measures
- Undertake a pavement inspection pre- and post-construction to ensure the pavement condition has not been further degraded due to construction traffic.

APPENDIX A: PROPOSED SITE LAYOUT

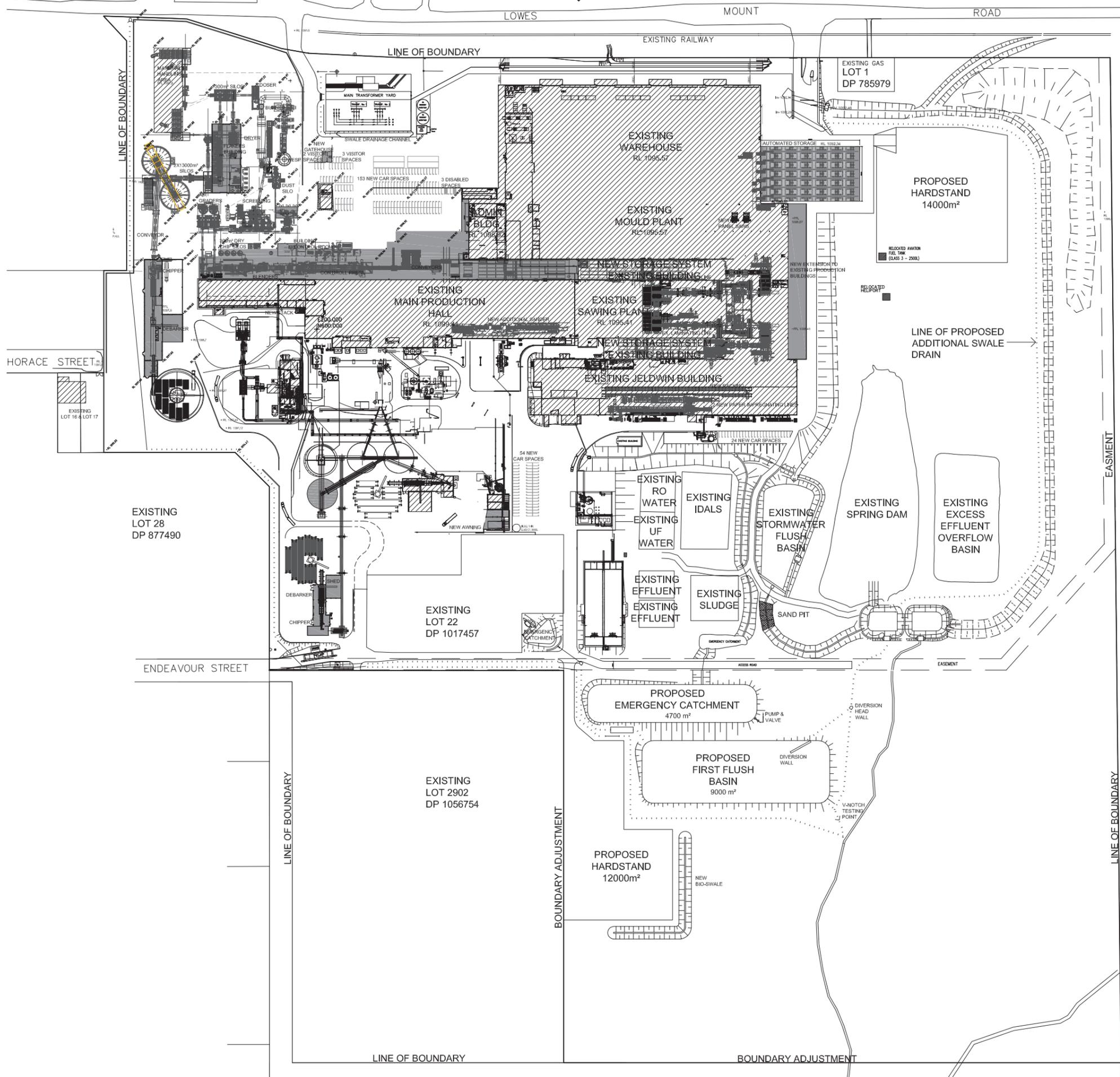
2
08

1
08

3
08

NOTE:
 LOT BOUNDARIES FOR CONSOLIDATION ARE NOT SHOWN ON THIS PLAN (FOR CLARITY) - REFER DA 04 CONSOLIDATION PLAN FOR DETAIL.
 REFER TO KEY PLAN FOR REFERENCES TO DOCUMENTATION OF NEW WORKS

LEGEND:
 EXISTING BUILDINGS
 PROPOSED NEW BUILDINGS
 NEW SWALE
 NEW PIPE
 VALVE



xxx UNDER REVISION xxx			
Issue	Description	Date	Drawn
P9	PRELIMINARY	4/5/16	
P8	PRELIMINARY	27/4/16	
P7	PRELIMINARY	20/4/16	
P6	PRELIMINARY	18/4/16	
P5	PRELIMINARY	15/4/16	
P4	PRELIMINARY	12/4/16	
P3	PRELIMINARY	12/4/16	
P2	PRELIMINARY	24/3/16	
P1		18/3/16	

BORG CONSTRUCTION

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Project
PROPOSED PARTICLE BOARD MANUFACTURING PLANT & ADDITIONAL WORKS.
 Location
 124 LOWES MOUNT ROAD, OBERON
 NEW SOUTH WALES
 Drawing
SITE PLAN

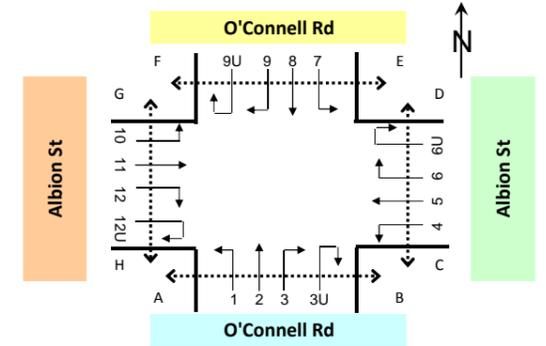
Scale	Stage
APPROX 1:1750 (@ A1)	DA
Project Number	Issue
19	XX
Drawing Number	
DA 02	



APPENDIX B: TRAFFIC SURVEY DATA

Suburb : Oberon
Location : 2. O'Connell Rd / Albion St
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

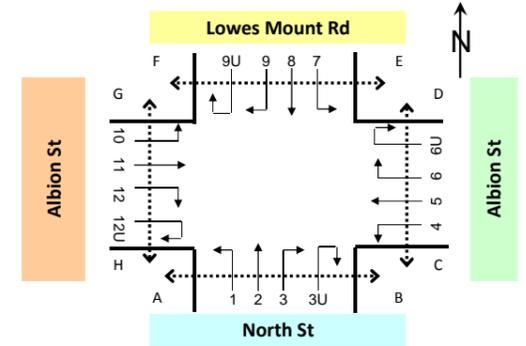
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	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)						
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses
6:00 to 7:00	0	0	0	0	26	3	0	29	1	0	0	1	0	0	0	0	0	0	0	0	6	2	8	8	4	0	12	0	2	0	2				
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6:30 to 7:30	0	0	0	0	25	2	0	27	2	0	0	2	0	0	0	0	0	0	0	3	7	4	14	12	8	0	20	0	1	0	1				
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7:00 to 8:00	1	0	0	1	29	1	2	32	2	0	0	2	0	0	0	0	0	0	1	6	6	4	16	17	6	1	24	0	2	0	2				
7:15 to 8:15	2	0	0	2	38	1	2	41	3	0	0	3	0	0	0	0	0	0	4	6	6	4	16	22	8	1	31	0	2	0	2				
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8:00 to 9:00	1	0	0	1	54	2	0	56	4	0	0	4	0	0	0	0	0	0	5	6	6	0	12	24	9	0	33	0	0	0	0	0			
AM Totals	2	0	0	2	109	6	2	117	7	0	0	7	0	0	0	0	0	6	12	18	6	36	49	19	1	69	0	4	0	4	0	0	0	0	
15:00 to 16:00	0	0	0	0	70	1	0	71	2	0	0	2	0	0	0	0	0	0	0	7	2	0	9	17	5	0	22	0	1	0	1	1			
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16:00 to 17:00	2	0	0	2	44	5	2	51	1	0	0	1	0	0	0	0	0	0	4	13	0	0	13	62	4	2	68	1	0	0	1	1			
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17:00 to 18:00	5	0	0	5	40	3	3	46	1	1	0	2	1	0	0	0	0	0	7	9	1	0	10	30	10	0	40	0	0	0	0	0			
PM Totals	7	0	0	7	154	9	5	168	4	1	0	5	1	0	0	1	11	0	0	11	29	3	0	32	109	19	2	130	1	1	0	2	0		



Approach	O'Connell Rd																Albion St												Crossing Pedestrians																			
	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)				A	B	C	D	E	F	G	H	Total							
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total								
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6:45 to 7:45	37	6	0	43	24	0	1	25	1	3	0	4	0	0	0	0	6	0	0	6	10	4	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
7:00 to 8:00	40	9	0	49	25	0	1	26	1	3	0	4	0	0	0	0	6	0	0	6	10	4	0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
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7:30 to 8:30	38	8	0	46	42	3	0	45	4	1	0	5	0	0	0	0	4	0	0	4	4	6	0	10	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0								
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8:00 to 9:00	26	8	0	34	50	3	1	54	6	0	0	6	0	0	0	0	4	0	0	4	5	6	0	11	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0								
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PM Totals	72	14	2	88	141	4	5	150	15	2	0	17	0	0	0	0	13	2	0	15	21	10	5	36	5	0	0	5	1	0	0	1	0	0	0	1	0	0	0	0								

Suburb : Oberon
Location : 3. Lowes Mount Rd / Albion St
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

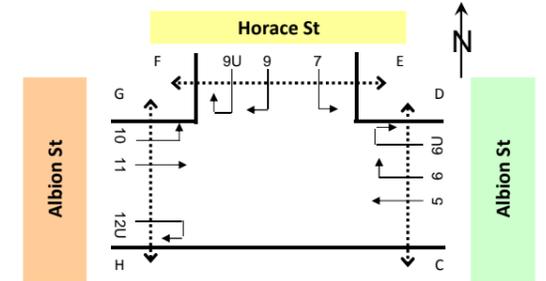
Approach	North St												Albion St																							
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Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
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PM Totals	72	2	0	74	116	7	1	124	104	10	3	117	2	0	0	2	159	9	10	178	56	29	2	87	27	13	0	40	2	1	0	3				



Approach	Lowes Mount Rd												Albion St												Crossing Pedestrians																				
	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)				A	B	C	D	E	F	G	H	Total				
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B	C	D	E	F	G	H	Total
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7:00 to 8:00	3	2	0	5	10	2	0	12	5	2	0	7	0	0	0	0	16	1	0	17	15	16	0	31	8	1	0	9	0	0	0	0	0	0	0	0	0	1							
7:15 to 8:15	6	4	0	10	14	1	0	15	5	3	0	8	0	0	0	0	15	1	0	16	13	13	0	26	12	3	0	15	0	0	0	0	0	0	0	0	0	0	0						
7:30 to 8:30	8	6	0	14	17	1	0	18	8	2	0	10	0	0	0	0	10	1	0	11	14	11	0	25	14	2	0	16	0	0	0	0	0	1	0	0	0	1							
7:45 to 8:45	8	6	0	14	22	0	1	23	9	2	0	11	0	0	0	0	9	1	0	10	18	13	0	31	16	2	0	18	0	0	0	0	0	1	0	0	0	1							
8:00 to 9:00	8	7	4	19	29	0	1	30	9	1	0	10	0	0	0	0	5	0	0	5	17	11	0	28	20	3	0	23	0	0	0	0	0	1	0	0	0	1							
AM Totals	14	10	5	29	55	2	1	58	20	4	0	24	0	0	0	0	46	4	0	50	43	36	0	79	32	5	0	37	0	0	0	0	0	0	0	0	0	0	2						
15:00 to 16:00	6	10	0	16	49	1	0	50	11	6	0	17	0	0	0	0	9	1	0	10	29	22	1	52	35	3	0	38	1	0	0	1	0	0	0	2	1	0	0	3					
15:15 to 16:15	9	8	0	17	52	0	0	52	14	4	0	18	0	0	0	0	8	3	0	11	31	23	1	55	36	1	0	37	1	0	0	1	0	0	0	6	1	0	0	7					
15:30 to 16:30	9	7	0	16	54	1	0	55	21	1	0	22	0	0	0	0	7	3	0	10	34	18	5	57	39	1	0	40	1	0	0	1	0	0	2	6	1	0	0	9					
15:45 to 16:45	13	5	0	18	54	2	0	56	24	1	0	25	0	0	0	0	6	5	0	11	26	16	6	48	19	1	0	20	1	0	0	1	0	0	2	6	0	0	0	8					
16:00 to 17:00	18	5	1	24	52	2	0	54	29	0	0	29	0	0	0	0	4	7	0	11	23	12	5	40	17	0	0	17	0	0	0	0	0	0	0	0	0	0	6						
16:15 to 17:15	17	5	1	23	35	2	0	37	29	0	0	29	0	0	0	0	3	6	0	9	17	10	5	32	17	1	0	18	0	0	0	0	0	0	0	1	0	4							
16:30 to 17:30	15	5	1	21	32	2	0	34	24	1	0	25	0	0	0	0	7	5	0	12	17	10	2	29	16	1	0	17	0	0	0	0	0	0	1	0	0	2							
16:45 to 17:45	13	5	1	19	30	2	0	32	20	1	0	21	0	0	0	0	11	3	0	14	22	5	1	28	22	1	0	23	0	0	0	0	0	0	1	0	0	2							
17:00 to 18:00	9	1	0	10	43	4	0	47	15	1	0	16	0	0	0	0	17	1	0	18	28	4	1	33	24	1	0	25	0	0	0	0	0	0	1	0	0	2							
PM Totals	33	16	1	50	144	7	0	151	55	7	0	62	0	0	0	0	30	9	0	39	80	38	7	125	76	4	0	80	1	0	0	1	1	0	2	6	1	0	1	11					

Suburb : Oberon
Location : 4. Albion St / Horace St
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

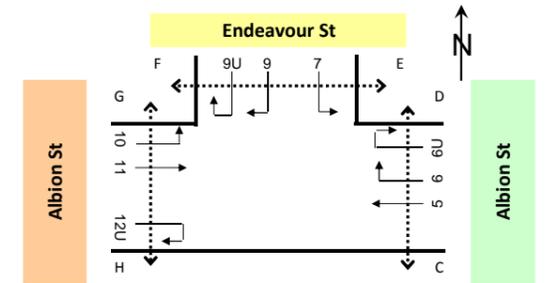
Approach	Direction	Time Period	Albion St													
			Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)					
			Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total		
6:00 to 7:00			35	12	0	47	0	0	0	0	0	0	0	0	0	0
6:15 to 7:15			41	13	0	54	0	0	0	0	0	0	0	0	0	0
6:30 to 7:30			48	20	0	68	1	0	0	1	0	0	0	0	0	0
6:45 to 7:45			52	22	0	74	1	0	0	1	0	0	0	0	0	0
7:00 to 8:00			44	19	0	63	2	0	0	2	0	0	0	0	0	0
7:15 to 8:15			49	22	0	71	5	0	0	5	0	0	0	0	0	0
7:30 to 8:30			50	23	0	73	4	0	0	4	0	0	0	0	0	0
7:45 to 8:45			51	23	0	74	7	0	0	7	0	0	0	0	0	0
8:00 to 9:00			58	24	0	82	8	0	0	8	0	0	0	0	0	0
AM Totals			137	55	0	192	10	0	0	10	0	0	0	0	0	0
15:00 to 16:00			67	21	0	88	10	1	0	11	0	0	0	0	0	0
15:15 to 16:15			68	21	0	89	10	1	0	11	1	0	0	0	0	1
15:30 to 16:30			70	20	2	92	11	2	0	13	1	0	0	0	1	1
15:45 to 16:45			59	18	3	80	10	1	0	11	2	0	0	0	2	2
16:00 to 17:00			64	17	3	84	4	1	0	5	2	0	0	0	2	2
16:15 to 17:15			66	15	3	84	3	1	0	4	1	0	0	0	1	1
16:30 to 17:30			69	17	1	87	2	0	0	2	1	0	0	0	1	1
16:45 to 17:45			66	15	0	81	1	0	0	1	0	0	0	0	0	0
17:00 to 18:00			62	14	0	76	0	0	0	0	0	0	0	0	0	0
PM Totals			193	52	3	248	14	2	0	16	2	0	0	0	2	2



Approach	Horace St				Albion St												Crossing Pedestrians														
	Direction 7 (Left Turn)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12U (U Turn)										
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	C	D	E	F	G	H	Total				
6:00 to 7:00	0	0	0	0	1	0	0	0	1	0	0	0	1	30	13	1	44	0	0	0	0	0	1	0	0	0	0	1			
6:15 to 7:15	0	0	0	0	1	0	0	0	0	1	1	0	2	33	16	1	50	0	0	0	0	0	0	0	0	0	1				
6:30 to 7:30	0	1	0	1	0	0	0	0	0	1	1	0	2	30	15	1	46	0	0	0	0	0	0	0	0	0	1				
6:45 to 7:45	0	1	0	1	1	0	0	0	0	5	1	0	6	26	14	2	42	0	0	0	0	0	0	0	0	0	1				
7:00 to 8:00	0	1	0	1	1	0	0	0	0	7	2	0	9	26	19	2	47	0	0	0	0	0	0	0	0	0	0				
7:15 to 8:15	0	1	0	1	1	0	0	0	0	9	1	0	10	28	18	1	47	0	0	0	0	0	0	0	0	0	0				
7:30 to 8:30	1	0	0	1	4	0	0	0	0	11	1	0	12	35	22	1	58	0	0	0	0	0	0	0	0	0	0				
7:45 to 8:45	3	0	0	3	6	0	0	0	0	11	1	0	12	39	25	0	64	0	0	0	0	0	0	0	1	1					
8:00 to 9:00	3	0	0	3	9	0	0	0	0	11	0	0	11	41	23	0	64	0	0	1	1	0	0	0	1	1					
AM Totals	3	1	0	4	11	0	0	0	0	19	2	0	21	97	55	3	155	0	0	1	1	0	1	0	0	1	2				
15:00 to 16:00	6	0	0	6	12	2	0	0	0	4	2	0	6	69	25	1	95	0	0	0	0	0	0	0	0	0	1				
15:15 to 16:15	7	0	0	7	10	2	0	0	0	5	1	0	6	84	25	1	110	0	0	0	0	0	0	0	0	0	1				
15:30 to 16:30	9	0	0	9	10	3	0	0	0	6	0	0	6	77	18	0	95	0	0	0	0	0	0	0	0	0	0				
15:45 to 16:45	6	0	0	6	10	3	0	0	0	5	0	0	5	69	18	0	87	0	0	0	0	0	0	0	0	0	0				
16:00 to 17:00	6	0	0	6	13	2	0	0	0	6	0	0	6	66	20	0	86	0	0	0	0	0	0	0	0	0	0				
16:15 to 17:15	8	0	0	8	10	1	0	0	0	6	1	0	7	59	20	0	79	0	0	0	0	0	0	0	0	0	0				
16:30 to 17:30	7	0	0	7	8	0	0	0	0	5	1	0	6	61	20	0	81	0	0	0	0	0	0	0	0	0	0				
16:45 to 17:45	7	0	0	7	9	0	0	0	0	4	1	0	5	61	14	0	75	0	0	0	0	0	0	0	0	0	0				
17:00 to 18:00	5	0	0	5	7	0	0	0	0	3	1	0	4	57	7	0	64	0	0	0	0	0	0	0	0	0	0				
PM Totals	17	0	0	17	32	4	0	0	0	13	3	0	16	192	52	1	245	0	0	0	0	0	1	0	0	0	1				

Suburb : Oberon
Location : 5. Albion St / Endeavour St
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

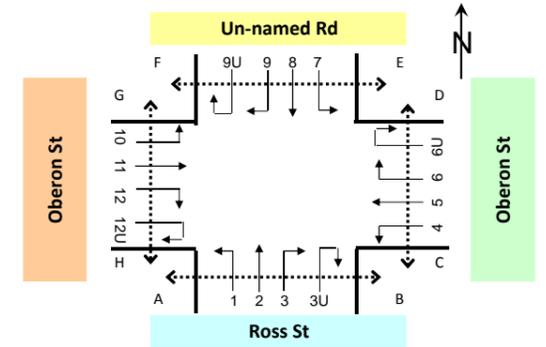
Approach	Direction	Time Period	Albion St											
			Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
			Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
6:00 to 7:00			34	7	0	41	0	2	0	2	0	0	0	0
6:15 to 7:15			40	9	0	49	2	2	0	4	0	0	0	0
6:30 to 7:30			47	12	0	59	3	1	0	4	0	0	0	0
6:45 to 7:45			49	13	0	62	3	0	0	3	0	0	0	0
7:00 to 8:00			46	12	0	58	3	0	0	3	0	0	0	0
7:15 to 8:15			53	13	0	66	1	0	0	1	0	0	0	0
7:30 to 8:30			54	15	0	69	0	0	0	0	0	0	0	0
7:45 to 8:45			59	18	0	77	0	1	0	1	0	0	0	0
8:00 to 9:00			60	18	0	78	0	1	0	1	0	0	0	0
AM Totals			140	37	0	177	3	3	0	6	0	0	0	0
15:00 to 16:00			70	17	0	87	1	0	0	1	0	0	0	0
15:15 to 16:15			72	16	0	88	1	0	0	1	0	0	0	0
15:30 to 16:30			71	18	2	91	2	0	0	2	0	0	0	0
15:45 to 16:45			60	13	3	76	2	0	0	2	0	0	0	0
16:00 to 17:00			63	10	3	76	2	1	0	3	0	0	0	0
16:15 to 17:15			64	13	3	80	2	1	0	3	0	0	0	0
16:30 to 17:30			68	12	1	81	0	1	0	1	0	0	0	0
16:45 to 17:45			66	13	0	79	0	1	0	1	0	0	0	0
17:00 to 18:00			59	12	0	71	0	0	0	0	0	0	0	0
PM Totals			192	39	3	234	3	1	0	4	0	0	0	0



Approach	Endeavour St				Albion St												Crossing Pedestrians														
	Direction 7 (Left Turn)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12U (U Turn)										
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	C	D	E	F	G	H	Total				
6:00 to 7:00	0	3	0	3	0	6	0	6	0	0	0	0	1	5	0	6	28	8	1	37	2	0	0	2	0	1	1	1	1	1	5
6:15 to 7:15	0	2	0	2	0	5	0	5	0	0	0	0	1	7	0	8	31	8	1	40	3	0	0	3	0	1	1	1	1	2	6
6:30 to 7:30	0	1	0	1	1	8	0	9	0	0	0	0	1	6	0	7	28	9	1	38	3	0	0	3	0	1	1	1	1	2	6
6:45 to 7:45	0	0	0	0	2	8	0	10	0	0	0	0	2	7	0	9	22	8	2	32	2	0	0	2	0	0	1	1	2	4	
7:00 to 8:00	0	0	0	0	2	5	0	7	0	0	0	0	5	9	0	14	21	10	2	33	1	0	0	1	0	0	0	1	1	1	
7:15 to 8:15	0	1	0	1	2	6	0	8	0	0	0	0	5	7	0	12	24	13	1	38	0	0	0	0	0	0	0	0	0	0	
7:30 to 8:30	1	1	0	2	1	6	0	7	0	0	0	0	5	7	0	12	32	15	1	48	0	0	0	0	0	0	0	0	0	0	
7:45 to 8:45	1	1	0	2	0	4	0	4	0	0	0	0	5	8	0	13	37	15	0	52	0	0	0	0	0	0	0	0	0	0	
8:00 to 9:00	1	1	0	2	1	5	0	6	0	0	0	0	3	8	0	11	41	14	0	55	0	0	0	0	0	0	0	0	0	0	
AM Totals	1	4	0	5	3	16	0	19	0	0	0	0	9	22	0	31	90	32	3	125	3	0	0	3	0	1	1	2	6	6	
15:00 to 16:00	0	2	0	2	8	6	0	14	0	0	0	0	5	8	0	13	74	17	1	92	0	0	0	0	0	0	0	0	0	0	
15:15 to 16:15	3	3	0	6	8	6	0	14	0	0	0	0	6	10	0	16	84	15	1	100	0	0	0	0	0	1	1	1	1	3	
15:30 to 16:30	3	2	0	5	9	4	0	13	0	0	0	0	5	6	0	11	79	12	0	91	0	0	0	0	0	1	0	1	1	2	
15:45 to 16:45	3	2	0	5	8	7	0	15	0	0	0	0	4	5	0	9	69	14	0	83	0	0	0	0	0	0	0	0	0	0	
16:00 to 17:00	3	2	0	5	6	6	0	12	0	0	0	0	4	4	0	8	66	15	0	81	0	0	0	0	0	0	0	0	0	0	
16:15 to 17:15	1	0	0	1	5	5	0	10	0	0	0	0	5	2	0	7	62	16	0	78	0	0	0	0	0	0	0	1	1	1	
16:30 to 17:30	1	0	0	1	6	5	0	11	0	0	0	0	5	2	0	7	63	17	0	80	0	0	0	0	0	1	1	1	2	2	
16:45 to 17:45	2	0	0	2	3	2	0	5	0	0	0	0	4	2	0	6	68	10	0	78	0	0	0	0	1	1	1	2	2	2	
17:00 to 18:00	2	0	0	2	3	2	0	5	0	0	0	0	2	2	0	4	57	5	0	62	0	0	0	0	1	1	1	2	2	2	
PM Totals	5	4	0	9	17	14	0	31	0	0	0	0	11	14	0	25	197	37	1	235	0	0	0	0	0	1	2	2	5	5	

Suburb : Oberon
Location : 7. Oberon St / Ross St / Un-named Rd
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

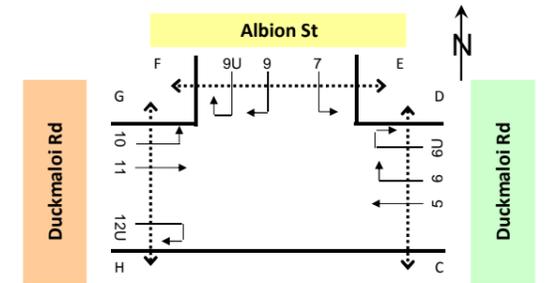
Approach	Ross St												Oberon St																											
	Direction 1 (Left Turn)				Direction 2 (Through)				Direction 3 (Right Turn)				Direction 3U (U Turn)				Direction 4 (Left Turn)				Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)											
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
6:00 to 7:00	30	0	1	31	0	0	0	0	4	0	0	4	0	0	0	0	4	1	0	5	36	2	0	38	1	0	0	1	0	0	0	0	0	0	0					
6:15 to 7:15	33	0	0	33	0	0	0	0	5	1	0	6	0	0	0	0	2	1	0	3	37	3	0	40	1	0	0	1	0	0	0	0	0	0	0					
6:30 to 7:30	36	0	0	36	3	0	0	3	5	1	0	6	0	0	0	0	6	0	0	6	44	4	0	48	2	0	0	2	0	0	0	0	0	0	0					
6:45 to 7:45	44	1	0	45	5	0	0	5	6	1	0	7	0	0	0	0	8	0	0	8	48	4	0	52	4	0	1	5	0	0	0	0	0	0	0					
7:00 to 8:00	46	2	0	48	6	0	0	6	6	1	0	7	0	0	0	0	7	0	0	7	57	3	0	60	3	0	1	4	1	0	0	0	0	0	1					
7:15 to 8:15	47	2	0	49	7	0	0	7	6	0	0	6	0	0	0	0	7	0	0	7	77	2	0	79	7	0	1	8	1	0	0	0	0	0	1					
7:30 to 8:30	48	2	0	50	8	0	0	8	6	0	0	6	0	0	0	0	6	1	0	7	80	1	0	81	8	0	1	9	1	0	0	0	0	0	1					
7:45 to 8:45	50	2	0	52	12	0	0	12	9	0	0	9	0	0	0	0	13	1	0	14	92	1	1	94	8	0	0	8	2	0	0	0	0	0	2					
8:00 to 9:00	48	1	0	49	21	0	0	21	10	0	0	10	0	0	0	0	22	1	0	23	94	2	2	98	13	0	0	13	1	0	0	0	0	0	1					
AM Totals	124	3	1	128	27	0	0	27	20	1	0	21	0	0	0	0	33	2	0	35	187	7	2	196	17	0	1	18	2	0	0	0	0	0	2					
15:00 to 16:00	56	2	0	58	16	0	0	16	17	2	0	19	0	0	0	0	22	1	0	23	89	2	0	91	7	0	0	7	1	0	0	0	0	0	1					
15:15 to 16:15	69	2	0	71	13	0	0	13	15	2	0	17	0	0	0	0	19	1	0	20	93	2	0	95	8	0	0	8	2	0	0	0	0	0	2					
15:30 to 16:30	66	2	0	68	11	0	0	11	17	2	0	19	0	0	0	0	15	0	0	15	101	3	0	104	11	0	0	11	2	0	0	0	0	0	2					
15:45 to 16:45	59	1	0	60	8	0	0	8	14	1	0	15	0	0	0	0	17	0	0	17	92	3	2	97	8	0	0	8	2	0	0	0	0	0	2					
16:00 to 17:00	55	1	0	56	5	0	0	5	14	0	0	14	0	0	0	0	18	0	0	18	97	2	2	101	10	0	0	10	1	0	0	0	0	0	1					
16:15 to 17:15	45	1	0	46	7	0	0	7	15	0	0	15	0	0	0	0	19	0	0	19	95	2	2	99	9	0	0	9	0	0	0	0	0	0	0					
16:30 to 17:30	54	1	1	56	9	0	0	9	12	0	0	12	0	0	0	0	17	0	0	17	97	1	3	101	5	0	0	5	0	0	0	0	0	0	0					
16:45 to 17:45	51	1	1	53	8	0	0	8	17	0	0	17	0	0	0	0	15	0	0	15	100	1	2	103	6	0	0	6	0	0	0	0	0	0	0					
17:00 to 18:00	56	0	1	57	4	0	0	4	22	0	0	22	0	0	0	0	16	0	0	16	104	2	3	109	4	0	0	4	1	0	0	0	0	0	1					
PM Totals	167	3	1	171	25	0	0	25	53	2	0	55	0	0	0	0	56	1	0	57	290	6	5	301	21	0	0	21	3	0	0	0	0	0	3					



Approach	Un-named Rd												Oberon St												Crossing Pedestrians																								
	Direction 7 (Left Turn)				Direction 8 (Through)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12 (Right Turn)				Direction 12U (U Turn)				A	B	C	D	E	F	G	H	Total								
Time Period	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	A	B	C	D	E	F	G	H	Total
6:00 to 7:00	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	2	0	0	2	12	2	1	15	19	0	0	19	1	0	0	1	0	0	1	0	0	1	0	0	0	0	2						
6:15 to 7:15	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	4	0	0	4	18	2	1	21	16	1	0	17	0	0	0	0	1	0	2	0	1	0	0	0	0	4							
6:30 to 7:30	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	5	0	0	5	23	3	2	28	17	5	1	23	1	0	0	1	1	0	2	0	2	0	0	0	0	5							
6:45 to 7:45	1	0	0	1	2	0	0	2	1	0	0	1	0	0	0	0	6	1	0	7	34	3	2	39	24	7	1	32	2	0	0	2	1	0	2	0	4	1	0	0	0	8							
7:00 to 8:00	1	0	0	1	5	0	0	5	3	0	0	3	0	0	0	0	7	1	0	8	41	2	1	44	28	8	1	37	2	0	0	2	1	0	3	0	5	2	0	0	0	11							
7:15 to 8:15	1	0	0	1	5	0	0	5	4	0	0	4	0	0	0	0	10	1	0	11	44	1	1	46	30	8	1	39	2	0	0	2	0	2	1	0	5	3	0	2	0	13							
7:30 to 8:30	2	0	0	2	6	0	0	6	4	0	0	4	0	0	0	0	19	1	0	20	47	0	0	47	23	5	0	28	1	0	0	1	0	2	1	0	5	9	0	2	0	19							
7:45 to 8:45	4	0	0	4	5	0	0	5	7	0	0	7	0	0	0	0	21	0	0	21	53	2	0	55	26	4	0	30	2	0	0	2	1	2	1	2	7	8	0	2	0	23							
8:00 to 9:00	10	0	0	10	6	0	0	6	8	0	0	8	0	0	0	0	27	1	0	28	66	2	0	68	21	3	0	24	2	0	0	2	1	2	0	5	7	8	2	3	0	28							
AM Totals	11	0	0	11	11	0	0	11	12	0	0	12	0	0	0	0	36	2	0	38	119	6	2	127	68	11	1	80	5	0	0	5	2	2	4	5	13	10	2	3	0	41							
15:00 to 16:00	13	1	0	14	10	1	0	11	20	0	0	20	0	0	0	0	21	1	0	22	127	1	0	128	50	0	2	52	3	0	0	3	6	7	8	7	8	6	2	5	0	49							
15:15 to 16:15	13	1	0	14	9	1	0	10	21	0	0	21	0	0	0	0	30	0	0	30	137	0	1	138	56	0	2	58	4	0	0	4	5	6	8	8	8	6	1	4	0	46							
15:30 to 16:30	13	0	0	13	13	0	0	13	17	0	0	17	0	0	0	0	35	0	0	35	137	0	1	138	64	0	2	66	7	0	0	7	4	4	8	6	9	10	2	5	0	48							
15:45 to 16:45	9	0	0	9	12	0	0	12	21	0	0	21	0	0	0	0	46	0	0	46	140	2	2	144	68	0	0	68	13	0	0	13	4	3	6	4	13	7	4	4	0	45							
16:00 to 17:00	13	0	0	13	11	0	0	11	23	0	0	23	0	0	0	0	45	1	0	46	140	2	2	144	69	0	0	69	13	0	0	13	2	3	3	3	16	10	4	4	0	45							
16:15 to 17:15	12	0	0	12	12	0	0	12	26	1	0	27	0	0	0	0	43	1	0	44	132	3	1	136	71	0	0	71	14	0	0	14	2	6	3	4	14	11	4	8	0	52							
16:30 to 17:30	11	0	0	11	9	0	0	9	28	1	0	29	0	0	0	0	32	1	0	33	142	4	1	147	61	0	0	61	12	0	0	12	6	9	4	4	15	12	5	7	0	62							
16:45 to 17:45	15	0	0	15	7	0	0	7	20	1	0	21	0	0	0	0	21	1	0	22	142	3	0	145	60	0	0	60	8	0	0	8	9	8	3	5	13	12	3	9	0	62							
17:00 to 18:00	13	0	0	13	9	0	0	9	14	1	0	15	0	0	0	0	18	1	0	19	130	4	1	135	62	0	0	62	7	0	0	7	9	7	6	4	10	9	3	7	0	55							
PM Totals	39	1	0	40	30	1	0	31	57	1	0	58	0	0	0	0	84	3	0	87	397	7	3	407	181	0	2	183	23	0	0	23	17	17	17	14	34	25	9	16	0	149							

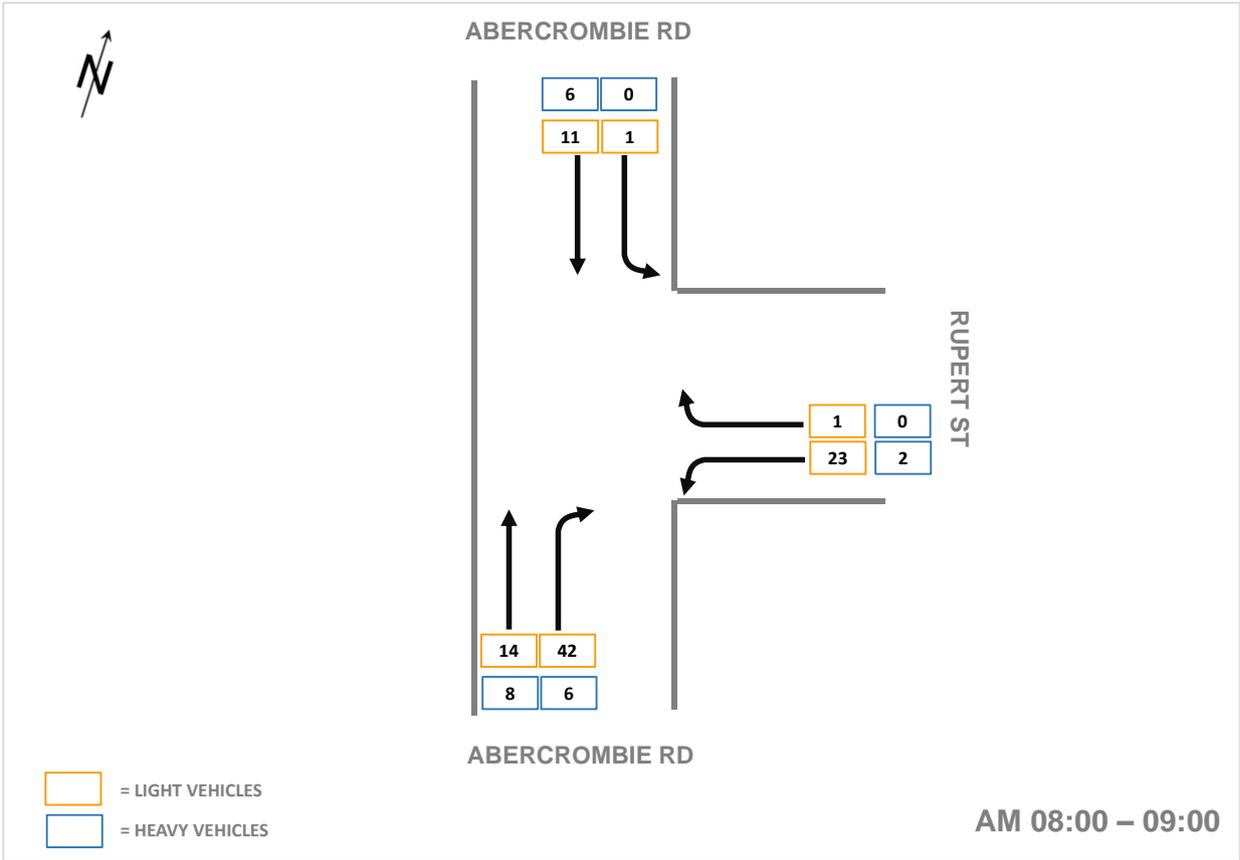
Suburb : Oberon
Location : 8. Duckmaloi Rd / Albion St
Day/Date : Tuesday, 25th August 2015
Weather : Fine
Description : Classified Intersection Count
 : Hourly Summary

Approach	Direction	Time Period	Duckmaloi Rd											
			Direction 5 (Through)				Direction 6 (Right Turn)				Direction 6U (U Turn)			
			Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total
6:00 to 7:00			6	0	0	6	7	3	0	10	0	0	0	0
6:15 to 7:15			10	0	0	10	11	3	0	14	0	0	0	0
6:30 to 7:30			15	0	0	15	13	4	0	17	0	0	0	0
6:45 to 7:45			18	0	0	18	13	4	0	17	0	0	0	0
7:00 to 8:00			25	0	0	25	10	5	0	15	0	0	0	0
7:15 to 8:15			30	1	0	31	11	8	0	19	0	0	0	0
7:30 to 8:30			37	1	1	39	12	10	0	22	0	0	0	0
7:45 to 8:45			45	2	1	48	13	12	0	25	0	0	0	0
8:00 to 9:00			46	3	1	50	15	11	0	26	0	0	0	0
AM Totals			77	3	1	81	32	19	0	51	0	0	0	0
15:00 to 16:00			24	2	1	27	7	11	0	18	0	0	0	0
15:15 to 16:15			32	1	1	34	9	10	0	19	0	0	0	0
15:30 to 16:30			35	1	3	39	10	11	1	22	0	0	0	0
15:45 to 16:45			30	1	3	34	14	7	1	22	0	0	0	0
16:00 to 17:00			29	1	2	32	14	7	1	22	0	0	0	0
16:15 to 17:15			26	1	2	29	12	4	1	17	0	0	0	0
16:30 to 17:30			24	0	2	26	13	2	0	15	0	0	0	0
16:45 to 17:45			26	0	2	28	8	2	0	10	0	0	0	0
17:00 to 18:00			28	0	2	30	10	0	0	10	0	0	0	0
PM Totals			81	3	5	89	31	18	1	50	0	0	0	0

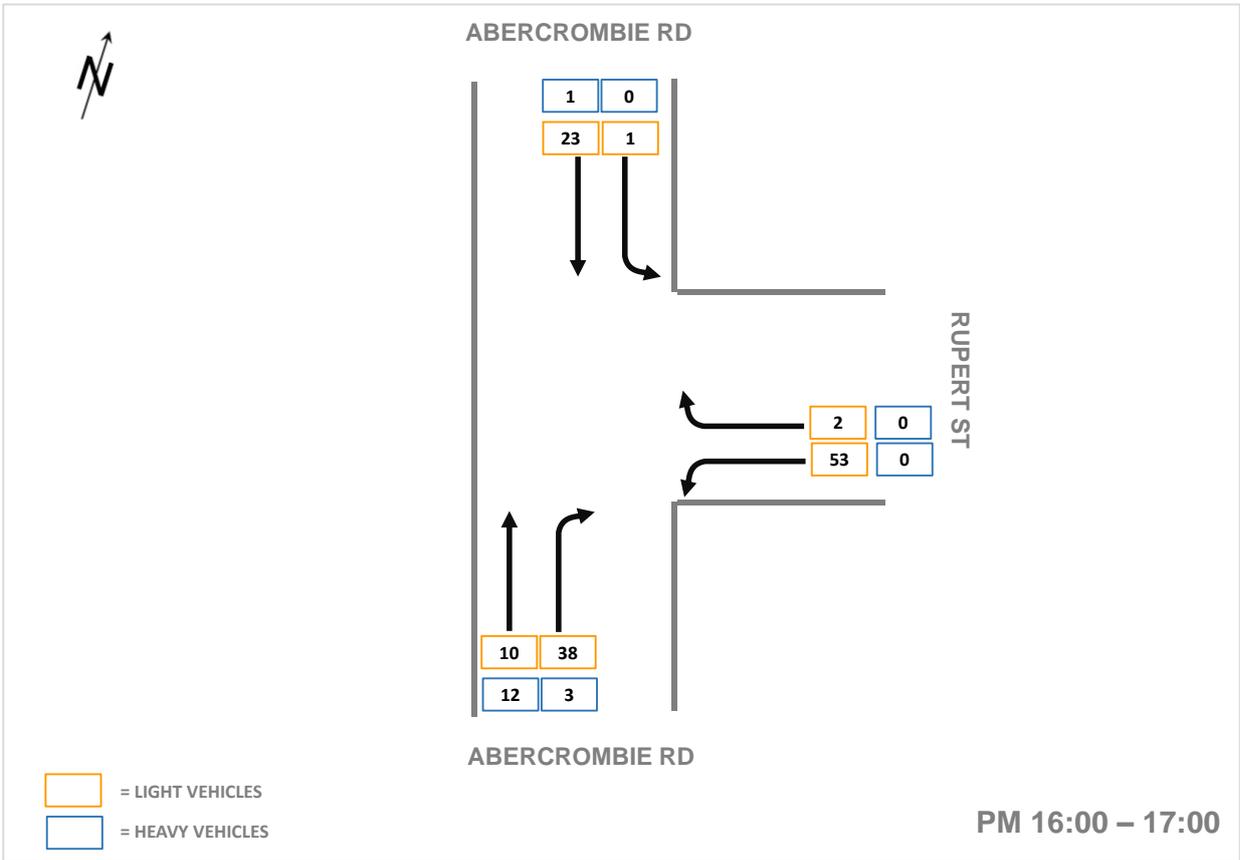


Approach	Albion St				Duckmaloi Rd												Crossing Pedestrians														
	Direction 7 (Left Turn)				Direction 9 (Right Turn)				Direction 9U (U Turn)				Direction 10 (Left Turn)				Direction 11 (Through)				Direction 12U (U Turn)										
	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	Cars	Trucks	Buses	Total	C	D	E	F	G	H	Total				
6:00 to 7:00	1	6	0	7	0	0	0	0	0	0	0	0	2	0	0	2	6	0	1	7	0	0	0	0	0	0	0				
6:15 to 7:15	1	6	0	7	0	1	0	1	0	0	0	0	2	0	0	2	9	1	1	11	0	0	0	0	0	0	0				
6:30 to 7:30	2	6	0	8	0	1	0	1	0	0	0	0	4	1	0	5	10	1	2	13	0	0	0	0	0	0	0				
6:45 to 7:45	4	8	0	12	3	1	0	4	0	0	0	0	6	1	0	7	13	1	2	16	0	0	0	0	0	0	0				
7:00 to 8:00	6	7	0	13	4	1	0	5	0	0	0	0	4	1	0	5	15	1	1	17	0	0	0	0	0	0	0				
7:15 to 8:15	6	10	0	16	5	0	0	5	0	0	0	0	4	1	0	5	16	0	1	17	0	0	0	0	0	0	0				
7:30 to 8:30	6	11	0	17	7	0	1	8	0	0	0	0	2	0	0	2	18	0	0	18	0	0	0	0	0	0	0				
7:45 to 8:45	5	10	0	15	6	0	1	7	0	0	0	0	2	0	0	2	23	0	0	23	0	0	0	0	0	0	0				
8:00 to 9:00	6	9	0	15	5	0	1	6	0	0	0	0	3	0	0	3	22	0	0	22	0	0	0	0	0	0	0				
AM Totals	13	22	0	35	9	1	1	11	0	0	0	0	9	1	0	10	43	1	2	46	0	0	0	0	0	0	0				
15:00 to 16:00	13	2	0	15	3	0	0	3	0	0	0	0	11	1	1	13	40	0	1	41	0	0	0	0	0	0	0				
15:15 to 16:15	13	3	0	16	8	0	0	8	0	0	0	0	9	1	1	11	40	0	1	41	0	0	0	0	0	0	0				
15:30 to 16:30	13	3	0	16	9	0	0	9	0	0	0	0	8	1	0	9	41	0	1	42	0	0	0	0	0	0	0				
15:45 to 16:45	14	3	0	17	6	0	0	6	0	0	0	0	10	0	0	10	40	1	0	41	0	0	0	0	0	0	0				
16:00 to 17:00	16	5	0	21	6	1	0	7	0	0	0	0	10	0	0	10	43	1	0	44	0	0	0	0	0	0	0				
16:15 to 17:15	14	3	0	17	1	1	0	2	0	0	0	0	10	0	0	10	42	1	0	43	0	0	0	0	0	0	0				
16:30 to 17:30	11	4	0	15	0	1	0	1	0	0	0	0	13	0	0	13	41	1	0	42	0	0	0	0	0	0	0				
16:45 to 17:45	13	4	0	17	2	1	0	3	0	0	0	0	12	0	0	12	37	1	0	38	0	0	0	0	0	0	0				
17:00 to 18:00	11	2	0	13	2	0	0	2	0	0	0	0	11	0	0	11	32	2	1	35	0	0	0	0	0	0	0				
PM Totals	40	9	0	49	11	1	0	12	0	0	0	0	32	1	1	34	115	3	2	120	1	0	0	0	0	0	1				

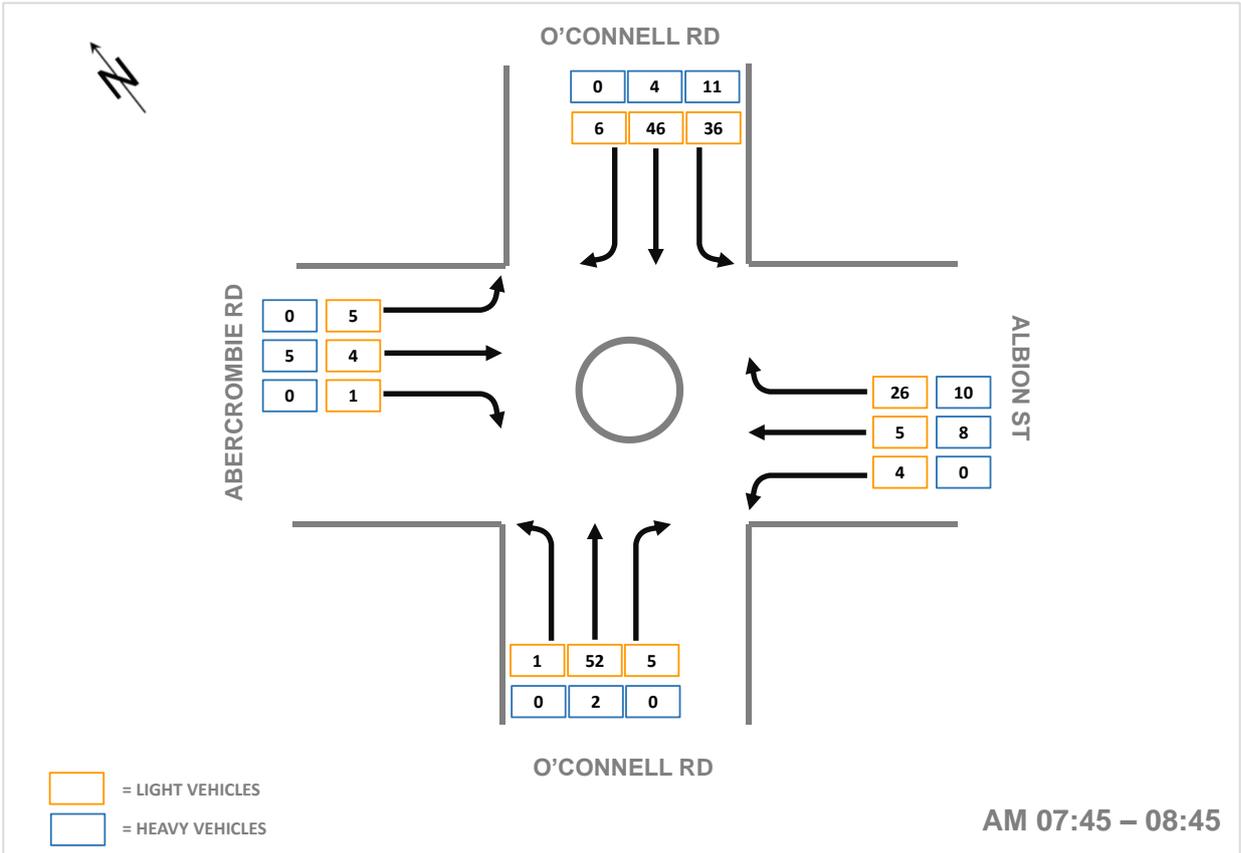
APPENDIX C: VEHICLE TURNING MOVEMENTS (EXISTING CONDITIONS)



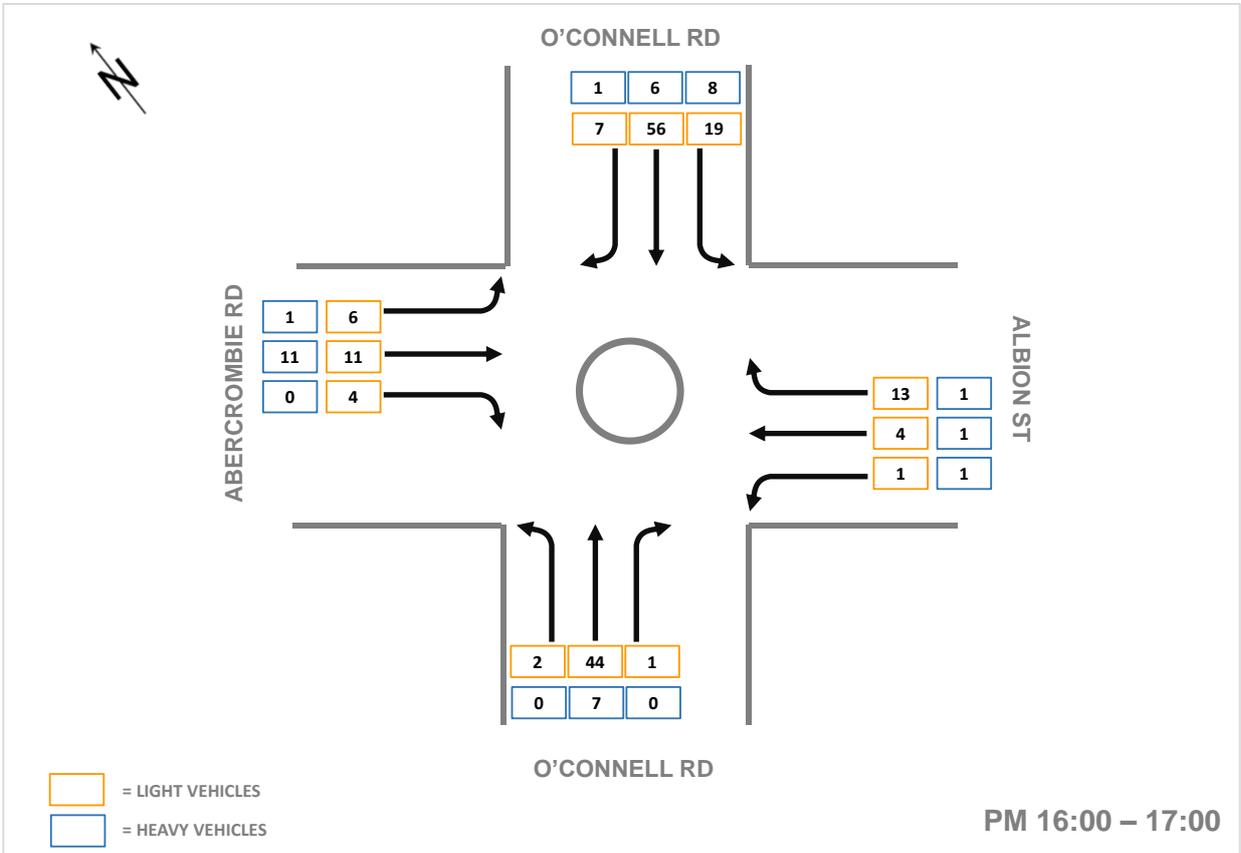
Site 1 – Abercrombie Road and Rupert Street, AM peak hour



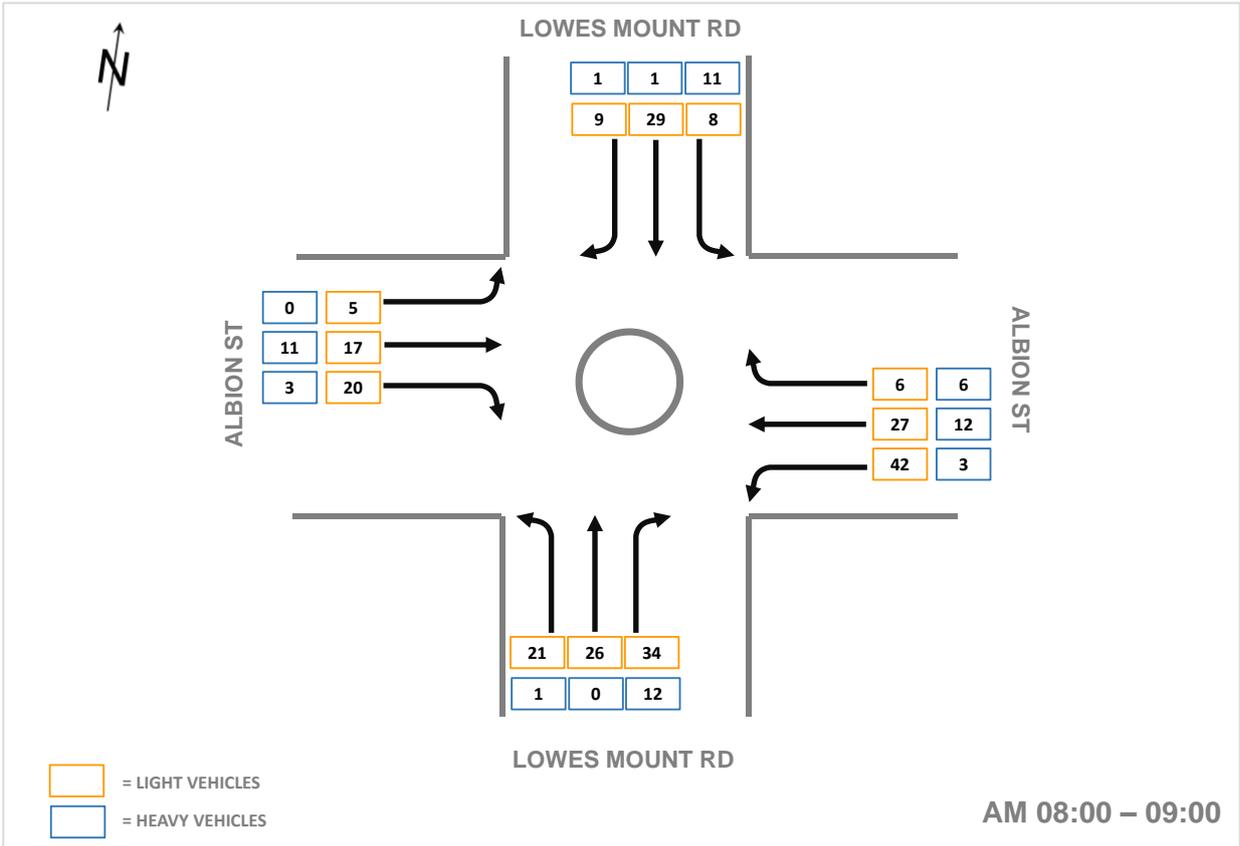
Site 1 – Abercrombie Road and Rupert Street, PM peak hour



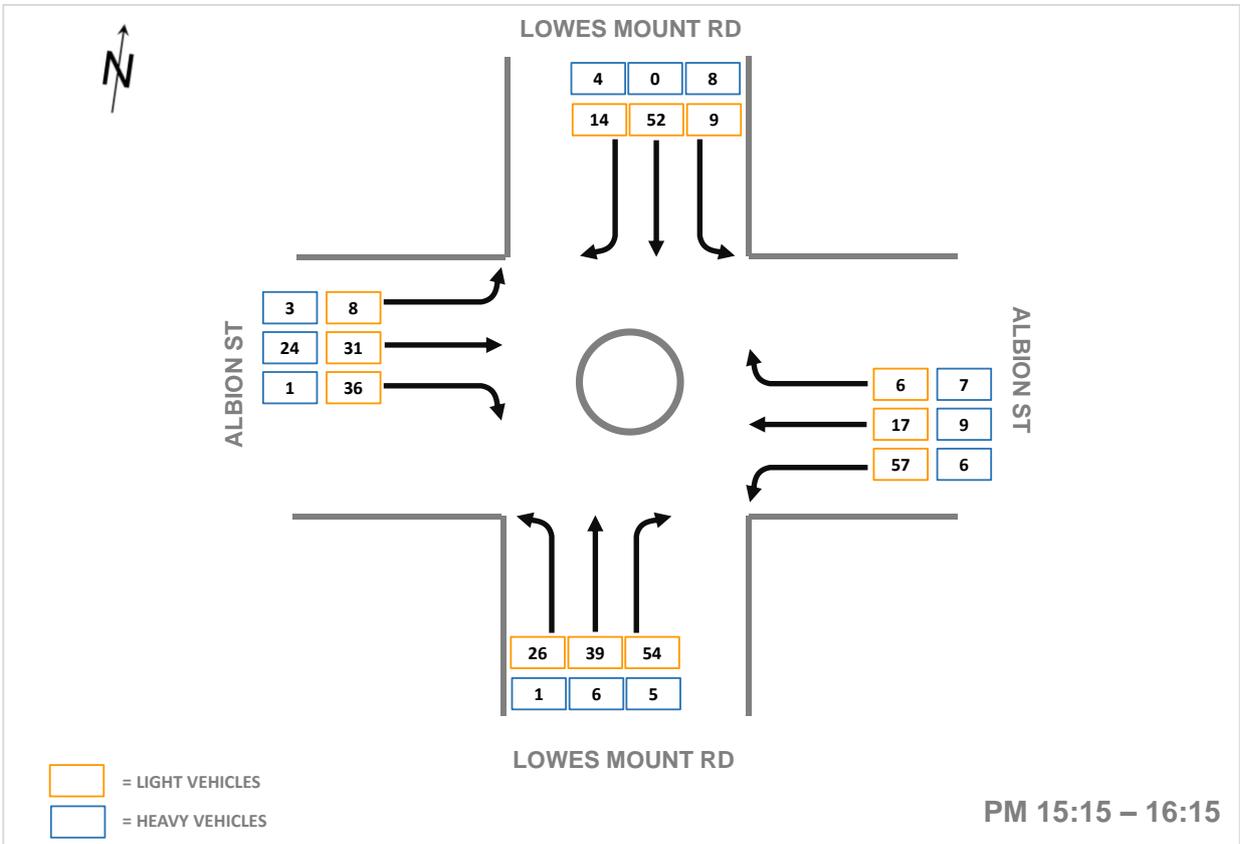
Site 2 – O'Connell Road and Albion Street, AM peak hour



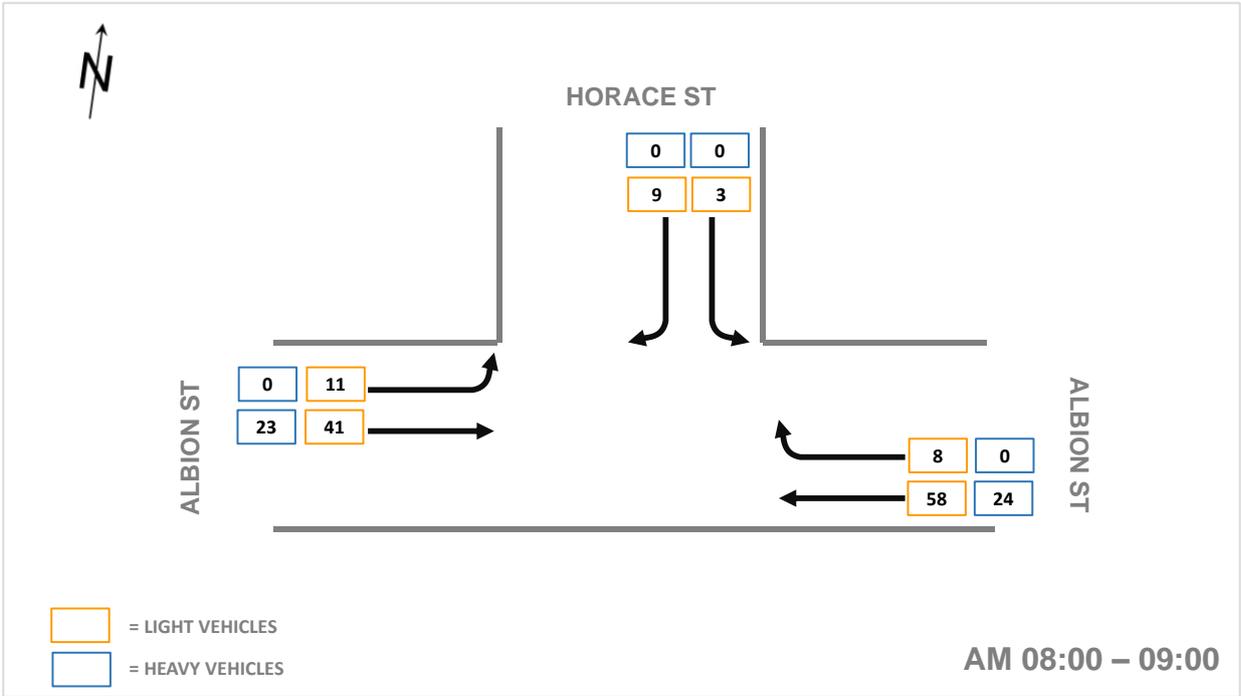
Site 2 – O'Connell Road and Albion Street, PM peak hour



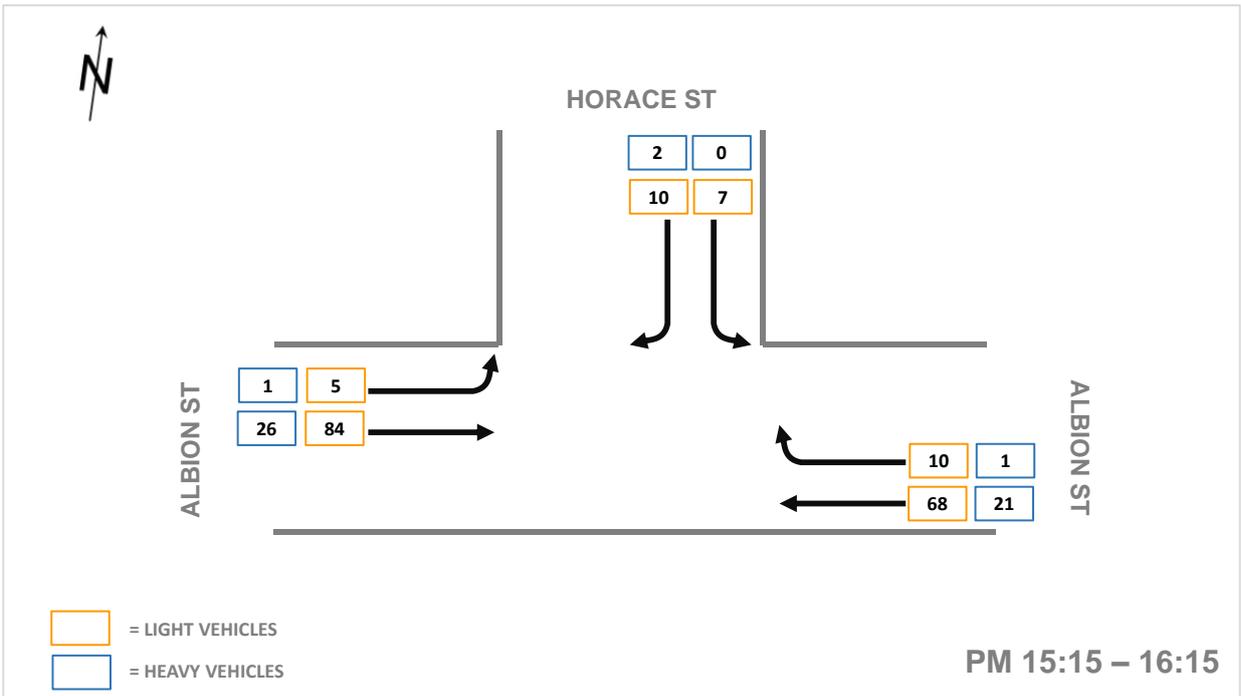
Site 3 – Lowes Mount Road and Albion Street, AM peak hour



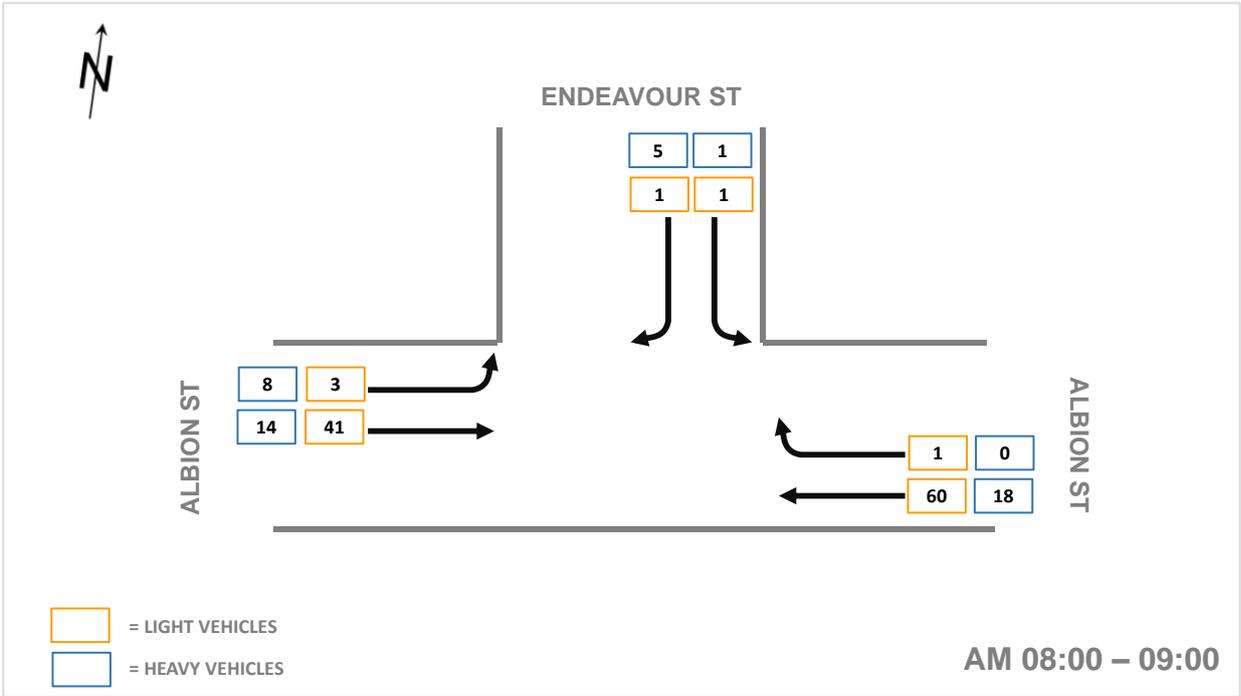
Site 3 – Lowes Mount Road and Albion Street, PM peak hour



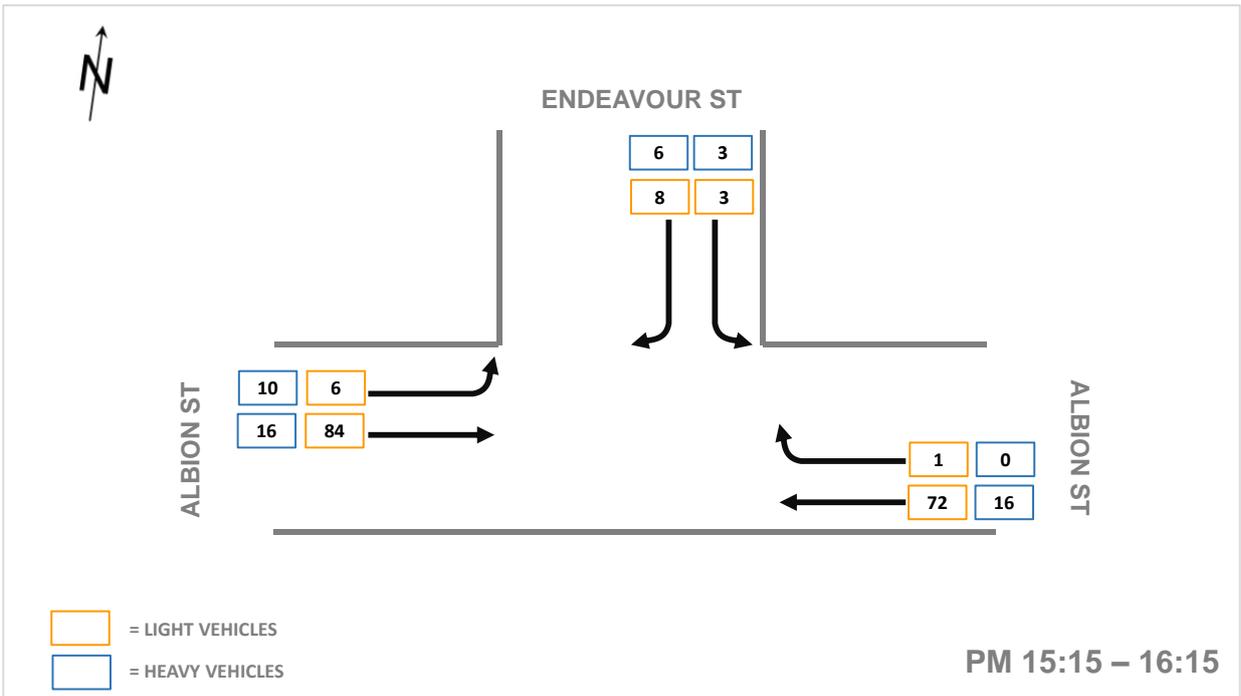
Site 4 – Albion Street and Horace Street, AM peak hour



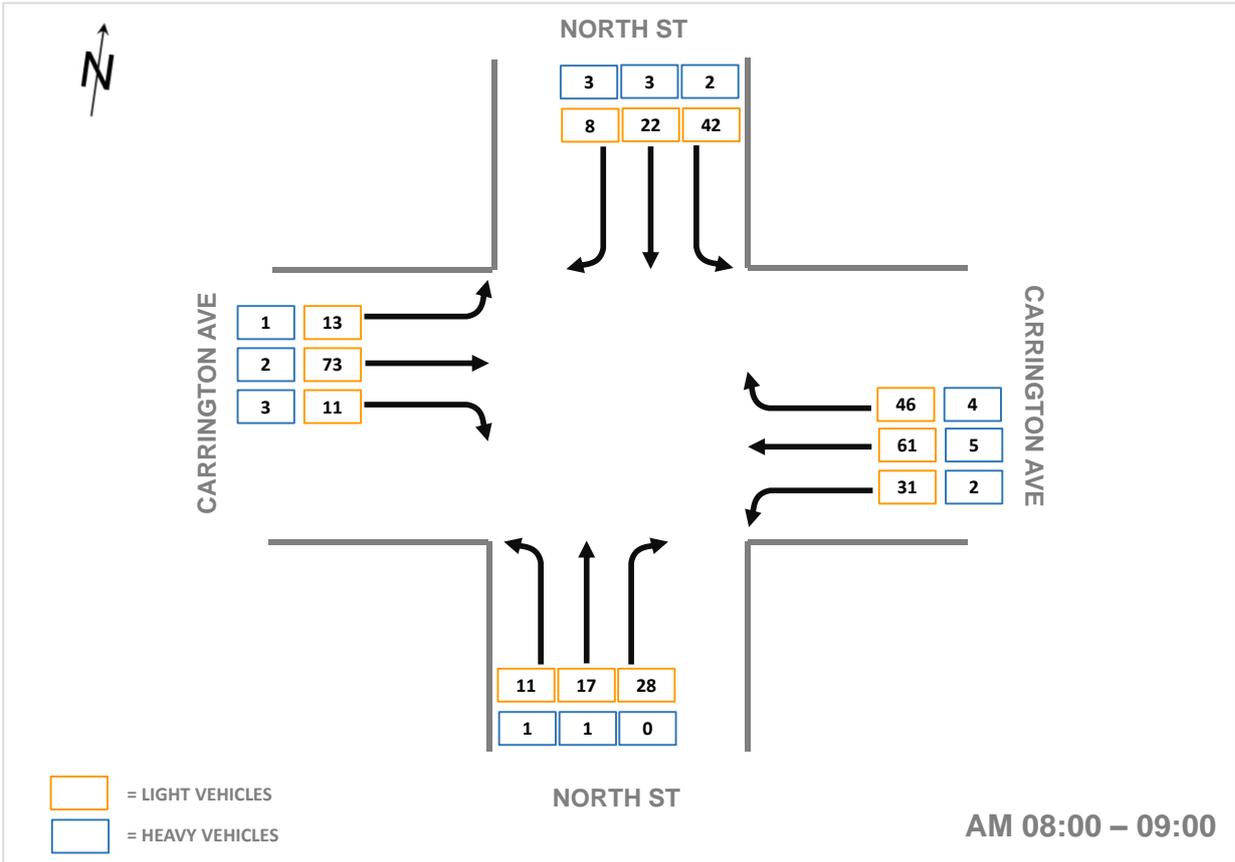
Site 4 – Albion Street and Horace Street, PM peak hour



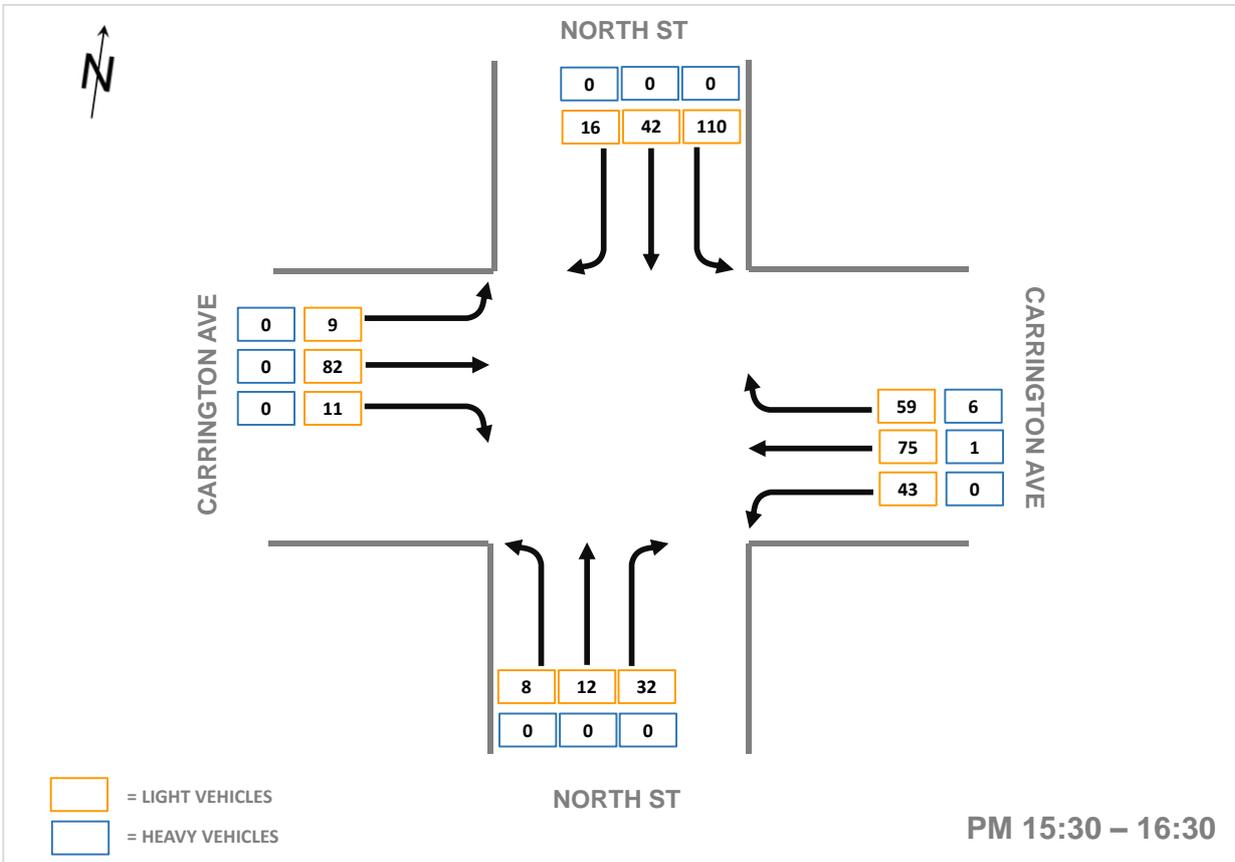
Site 5 – Albion Street and Endeavour Street, AM peak hour



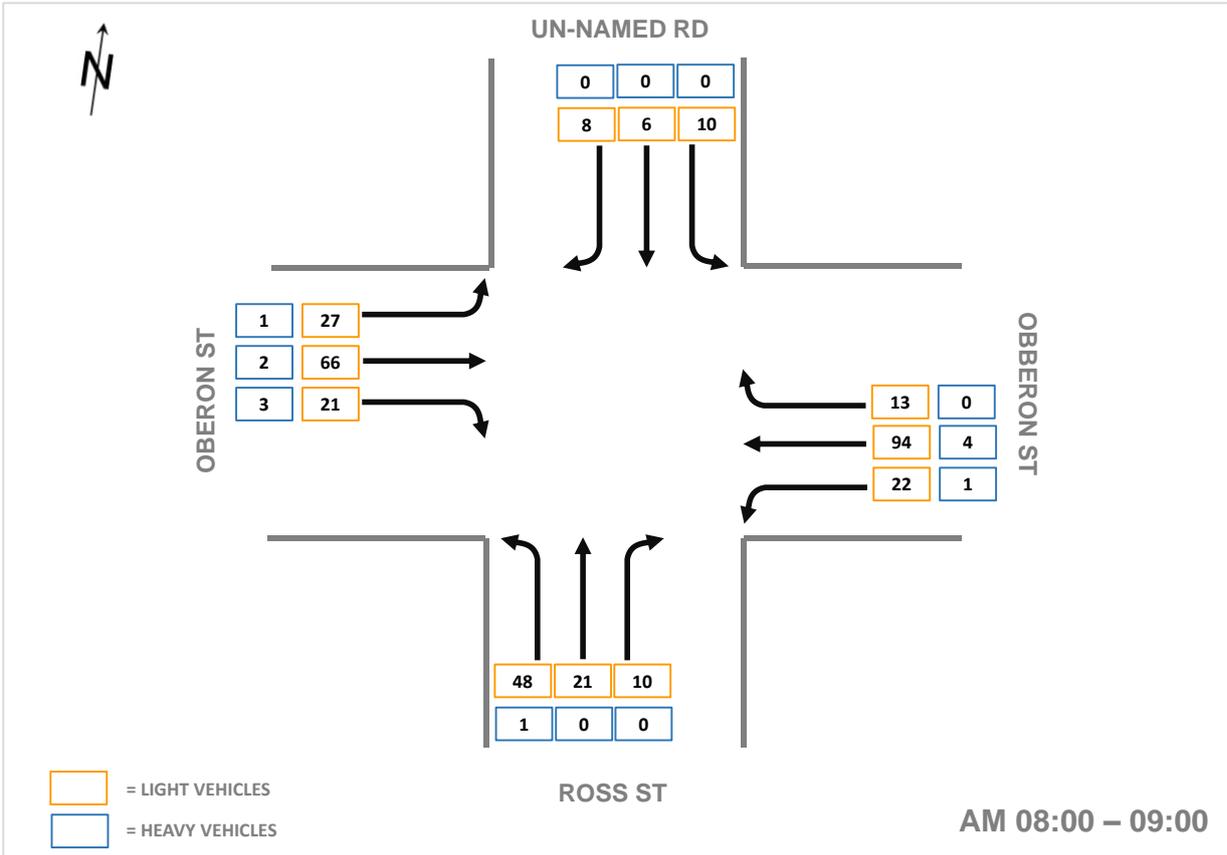
Site 5 – Albion Street and Endeavour Street, PM peak hour



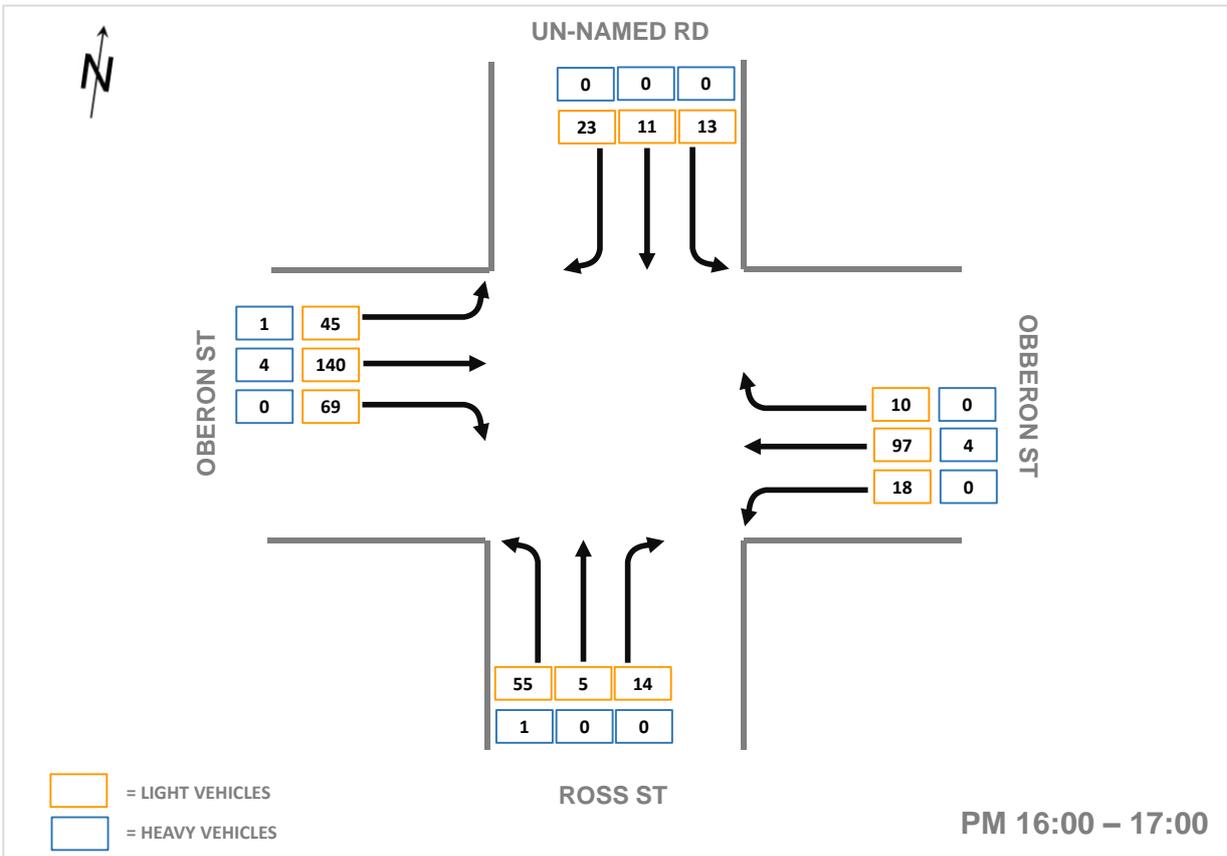
Site 6 – North Street and Carrington Avenue, AM peak hour



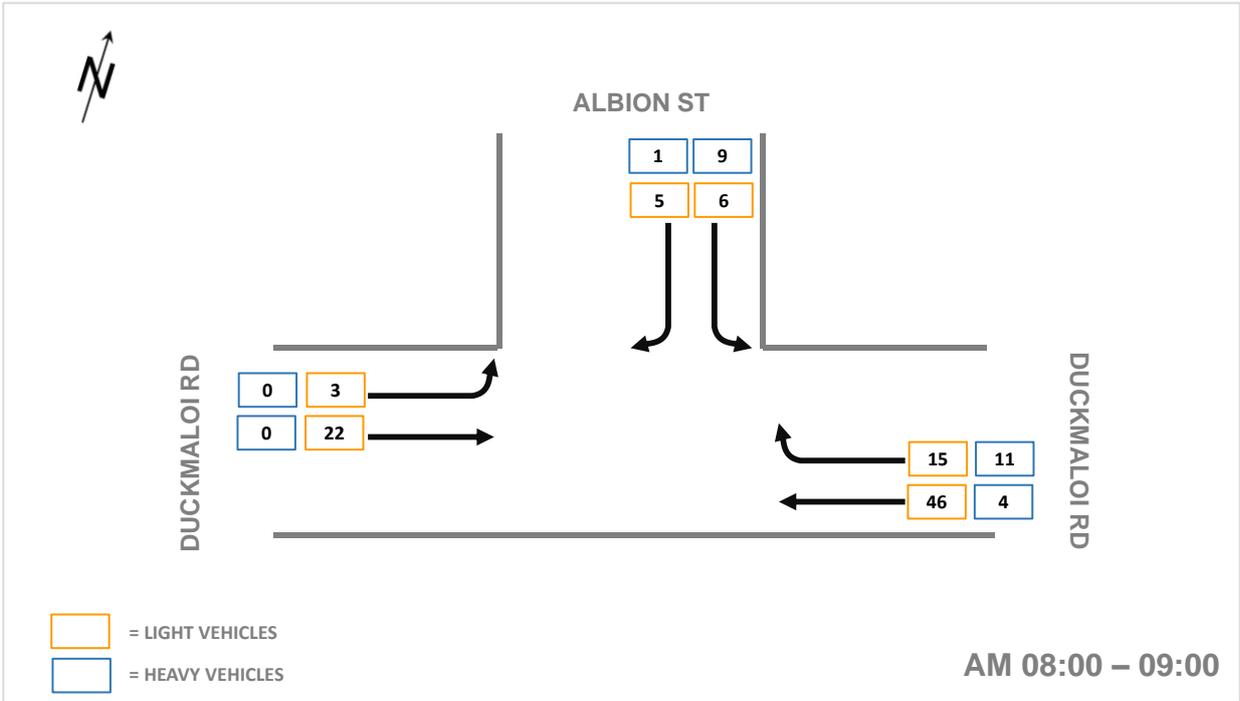
Site 6 – North Street and Carrington Avenue, PM peak hour



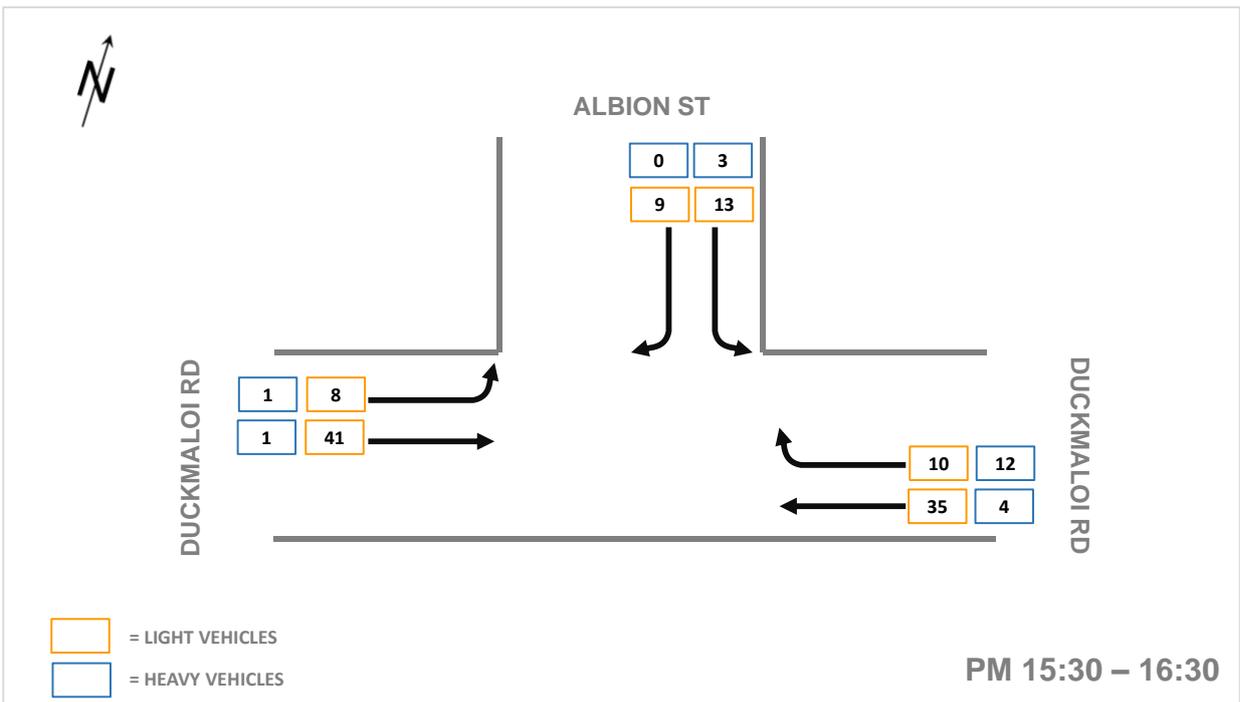
Site 7 – Oberon Street, Ross Street and unnamed road, AM peak hour



Site 7 – Oberon Street, Ross Street and unnamed road, PM peak hour



Site 8 – Duckmaloi Road and Albion Road, AM peak hour



Site 8 – Duckmaloi Road and Albion Road, PM peak hour

APPENDIX D: SIDRA INTERSECTION RESULTS (EXISTING CONDITIONS)

MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (AM) Peak - Existing

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	36.4	0.040	0.0	LOS A	0.2	1.3	0.01	0.09	59.1
3	R2	51	12.5	0.040	5.7	LOS A	0.2	1.3	0.09	0.53	52.6
Approach		74	20.0	0.040	3.9	NA	0.2	1.3	0.06	0.39	54.5
East: Rupert St - eastern leg											
4	L2	26	8.0	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
6	R2	1	0.0	0.022	6.1	LOS A	0.1	0.6	0.07	0.55	53.2
Approach		27	7.7	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	18	35.3	0.011	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		19	33.3	0.011	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		120	19.3	0.040	3.7	NA	0.2	1.3	0.06	0.37	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Organisation: SMEC AUSTRALIA PTY LTD (SYDNEY) | Processed: Saturday, 16 April 2016 3:55:44 PM

Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 1 - Abercrombie Rd - Rupert St.sip6

MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (PM) Peak - Existing

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	54.5	0.036	0.0	LOS A	0.1	1.2	0.03	0.16	58.3
3	R2	43	7.3	0.036	5.6	LOS A	0.1	1.2	0.09	0.49	52.9
Approach		66	23.8	0.036	3.7	NA	0.1	1.2	0.07	0.37	54.7
East: Rupert St - eastern leg											
4	L2	56	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.4
6	R2	2	0.0	0.045	6.1	LOS A	0.2	1.1	0.08	0.55	53.1
Approach		58	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.3
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	25	4.2	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	4.0	0.013	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		151	11.2	0.045	3.8	NA	0.2	1.2	0.06	0.38	55.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Organisation: SMEC AUSTRALIA PTY LTD (SYDNEY) | Processed: Saturday, 16 April 2016 3:55:47 PM

Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 1 - Abercrombie Rd - Rupert St.sip6

MOVEMENT SUMMARY

Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Existing

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: O'Connell Rd - southern leg											
1	L2	1	0.0	0.049	4.1	LOS A	0.2	1.7	0.20	0.43	54.3
2	T1	57	3.7	0.049	4.4	LOS A	0.2	1.7	0.20	0.43	55.6
3	R2	5	0.0	0.049	9.0	LOS A	0.2	1.7	0.20	0.43	55.6
Approach		63	3.3	0.049	4.8	LOS A	0.2	1.7	0.20	0.43	55.6
East: Albion St - eastern leg											
4	L2	4	0.0	0.050	4.1	LOS A	0.2	2.1	0.20	0.55	52.3
5	T1	14	61.5	0.050	5.0	LOS A	0.2	2.1	0.20	0.55	52.2
6	R2	38	27.8	0.050	9.4	LOS A	0.2	2.1	0.20	0.55	52.5
Approach		56	34.0	0.050	7.9	LOS A	0.2	2.1	0.20	0.55	52.4
North: O'Connell Rd - northern leg											
7	L2	49	23.4	0.078	4.2	LOS A	0.4	3.0	0.10	0.44	54.2
8	T1	53	8.0	0.078	4.2	LOS A	0.4	3.0	0.10	0.44	56.1
9	R2	6	0.0	0.078	8.8	LOS A	0.4	3.0	0.10	0.44	56.3
Approach		108	14.6	0.078	4.5	LOS A	0.4	3.0	0.10	0.44	55.2
West: Abercrombie Rd - western leg											
10	L2	5	0.0	0.015	4.3	LOS A	0.1	0.6	0.26	0.44	54.2
11	T1	9	55.6	0.015	5.2	LOS A	0.1	0.6	0.26	0.44	54.2
12	R2	1	0.0	0.015	9.1	LOS A	0.1	0.6	0.26	0.44	55.5
Approach		16	33.3	0.015	5.2	LOS A	0.1	0.6	0.26	0.44	54.3
All Vehicles		243	17.3	0.078	5.4	LOS A	0.4	3.0	0.16	0.46	54.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Existing

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: O'Connell Rd - southern leg											
1	L2	2	0.0	0.043	4.0	LOS A	0.2	1.6	0.12	0.40	54.9
2	T1	54	13.7	0.043	4.3	LOS A	0.2	1.6	0.12	0.40	55.9
3	R2	1	0.0	0.043	8.8	LOS A	0.2	1.6	0.12	0.40	56.2
Approach		57	13.0	0.043	4.4	LOS A	0.2	1.6	0.12	0.40	55.9
East: Albion St - eastern leg											
4	L2	2	50.0	0.019	4.8	LOS A	0.1	0.6	0.22	0.56	50.9
5	T1	5	20.0	0.019	4.6	LOS A	0.1	0.6	0.22	0.56	53.1
6	R2	15	7.1	0.019	9.1	LOS A	0.1	0.6	0.22	0.56	53.2
Approach		22	14.3	0.019	7.7	LOS A	0.1	0.6	0.22	0.56	53.0
North: O'Connell Rd - northern leg											
7	L2	28	29.6	0.077	4.3	LOS A	0.4	3.0	0.14	0.43	53.7
8	T1	65	9.7	0.077	4.3	LOS A	0.4	3.0	0.14	0.43	55.8
9	R2	8	12.5	0.077	9.0	LOS A	0.4	3.0	0.14	0.43	55.4
Approach		102	15.5	0.077	4.7	LOS A	0.4	3.0	0.14	0.43	55.2
West: Abercrombie Rd - western leg											
10	L2	7	14.3	0.032	4.3	LOS A	0.1	1.3	0.22	0.45	53.6
11	T1	23	50.0	0.032	5.0	LOS A	0.1	1.3	0.22	0.45	54.2
12	R2	4	0.0	0.032	9.0	LOS A	0.1	1.3	0.22	0.45	55.3
Approach		35	36.4	0.032	5.3	LOS A	0.1	1.3	0.22	0.45	54.2
All Vehicles		216	18.0	0.077	5.0	LOS A	0.4	3.0	0.16	0.44	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

Site: Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Existing

Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: North St - southern leg											
1	L2	23	4.5	0.081	4.2	LOS A	0.4	3.1	0.22	0.53	53.2
2	T1	27	0.0	0.081	4.4	LOS A	0.4	3.1	0.22	0.53	54.6
3	R2	48	26.1	0.081	9.4	LOS A	0.4	3.1	0.22	0.53	53.5
Approach		99	13.8	0.081	6.8	LOS A	0.4	3.1	0.22	0.53	53.7
East: Albion St - eastern leg											
4	L2	47	6.7	0.085	4.2	LOS A	0.4	3.4	0.21	0.46	54.3
5	T1	41	30.8	0.085	4.7	LOS A	0.4	3.4	0.21	0.46	55.1
6	R2	13	50.0	0.085	9.7	LOS A	0.4	3.4	0.21	0.46	53.7
Approach		101	21.9	0.085	5.1	LOS A	0.4	3.4	0.21	0.46	54.5
North: Lowes Mount Rd - northern leg											
7	L2	20	57.9	0.056	5.2	LOS A	0.3	2.1	0.27	0.49	52.0
8	T1	32	3.3	0.056	4.6	LOS A	0.3	2.1	0.27	0.49	55.0
9	R2	11	10.0	0.056	9.4	LOS A	0.3	2.1	0.27	0.49	54.6
Approach		62	22.0	0.056	5.6	LOS A	0.3	2.1	0.27	0.49	53.9
West: Albion St - western leg											
10	L2	5	0.0	0.053	4.3	LOS A	0.2	2.1	0.26	0.52	53.0
11	T1	29	39.3	0.053	5.0	LOS A	0.2	2.1	0.26	0.52	53.3
12	R2	24	13.0	0.053	9.3	LOS A	0.2	2.1	0.26	0.52	53.7
Approach		59	25.0	0.053	6.7	LOS A	0.2	2.1	0.26	0.52	53.4
All Vehicles		321	20.0	0.085	6.0	LOS A	0.4	3.4	0.23	0.50	54.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

 **Site: Site 3: Lowes Mount Rd - Albion St - North St (PM) Peak - Existing**

Site 3: Lowes Mount Rd - Albion St -North St (PM) Peak - Existing
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	28	3.7	0.108	4.2	LOS A	0.5	4.1	0.22	0.53	53.1
2	T1	47	13.3	0.108	4.5	LOS A	0.5	4.1	0.22	0.53	54.2
3	R2	62	8.5	0.108	9.1	LOS A	0.5	4.1	0.22	0.53	54.1
Approach		138	9.2	0.108	6.5	LOS A	0.5	4.1	0.22	0.53	53.9
East: Albion St - eastern leg											
4	L2	66	9.5	0.097	4.5	LOS A	0.5	3.9	0.29	0.49	54.0
5	T1	27	34.6	0.097	5.1	LOS A	0.5	3.9	0.29	0.49	54.8
6	R2	14	53.8	0.097	10.1	LOS A	0.5	3.9	0.29	0.49	53.4
Approach		107	21.6	0.097	5.4	LOS A	0.5	3.9	0.29	0.49	54.1
North: Lowes Mount Rd - northern leg											
7	L2	18	47.1	0.085	5.5	LOS A	0.4	3.0	0.34	0.52	52.1
8	T1	55	0.0	0.085	4.9	LOS A	0.4	3.0	0.34	0.52	54.8
9	R2	19	22.2	0.085	9.9	LOS A	0.4	3.0	0.34	0.52	53.8
Approach		92	13.8	0.085	6.0	LOS A	0.4	3.0	0.34	0.52	54.0
West: Albion St - western leg											
10	L2	12	27.3	0.103	4.9	LOS A	0.5	4.2	0.31	0.54	52.0
11	T1	58	43.6	0.103	5.3	LOS A	0.5	4.2	0.31	0.54	53.0
12	R2	39	2.7	0.103	9.3	LOS A	0.5	4.2	0.31	0.54	53.9
Approach		108	27.2	0.103	6.7	LOS A	0.5	4.2	0.31	0.54	53.2
All Vehicles		445	17.5	0.108	6.2	LOS A	0.5	4.2	0.28	0.52	53.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

Site: Site 4: Horace St - Albion St (AM) Peak - Existing

Site 4: Horace St - Albion St (AM) Peak - Existing
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Albion St - western leg											
5	T1	86	29.3	0.057	0.0	LOS A	0.1	0.4	0.04	0.05	59.2
6	R2	8	0.0	0.057	5.7	LOS A	0.1	0.4	0.04	0.05	57.0
Approach		95	26.7	0.057	0.5	NA	0.1	0.4	0.04	0.05	59.0
North: Horace St - northern leg											
7	L2	3	0.0	0.011	5.7	LOS A	0.0	0.2	0.20	0.56	53.1
9	R2	9	0.0	0.011	6.0	LOS A	0.0	0.2	0.20	0.56	52.6
Approach		13	0.0	0.011	5.9	LOS A	0.0	0.2	0.20	0.56	52.7
West: Albion St - western leg											
10	L2	12	0.0	0.049	5.5	LOS A	0.0	0.0	0.00	0.09	57.3
11	T1	67	35.9	0.049	0.0	LOS A	0.0	0.0	0.00	0.09	58.9
Approach		79	30.7	0.049	0.8	NA	0.0	0.0	0.00	0.09	58.6
All Vehicles		186	26.6	0.057	1.0	NA	0.1	0.4	0.03	0.10	58.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 4: Horace St - Albion St (PM) Peak - Existing

Site 4: Horace St - Albion St (PM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Albion St - western leg											
5	T1	94	23.6	0.063	0.1	LOS A	0.1	0.7	0.06	0.07	59.1
6	R2	12	9.1	0.063	6.0	LOS A	0.1	0.7	0.06	0.07	56.4
Approach		105	22.0	0.063	0.7	NA	0.1	0.7	0.06	0.07	58.8
North: Horace St - northern leg											
7	L2	7	0.0	0.018	5.9	LOS A	0.1	0.5	0.24	0.57	52.9
9	R2	13	16.7	0.018	6.5	LOS A	0.1	0.5	0.24	0.57	51.7
Approach		20	10.5	0.018	6.3	LOS A	0.1	0.5	0.24	0.57	52.1
West: Albion St - western leg											
10	L2	6	16.7	0.072	5.7	LOS A	0.0	0.0	0.00	0.03	57.2
11	T1	116	23.6	0.072	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		122	23.3	0.072	0.3	NA	0.0	0.0	0.00	0.03	59.5
All Vehicles		247	21.7	0.072	1.0	NA	0.1	0.7	0.05	0.09	58.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 5: Endeavour St - Albion St (AM) Peak - Existing

Site 5: Endeavour St - Albion St (AM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	82	23.1	0.050	0.0	LOS A	0.0	0.1	0.01	0.02	59.9
6	R2	1	100.0	0.050	6.6	LOS A	0.0	0.1	0.01	0.02	55.0
Approach		83	24.1	0.050	0.2	NA	0.0	0.1	0.01	0.02	59.8
North: Endeavour St - northern leg											
7	L2	2	50.0	0.010	6.4	LOS A	0.0	0.4	0.21	0.56	51.0
9	R2	6	83.3	0.010	7.4	LOS A	0.0	0.4	0.21	0.56	49.0
Approach		8	75.0	0.010	7.2	LOS A	0.0	0.4	0.21	0.56	49.5
West: Albion St - western leg											
10	L2	12	72.7	0.044	6.4	LOS A	0.0	0.0	0.00	0.10	54.5
11	T1	58	25.5	0.044	0.0	LOS A	0.0	0.0	0.00	0.10	59.6
Approach		69	33.3	0.044	1.1	NA	0.0	0.0	0.00	0.10	58.7
All Vehicles		161	30.7	0.050	0.9	NA	0.0	0.4	0.02	0.08	58.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 5: Endeavour St - Albion St (PM) Peak - Existing

Site 5: Endeavour St - Albion St (PM) Peak - Existing
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	93	18.2	0.054	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
6	R2	1	0.0	0.054	5.8	LOS A	0.0	0.1	0.01	0.01	57.6
Approach		94	18.0	0.054	0.1	NA	0.0	0.1	0.01	0.01	59.9
North: Endeavour St - northern leg											
7	L2	6	50.0	0.023	6.6	LOS A	0.1	0.7	0.26	0.58	50.9
9	R2	15	42.9	0.023	7.0	LOS A	0.1	0.7	0.26	0.58	50.6
Approach		21	45.0	0.023	6.9	LOS A	0.1	0.7	0.26	0.58	50.7
West: Albion St - western leg											
10	L2	17	62.5	0.073	6.3	LOS A	0.0	0.0	0.00	0.08	55.0
11	T1	105	16.0	0.073	0.0	LOS A	0.0	0.0	0.00	0.08	59.6
Approach		122	22.4	0.073	0.9	NA	0.0	0.0	0.00	0.08	58.9
All Vehicles		237	22.7	0.073	1.1	NA	0.1	0.7	0.03	0.10	58.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (AM) Peak - Existing

Site 6: North St - Carrington Ave (AM) Peak - Existing
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	13	8.3	0.027	5.8	LOS A	0.1	0.7	0.19	0.54	53.3
2	T1	19	5.6	0.027	5.1	LOS A	0.1	0.7	0.19	0.54	53.7
3	R2	29	0.0	0.035	6.9	LOS A	0.1	0.8	0.35	0.62	52.3
Approach		61	3.4	0.035	6.1	LOS A	0.1	0.8	0.27	0.58	52.9
East: Carrington Ave - eastern leg											
4	L2	35	6.1	0.091	5.8	LOS A	0.4	2.7	0.16	0.30	54.8
5	T1	69	7.6	0.091	0.2	LOS A	0.4	2.7	0.16	0.30	56.5
6	R2	53	8.0	0.091	5.9	LOS A	0.4	2.7	0.16	0.30	54.4
Approach		157	7.4	0.091	3.3	NA	0.4	2.7	0.16	0.30	55.4
North: North St - northern leg											
7	L2	46	4.5	0.031	5.8	LOS A	0.1	0.9	0.17	0.54	52.9
8	T1	26	12.0	0.042	5.3	LOS A	0.1	1.2	0.34	0.58	53.2
9	R2	12	27.3	0.042	7.3	LOS A	0.1	1.2	0.34	0.58	52.0
Approach		84	10.0	0.042	5.9	LOS A	0.1	1.2	0.24	0.56	52.9
West: Carrington Ave - western leg											
10	L2	15	7.1	0.061	5.8	LOS A	0.1	1.0	0.09	0.15	56.4
11	T1	79	2.7	0.061	0.1	LOS A	0.1	1.0	0.09	0.15	58.3
12	R2	15	21.4	0.061	6.1	LOS A	0.1	1.0	0.09	0.15	55.5
Approach		108	5.8	0.061	1.7	NA	0.1	1.0	0.09	0.15	57.7
All Vehicles		411	6.9	0.091	3.8	NA	0.4	2.7	0.17	0.35	55.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (PM) Peak - Existing

Site 6: North St - Carrington Ave (PM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	8	0.0	0.018	5.7	LOS A	0.1	0.4	0.20	0.53	53.7
2	T1	13	0.0	0.018	5.1	LOS A	0.1	0.4	0.20	0.53	53.8
3	R2	34	0.0	0.045	7.5	LOS A	0.1	1.0	0.41	0.66	51.9
Approach		55	0.0	0.045	6.6	LOS A	0.1	1.0	0.33	0.61	52.6
East: Carrington Ave - eastern leg											
4	L2	45	0.0	0.104	5.7	LOS A	0.4	3.0	0.16	0.31	55.0
5	T1	80	1.3	0.104	0.2	LOS A	0.4	3.0	0.16	0.31	56.4
6	R2	62	0.0	0.104	5.8	LOS A	0.4	3.0	0.16	0.31	54.7
Approach		187	0.6	0.104	3.4	NA	0.4	3.0	0.16	0.31	55.5
North: North St - northern leg											
7	L2	116	0.0	0.076	5.8	LOS A	0.3	2.2	0.18	0.54	53.1
8	T1	44	0.0	0.062	5.2	LOS A	0.2	1.5	0.34	0.58	53.6
9	R2	17	0.0	0.062	6.7	LOS A	0.2	1.5	0.34	0.58	53.2
Approach		177	0.0	0.076	5.7	LOS A	0.3	2.2	0.23	0.56	53.2
West: Carrington Ave - western leg											
10	L2	9	0.0	0.057	5.8	LOS A	0.1	0.6	0.07	0.11	57.1
11	T1	86	0.0	0.057	0.1	LOS A	0.1	0.6	0.07	0.11	58.7
12	R2	12	0.0	0.057	5.9	LOS A	0.1	0.6	0.07	0.11	56.8
Approach		107	0.0	0.057	1.2	NA	0.1	0.6	0.07	0.11	58.3
All Vehicles		526	0.2	0.104	4.1	NA	0.4	3.0	0.18	0.38	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Existing

Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Existing
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Ross St - southern leg											
1	L2	52	2.0	0.067	5.9	LOS A	0.3	1.8	0.22	0.55	53.2
2	T1	22	0.0	0.067	5.1	LOS A	0.3	1.8	0.22	0.55	53.4
3	R2	11	0.0	0.067	6.6	LOS A	0.3	1.8	0.22	0.55	52.7
Approach		84	1.3	0.067	5.7	LOS A	0.3	1.8	0.22	0.55	53.2
East: Oberon St - eastern leg											
4	L2	24	4.3	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.6
5	T1	103	4.1	0.076	0.0	LOS A	0.1	0.8	0.06	0.15	58.3
6	R2	14	0.0	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.2
Approach		141	3.7	0.076	1.6	NA	0.1	0.8	0.06	0.15	57.8
North: Un-named Rd - northern leg											
7	L2	11	0.0	0.023	5.7	LOS A	0.1	0.6	0.19	0.56	53.3
8	T1	6	0.0	0.023	5.0	LOS A	0.1	0.6	0.19	0.56	53.5
9	R2	8	0.0	0.023	6.8	LOS A	0.1	0.6	0.19	0.56	52.8
Approach		25	0.0	0.023	5.9	LOS A	0.1	0.6	0.19	0.56	53.2
West: Oberon St - western leg											
10	L2	29	3.6	0.072	5.8	LOS A	0.2	1.6	0.13	0.24	55.6
11	T1	72	2.9	0.072	0.2	LOS A	0.2	1.6	0.13	0.24	57.3
12	R2	25	12.5	0.072	6.0	LOS A	0.2	1.6	0.13	0.24	54.6
Approach		126	5.0	0.072	2.6	NA	0.2	1.6	0.13	0.24	56.3
All Vehicles		377	3.4	0.076	3.2	NA	0.3	1.8	0.13	0.30	55.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Existing

Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Ross St - southern leg											
1	L2	59	1.8	0.064	5.9	LOS A	0.2	1.7	0.21	0.56	53.0
2	T1	5	0.0	0.064	5.7	LOS A	0.2	1.7	0.21	0.56	53.2
3	R2	15	0.0	0.064	7.2	LOS A	0.2	1.7	0.21	0.56	52.6
Approach		79	1.3	0.064	6.1	LOS A	0.2	1.7	0.21	0.56	52.9
East: Oberon St - eastern leg											
4	L2	19	0.0	0.073	5.8	LOS A	0.1	0.7	0.07	0.12	57.0
5	T1	106	4.0	0.073	0.1	LOS A	0.1	0.7	0.07	0.12	58.5
6	R2	11	0.0	0.073	6.0	LOS A	0.1	0.7	0.07	0.12	56.4
Approach		136	3.1	0.073	1.3	NA	0.1	0.7	0.07	0.12	58.1
North: Un-named Rd - northern leg											
7	L2	14	0.0	0.054	6.0	LOS A	0.2	1.3	0.33	0.61	52.8
8	T1	12	0.0	0.054	5.6	LOS A	0.2	1.3	0.33	0.61	52.9
9	R2	24	0.0	0.054	7.5	LOS A	0.2	1.3	0.33	0.61	52.3
Approach		49	0.0	0.054	6.6	LOS A	0.2	1.3	0.33	0.61	52.5
West: Oberon St - western leg											
10	L2	48	2.2	0.151	5.9	LOS A	0.6	4.0	0.17	0.24	55.5
11	T1	152	2.8	0.151	0.2	LOS A	0.6	4.0	0.17	0.24	57.0
12	R2	73	0.0	0.151	5.8	LOS A	0.6	4.0	0.17	0.24	55.0
Approach		273	1.9	0.151	2.7	NA	0.6	4.0	0.17	0.24	56.2
All Vehicles		537	2.0	0.151	3.2	NA	0.6	4.0	0.16	0.29	55.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

Site: Site 8: Albion St - Duckmaloi Rd (AM) Peak - Existing

Site 8: Albion St - Duckmaloi Rd (AM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Duckmaloi Rd - eastern leg											
5	T1	53	8.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	27	42.3	0.024	6.1	LOS A	0.1	0.9	0.10	0.57	51.0
Approach		80	19.7	0.028	2.1	NA	0.1	0.9	0.03	0.19	56.6
North: Albion St - northern leg											
7	L2	16	60.0	0.023	6.4	LOS A	0.1	0.8	0.09	0.55	50.9
9	R2	6	16.7	0.023	6.4	LOS A	0.1	0.8	0.09	0.55	52.4
Approach		22	47.6	0.023	6.4	LOS A	0.1	0.8	0.09	0.55	51.3
West: Duckmaloi Rd - western leg											
10	L2	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
11	T1	23	0.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	0.0	0.012	0.7	NA	0.0	0.0	0.00	0.07	59.2
All Vehicles		128	20.5	0.028	2.5	NA	0.1	0.9	0.04	0.23	56.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 8 - Albion St - Duckmaloi Rd.sip6

MOVEMENT SUMMARY

Site: Site 8: Albion St - Duckmaloi Rd (PM) Peak - Existing

Site 8: Albion St - Duckmaloi Rd (PM) Peak - Existing
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Duckmaloi Rd - eastern leg											
5	T1	41	10.3	0.022	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	23	54.5	0.022	6.4	LOS A	0.1	0.9	0.16	0.56	50.3
Approach		64	26.2	0.022	2.3	NA	0.1	0.9	0.06	0.20	56.1
North: Albion St - northern leg											
7	L2	17	18.8	0.024	5.9	LOS A	0.1	0.7	0.14	0.55	52.4
9	R2	9	0.0	0.024	6.2	LOS A	0.1	0.7	0.14	0.55	53.0
Approach		26	12.0	0.024	6.0	LOS A	0.1	0.7	0.14	0.55	52.6
West: Duckmaloi Rd - western leg											
10	L2	9	11.1	0.006	5.7	LOS A	0.0	0.0	0.00	0.57	53.2
11	T1	44	2.4	0.023	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		54	3.9	0.023	1.0	NA	0.0	0.0	0.00	0.10	58.7
All Vehicles		144	15.3	0.024	2.5	NA	0.1	0.9	0.05	0.23	56.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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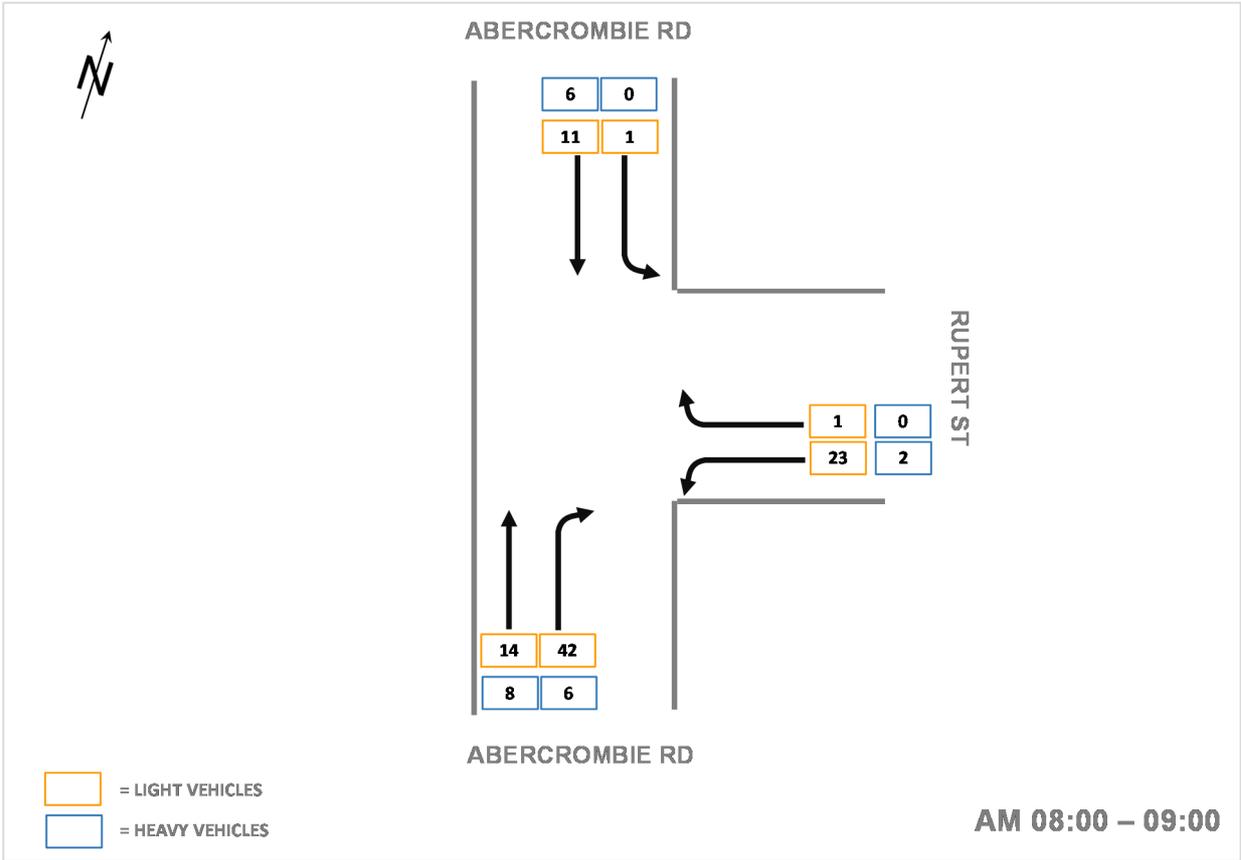
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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 8 - Albion St - Duckmaloi Rd.sip6

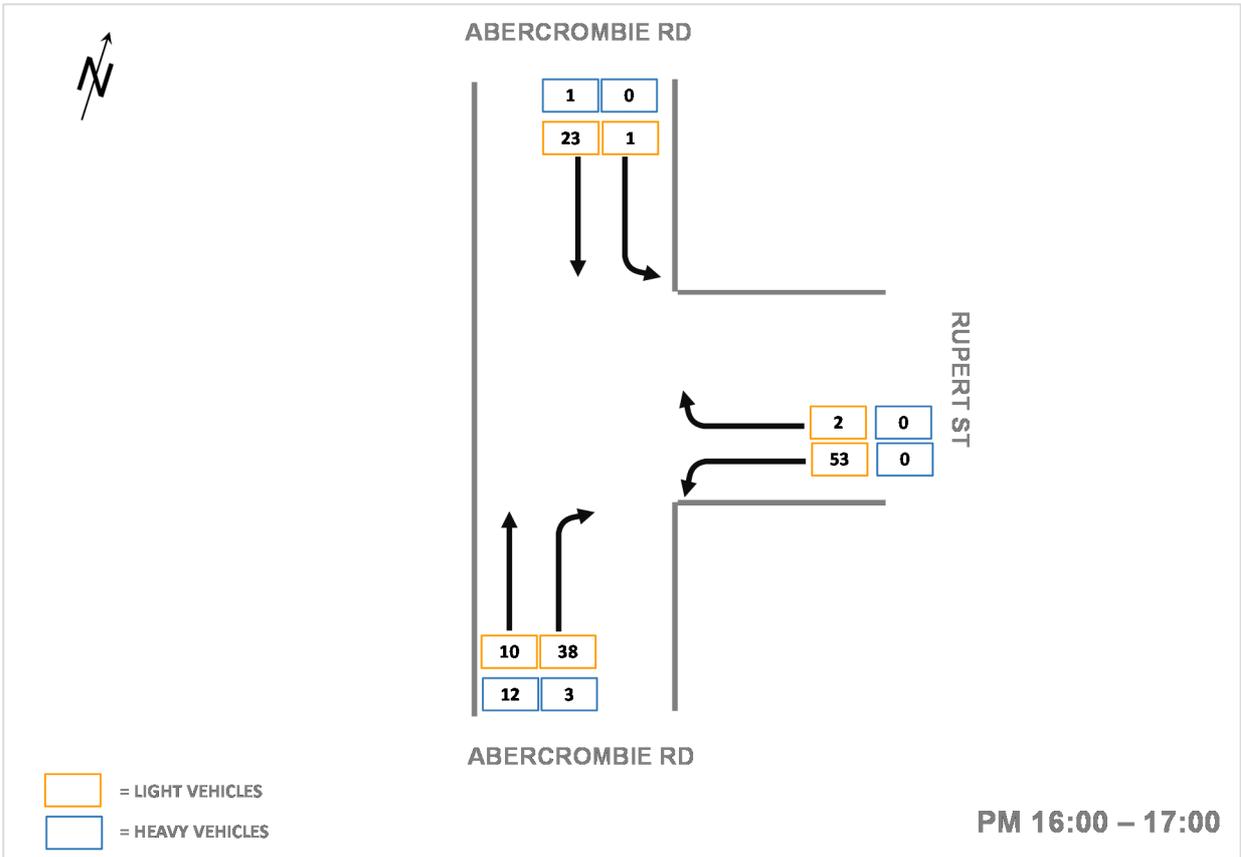
APPENDIX E: VEHICLE TURNING MOVEMENTS (OPERATIONAL CONDITIONS)

E.1: 2019 FORECAST YEAR

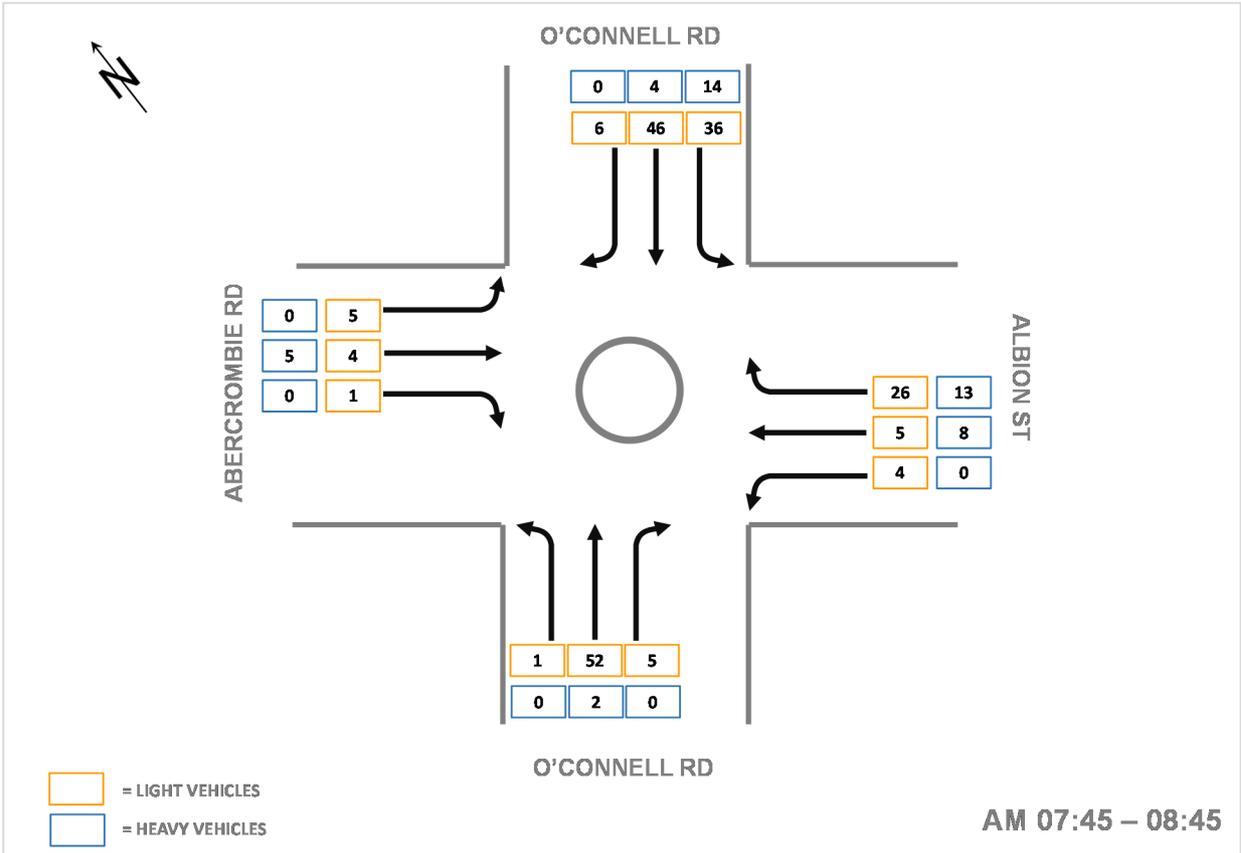
E.2: 2029 FORECAST YEAR



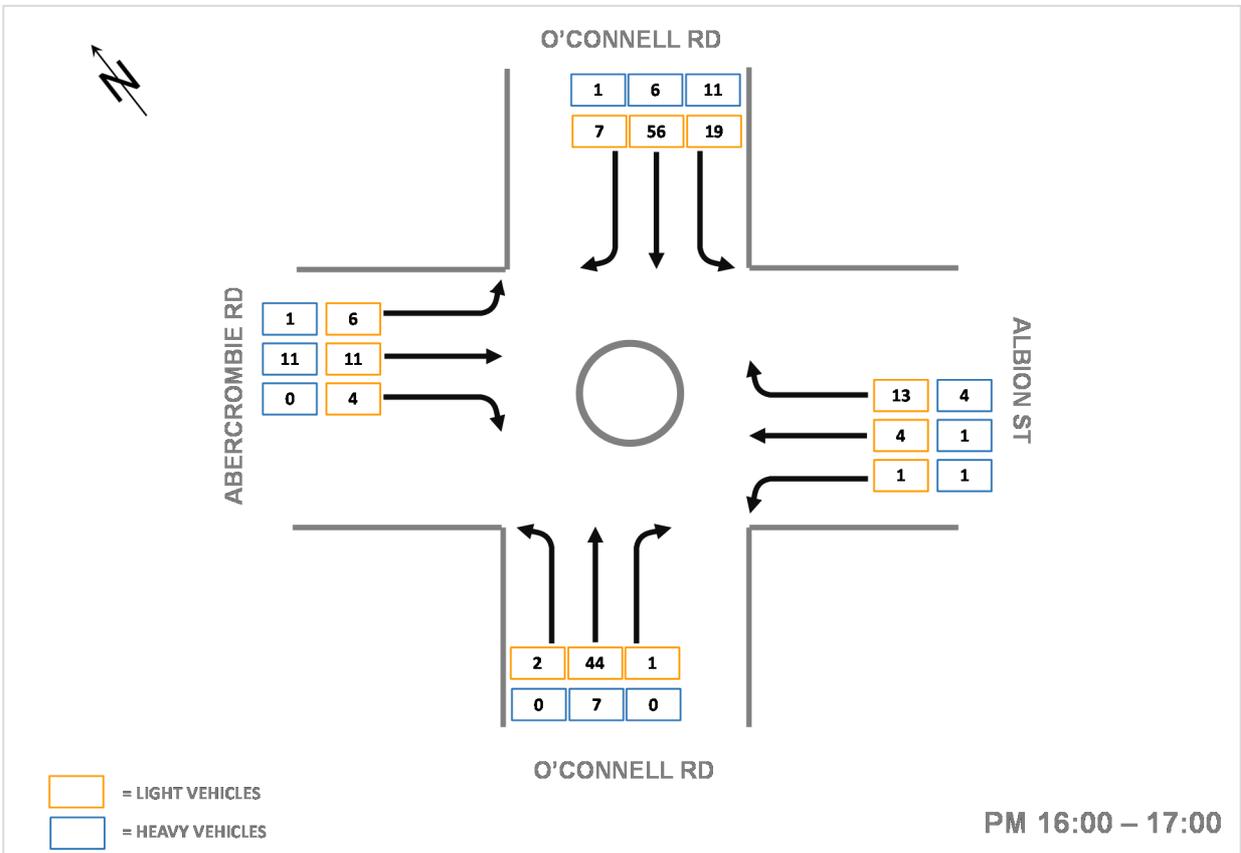
Site 1 – Abercrombie Road and Rupert Street, AM peak hour (Operational, 2019)



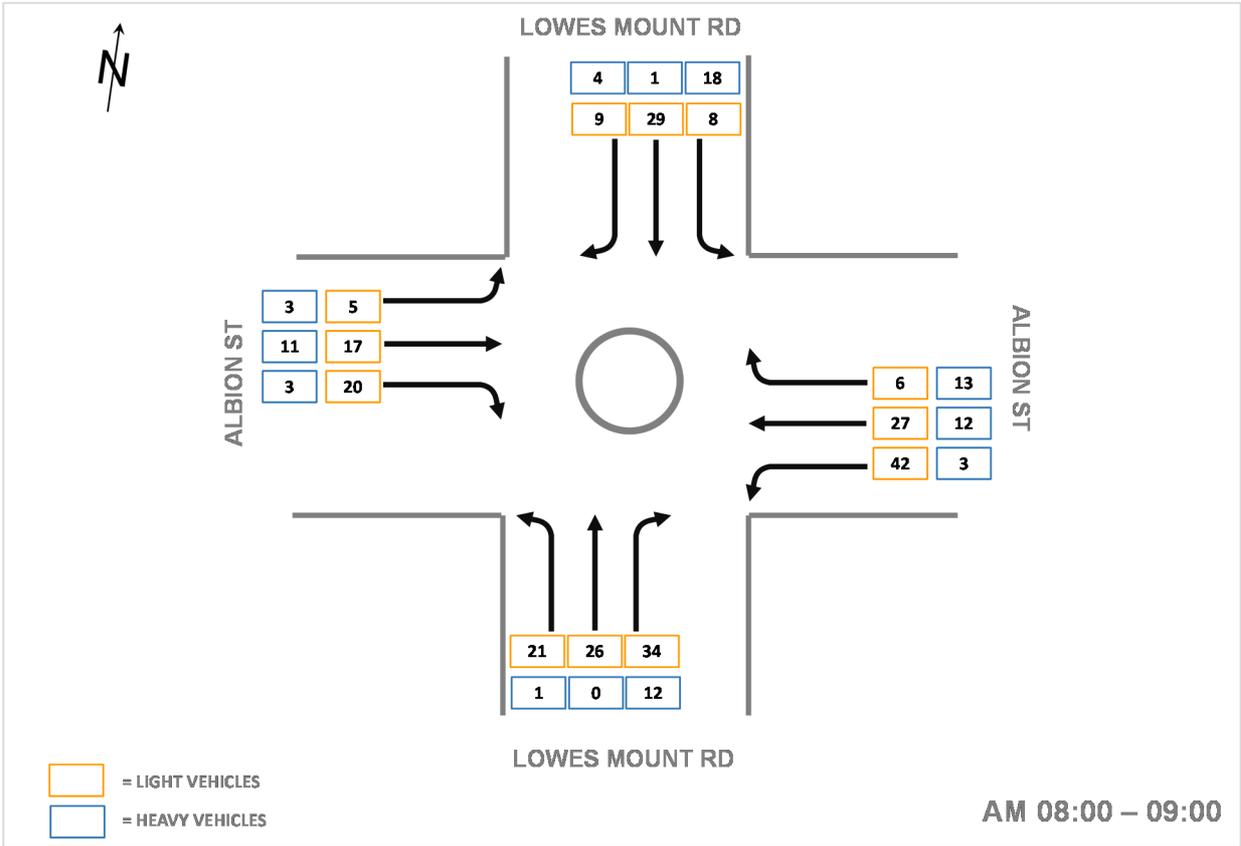
Site 1 – Abercrombie Road and Rupert Street, PM peak hour (Operational, 2019)



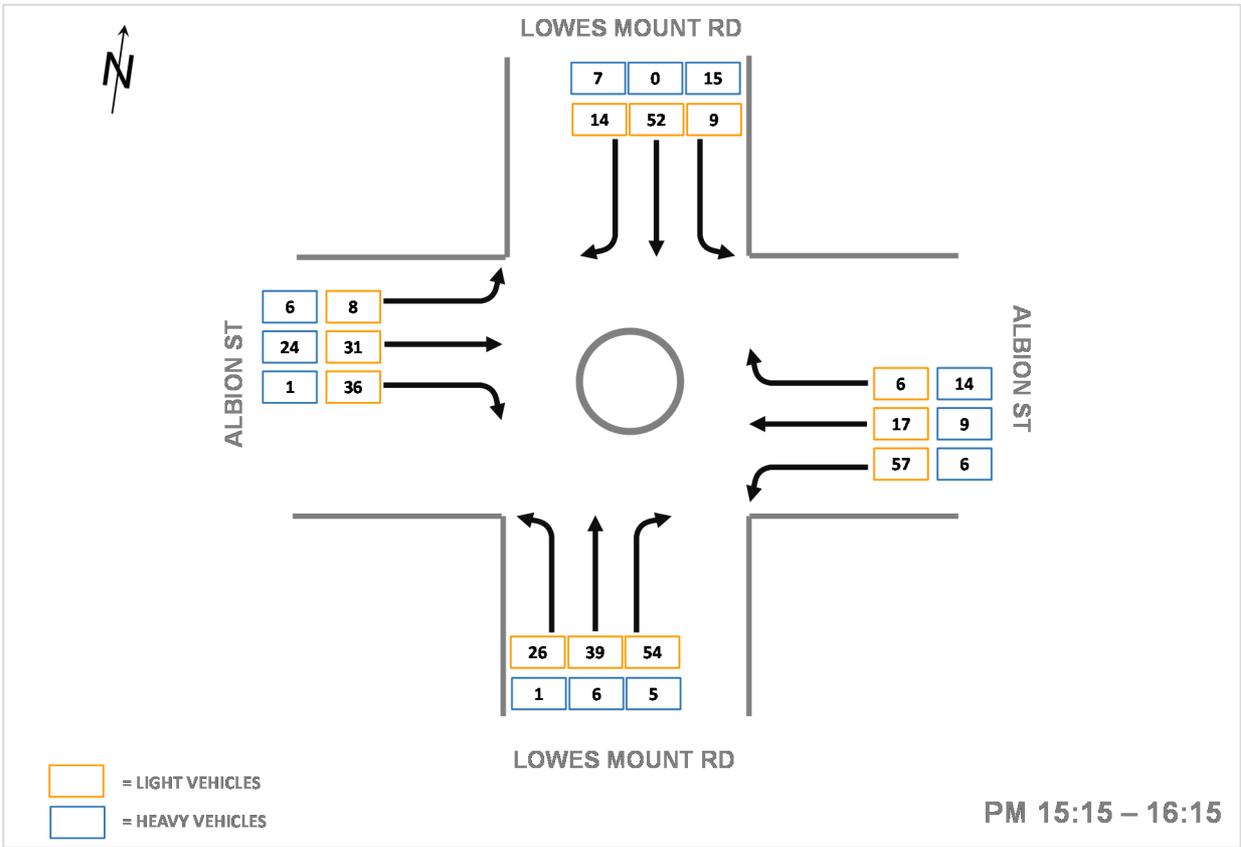
Site 2 – O'Connell Road and Albion Street, AM peak hour (Operational, 2019)



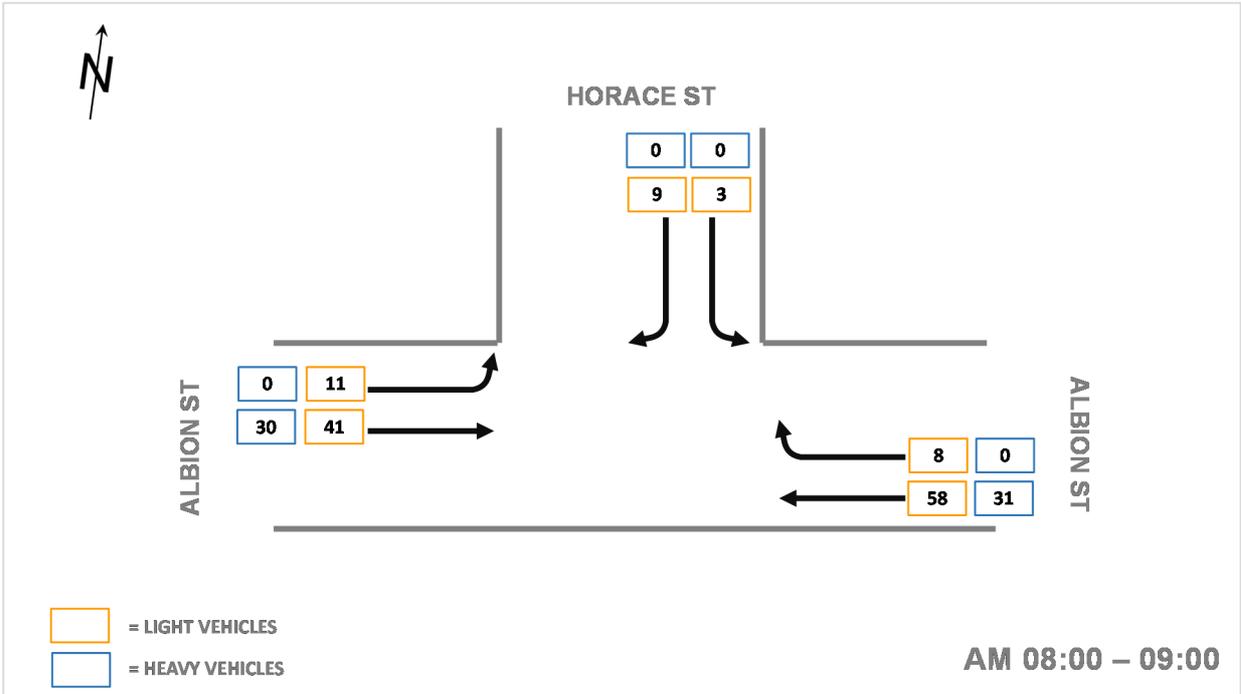
Site 2 – O'Connell Road and Albion Street, PM peak hour (Operational, 2019)



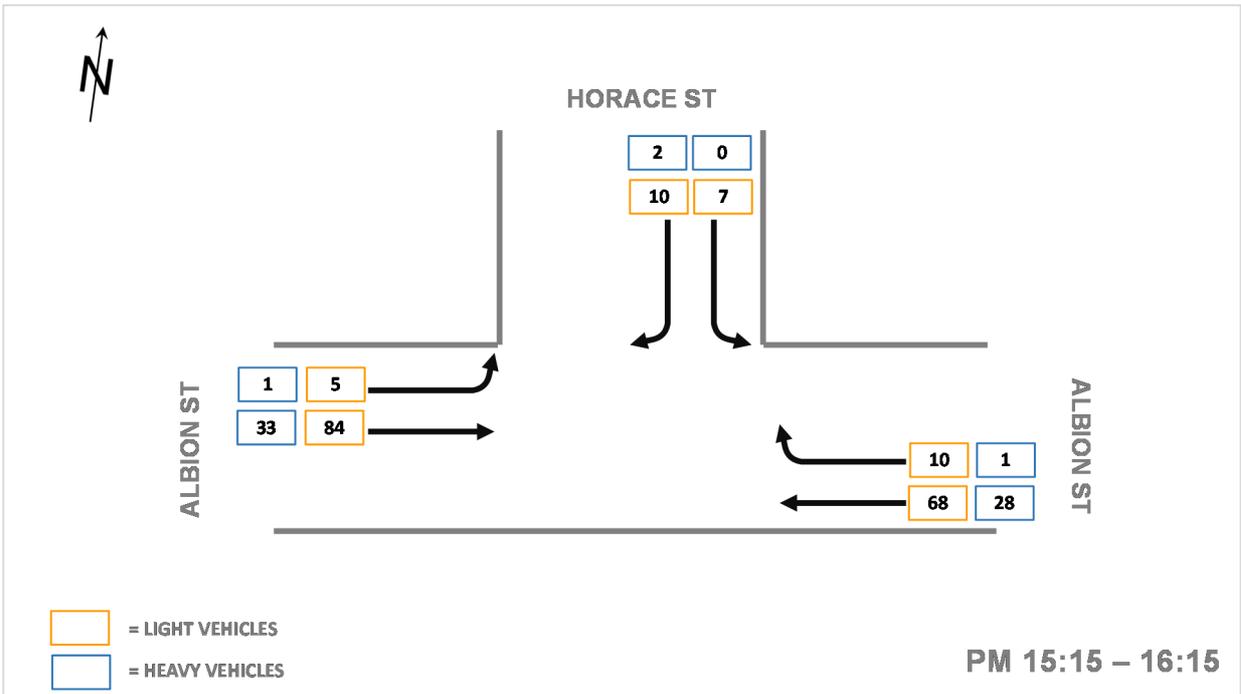
Site 3 – Lowes Mount Road and Albion Street, AM peak hour (Operational, 2019)



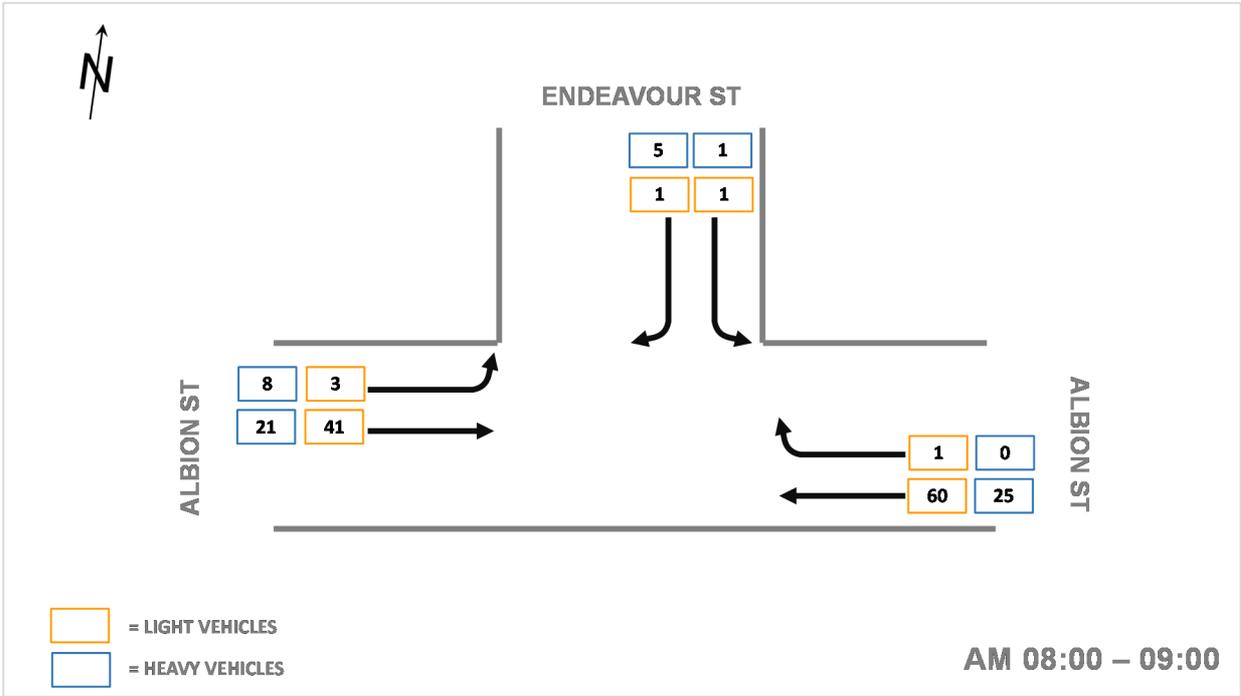
Site 3 – Lowes Mount Road and Albion Street, PM peak hour (Operational, 2019)



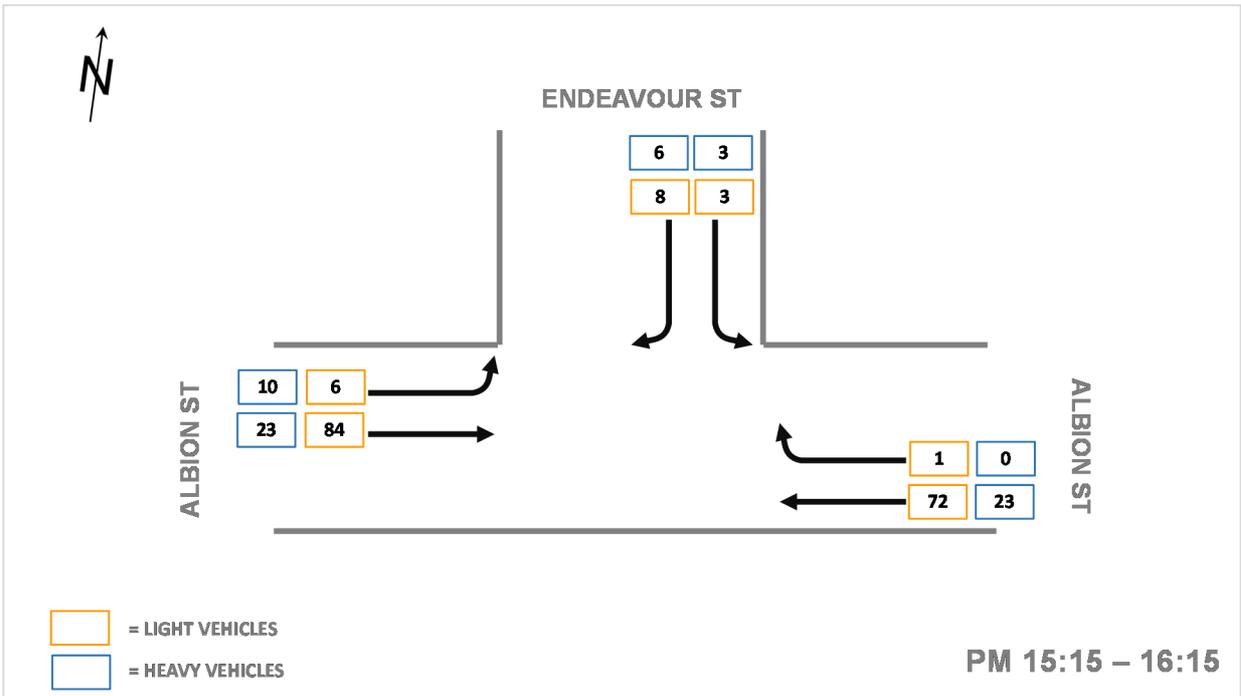
Site 4 – Albion Street and Horace Street, AM peak hour (Operational, 2019)



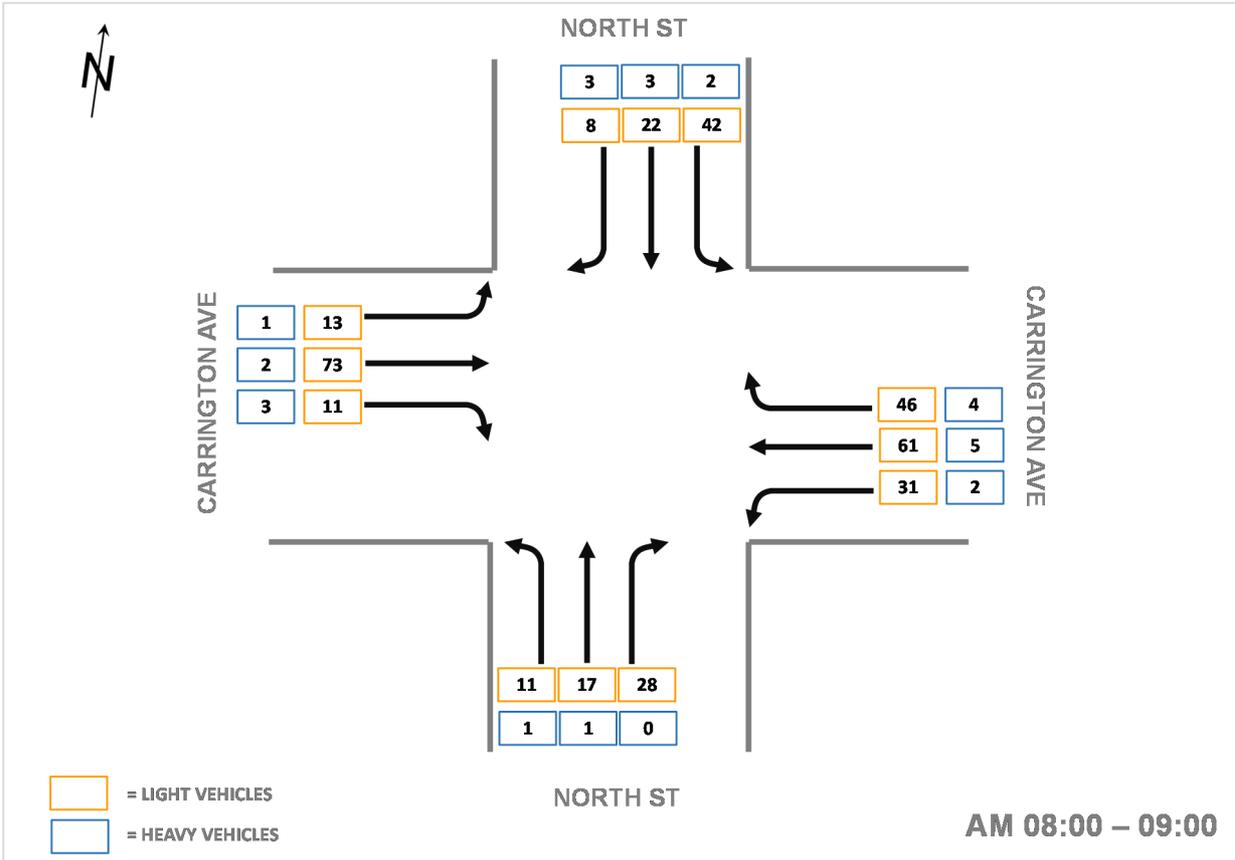
Site 4 – Albion Street and Horace Street, PM peak hour (Operational, 2019)



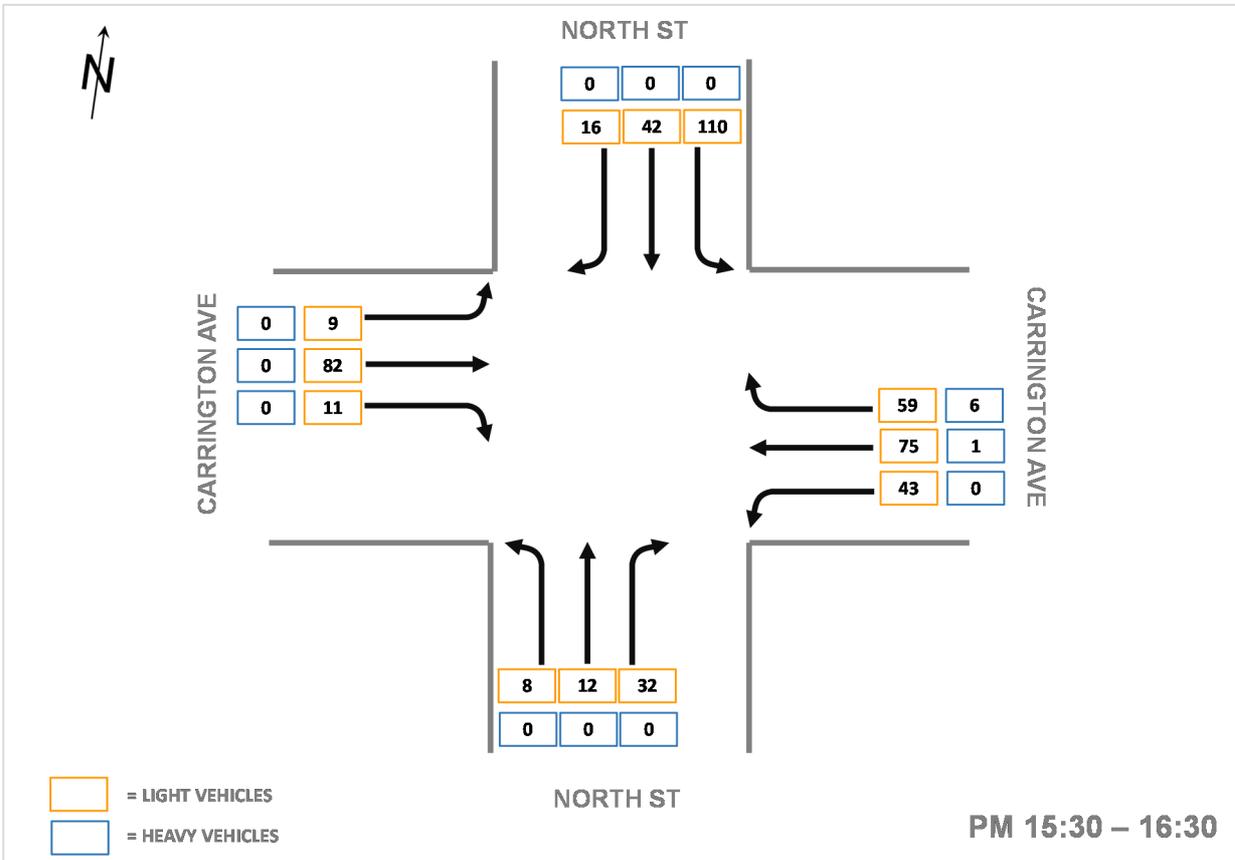
Site 5 – Albion Street and Endeavour Street, AM peak hour (Operational, 2019)



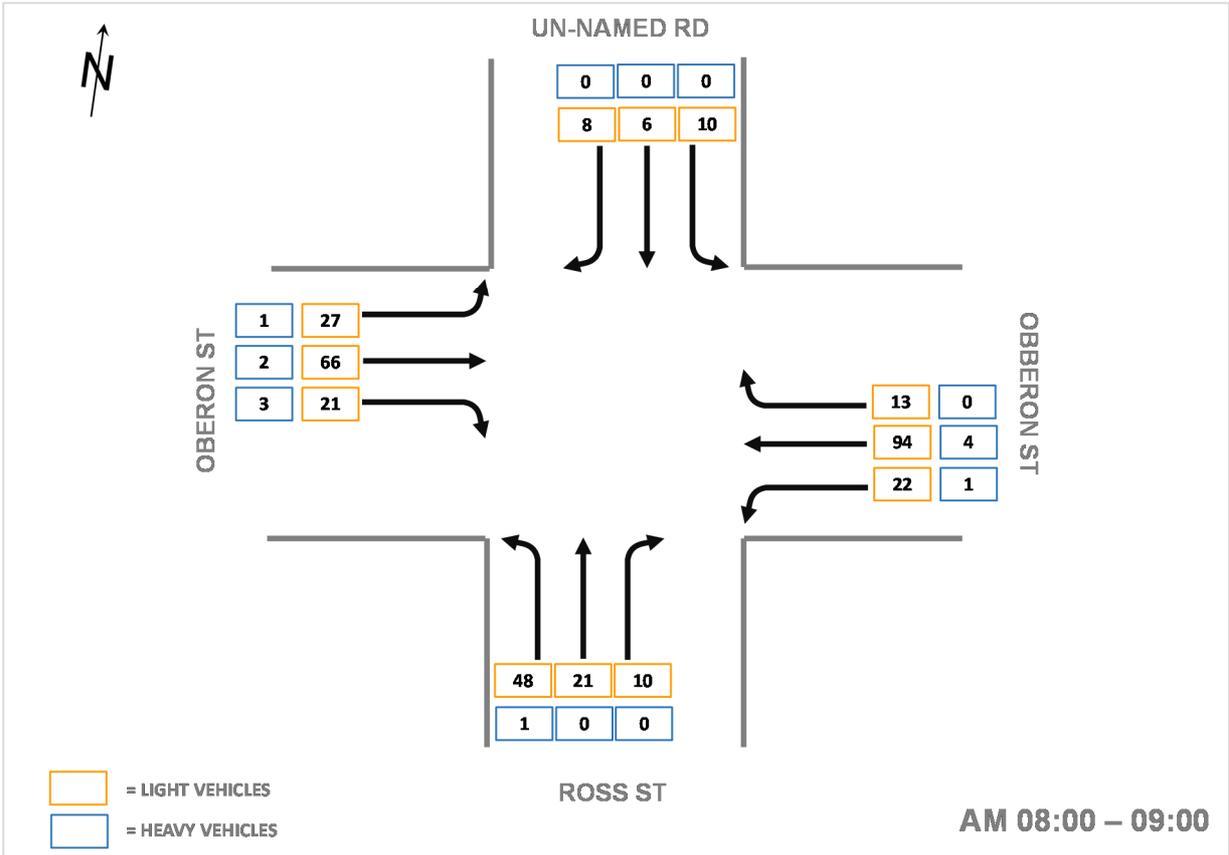
Site 5 – Albion Street and Endeavour Street, PM peak hour (Operational, 2019)



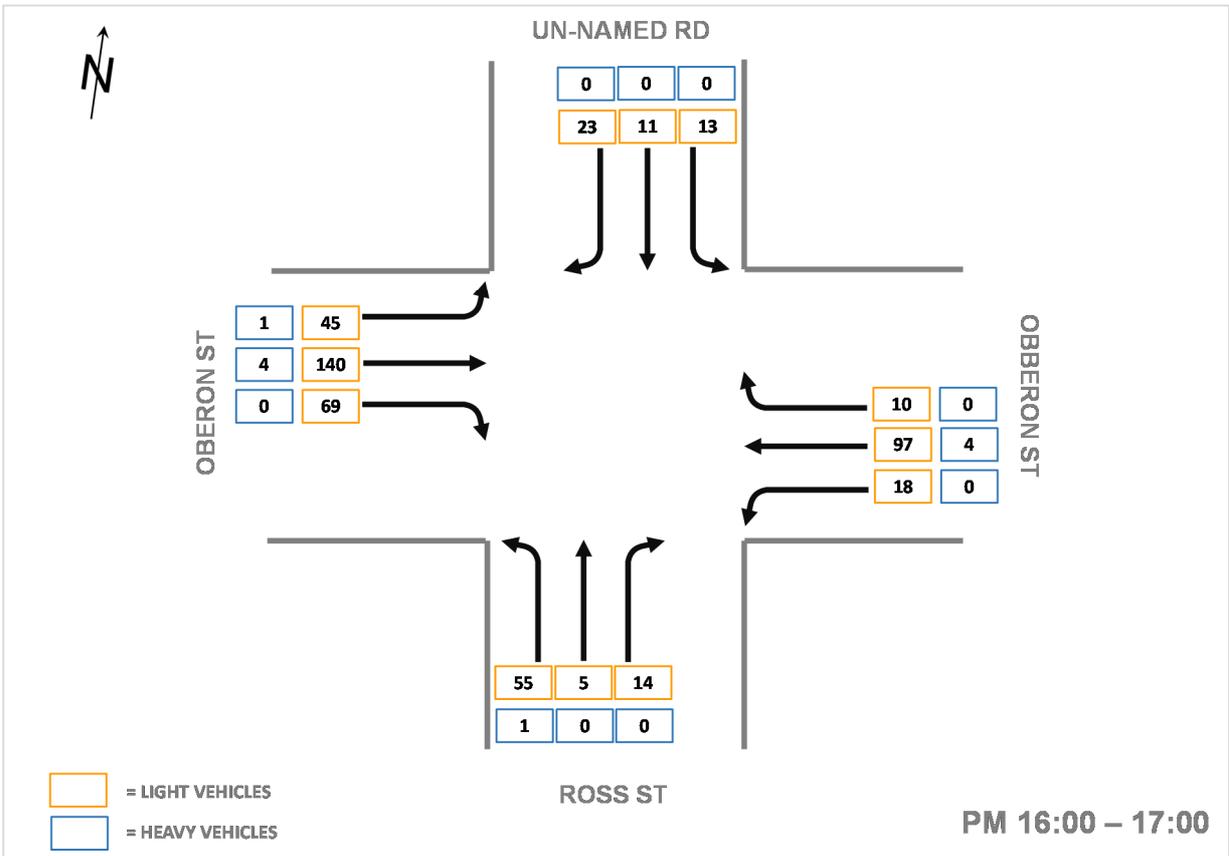
Site 6 – North Street and Carrington Avenue, AM peak hour (Operational, 2019)



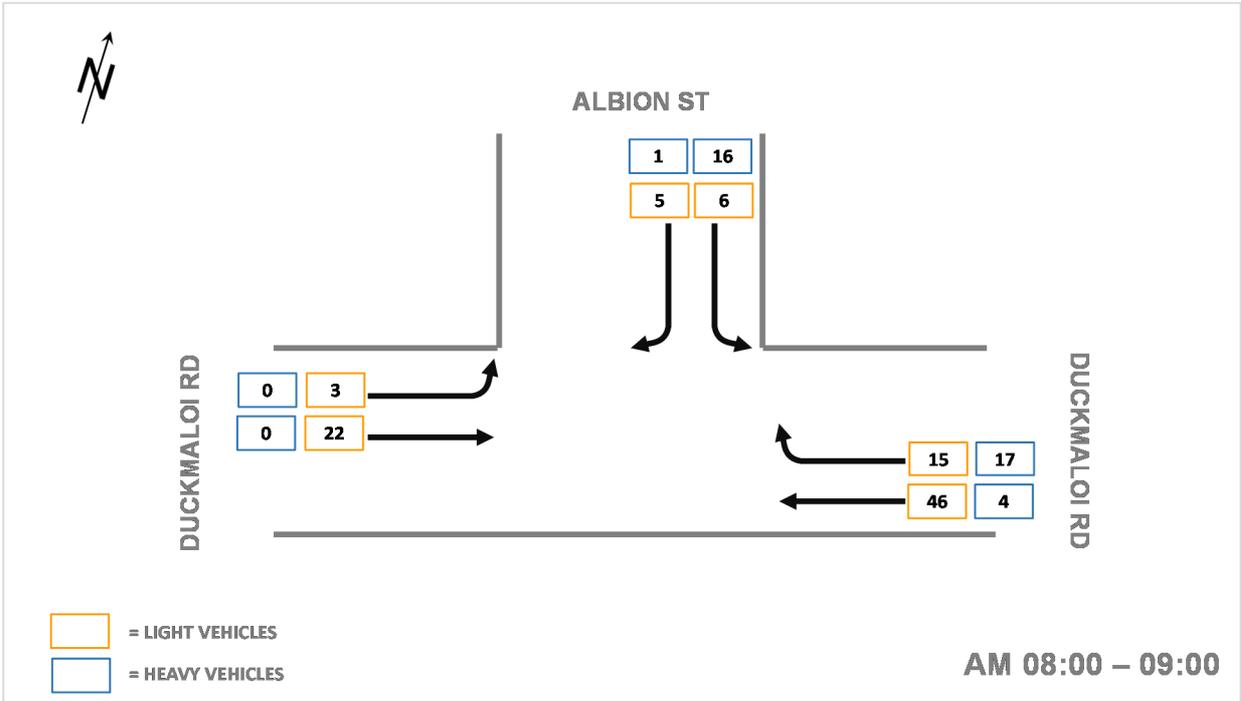
Site 6 – North Street and Carrington Avenue, PM peak hour (Operational, 2019)



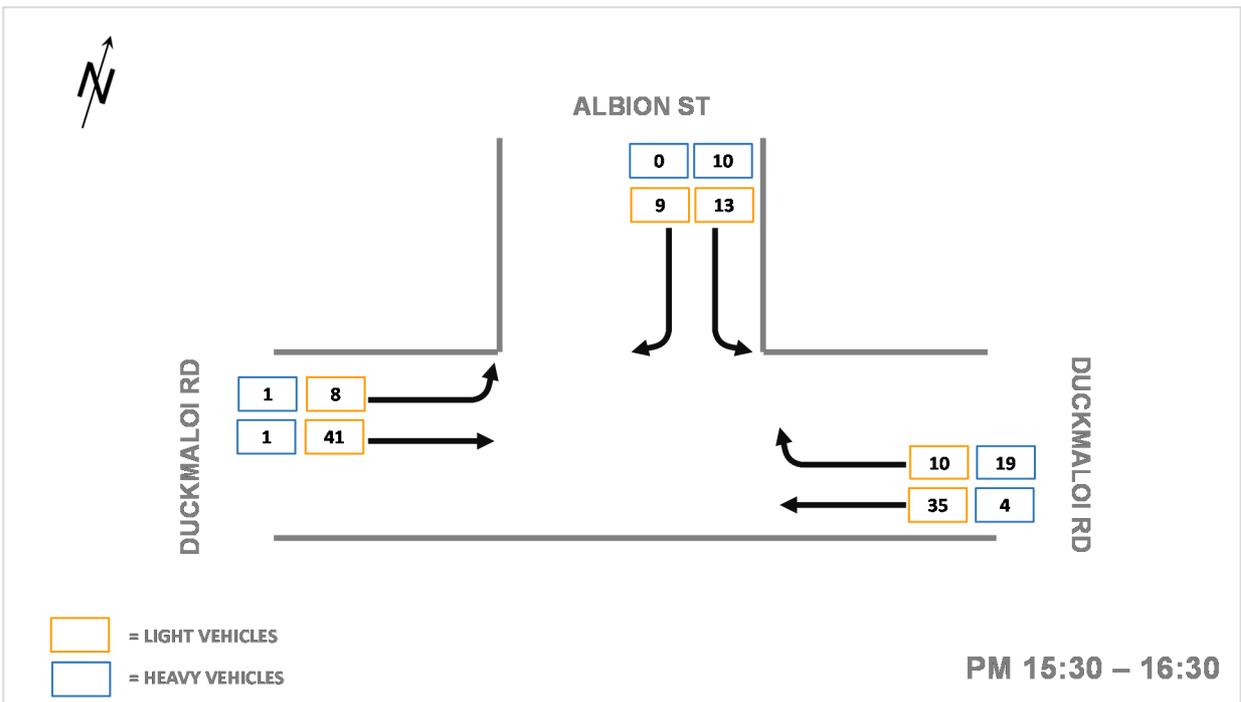
Site 7 – Oberon Street, Ross Street and unnamed road, AM peak hour (Operational, 2019)



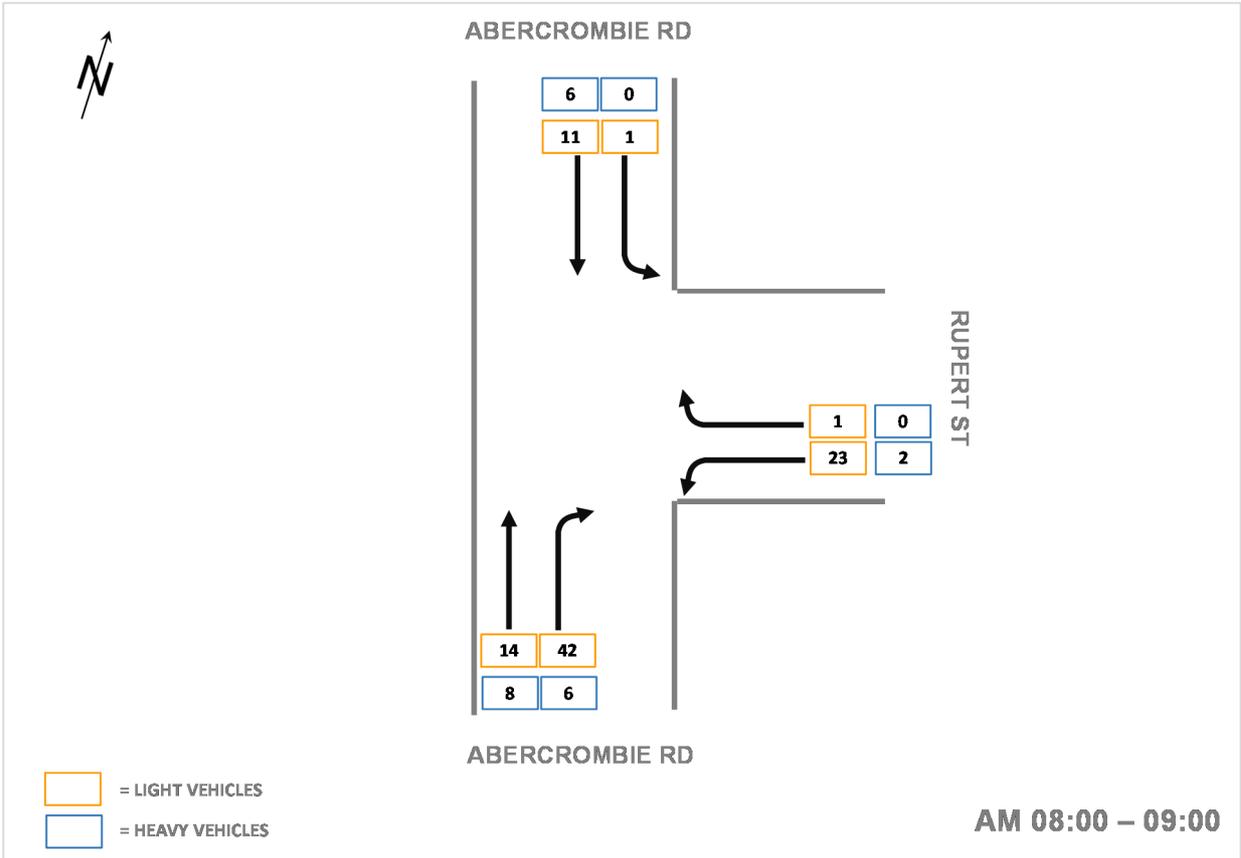
Site 7 – Oberon Street, Ross Street and unnamed road, PM peak hour (Operational, 2019)



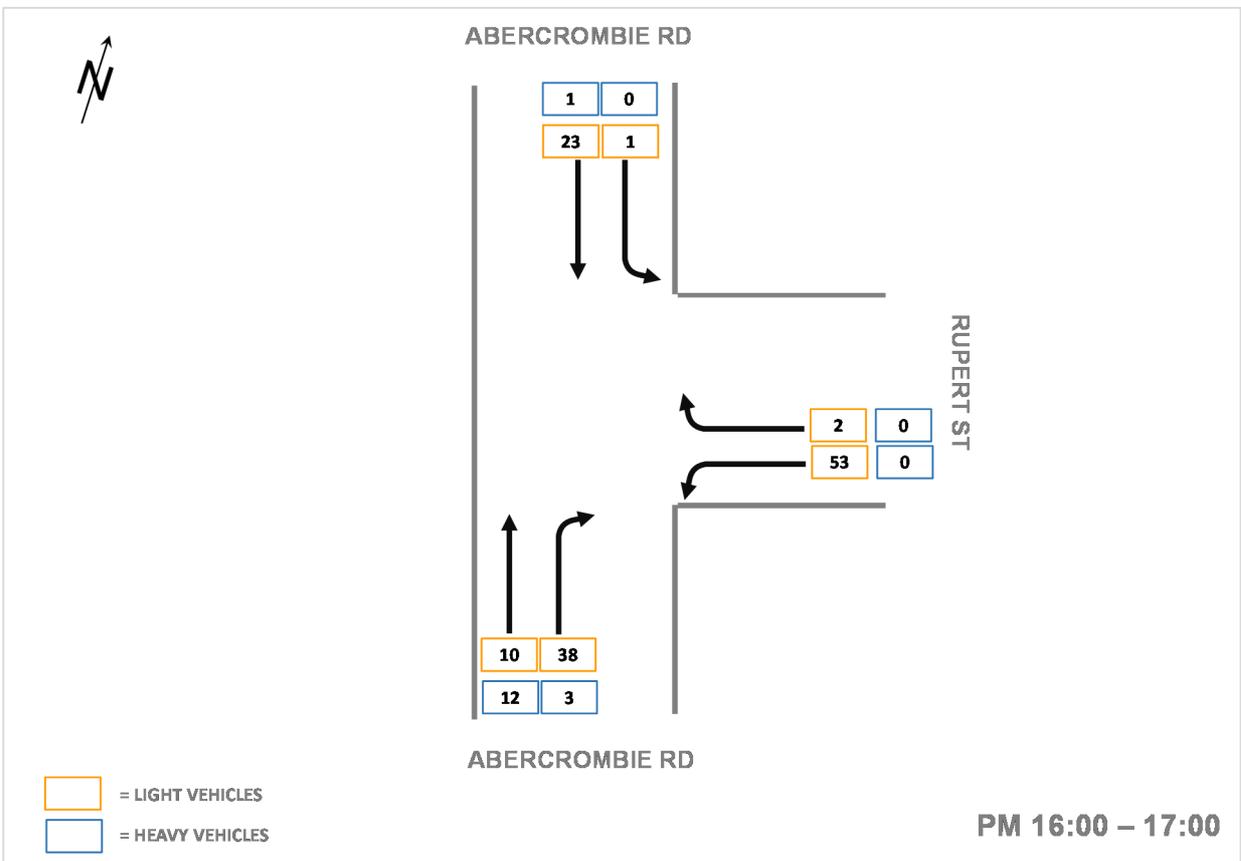
Site 8 – Duckmaloi Road and Albion Road, AM peak hour (Operational, 2019)



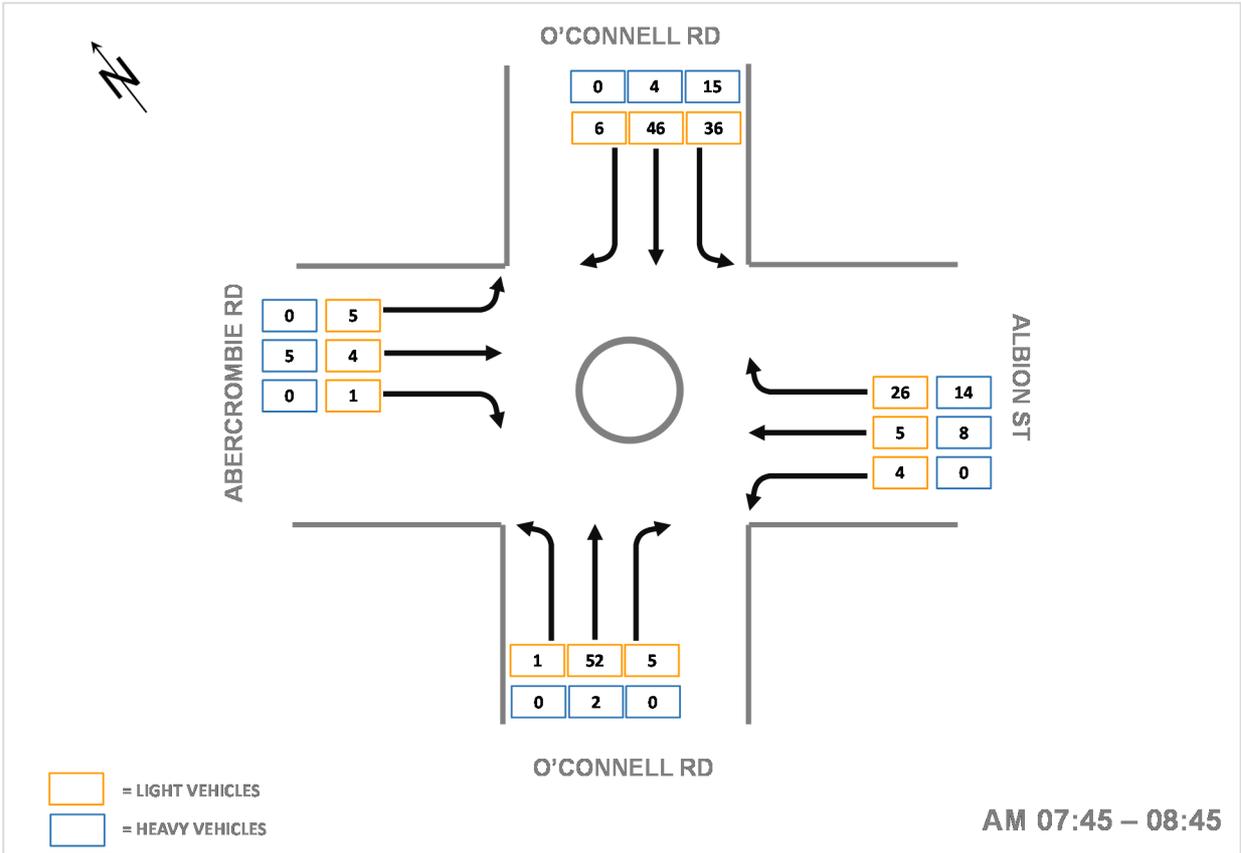
Site 8 – Duckmaloi Road and Albion Road, PM peak hour (Operational, 2019)



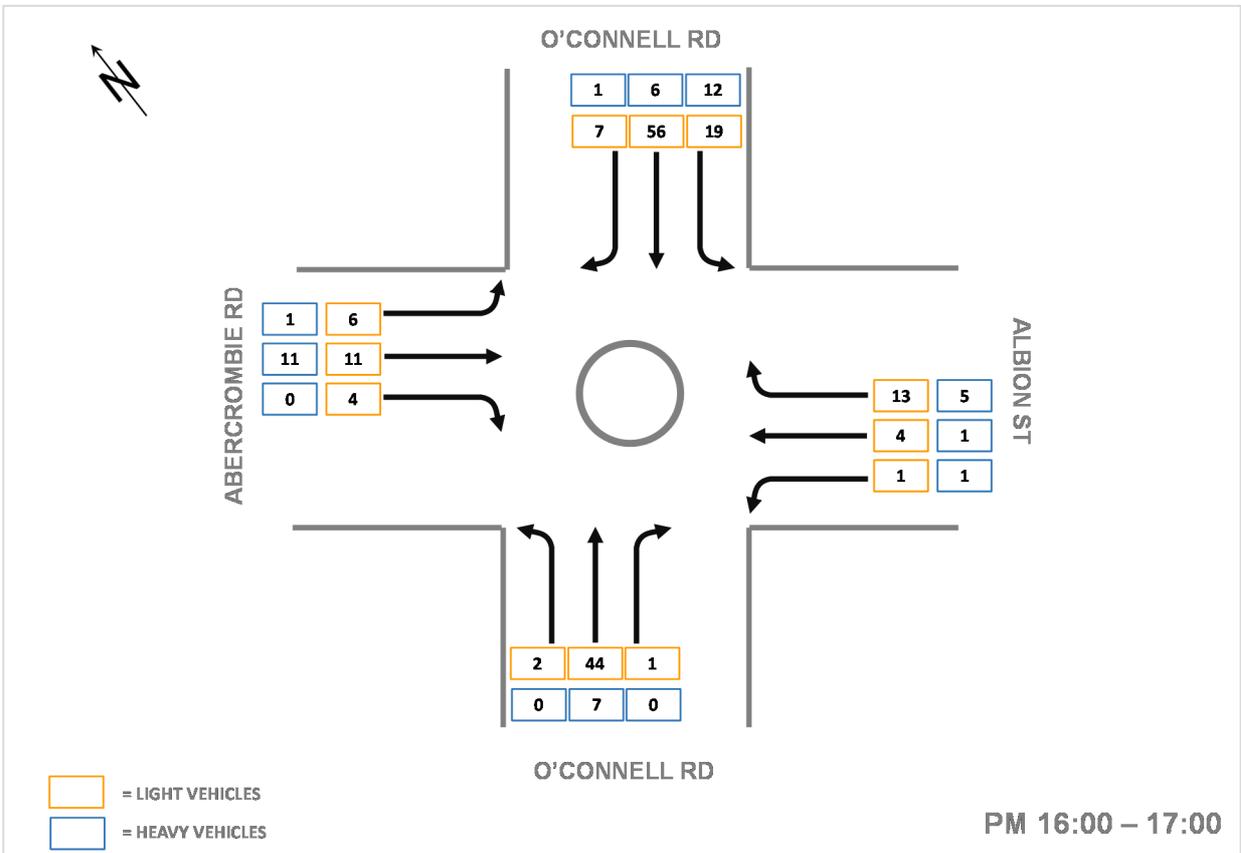
Site 1 – Abercrombie Road and Rupert Street, AM peak hour (Operational, 2029)



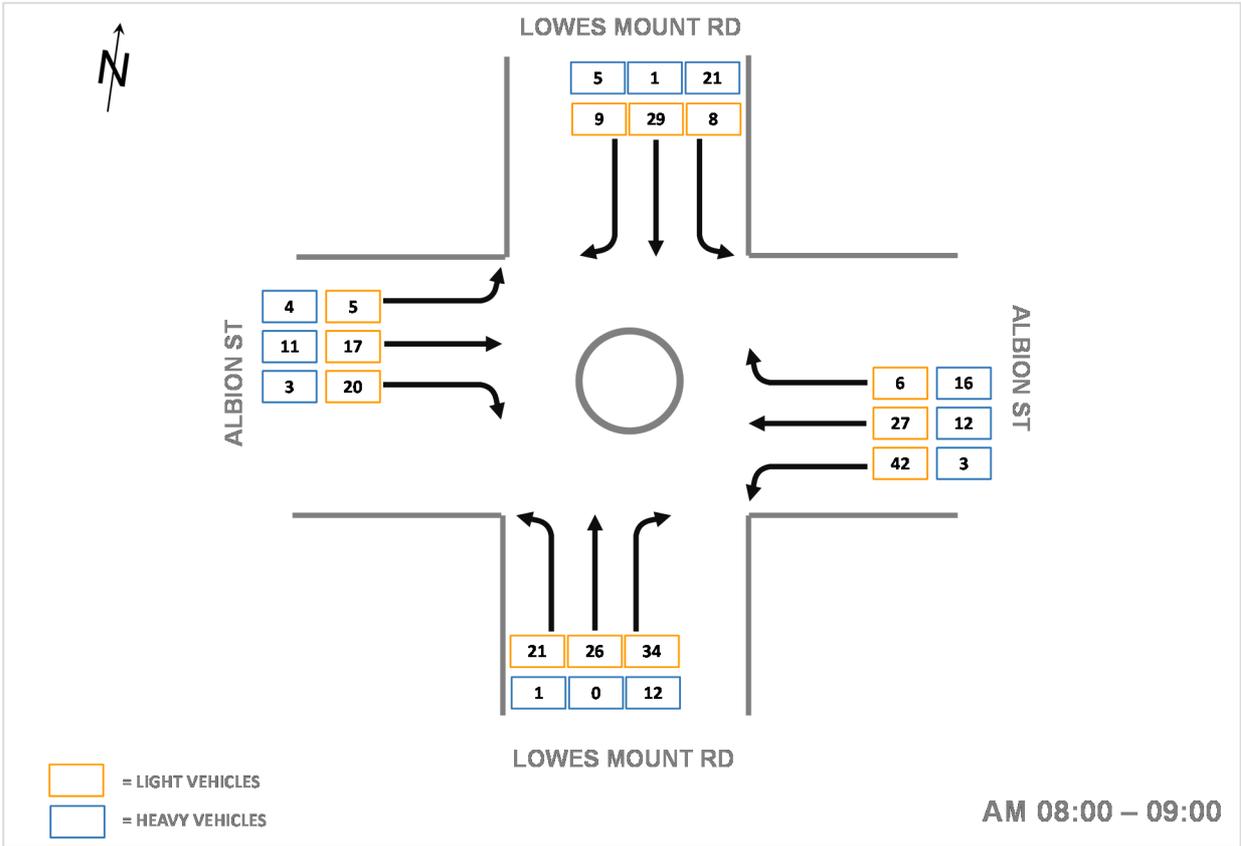
Site 1 – Abercrombie Road and Rupert Street, PM peak hour (Operational, 2029)



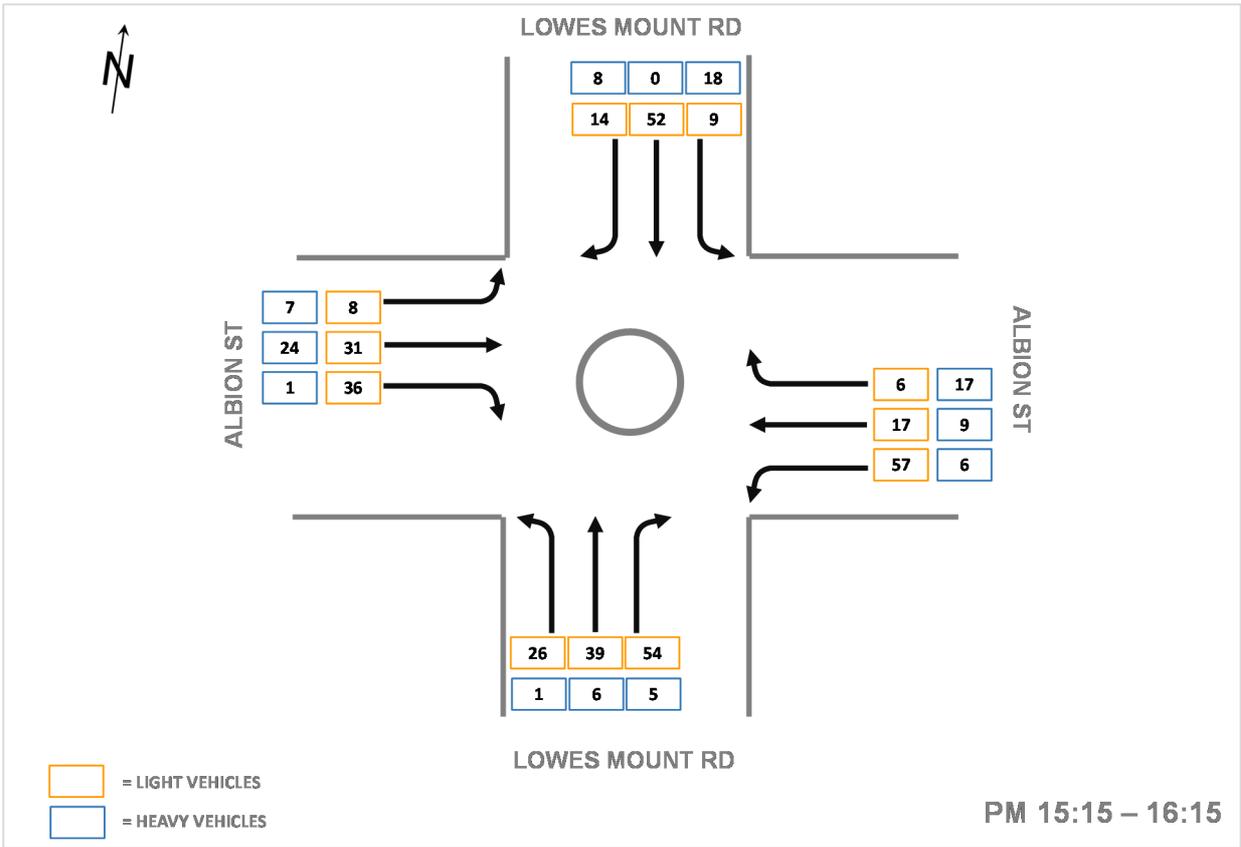
Site 2 – O'Connell Road and Albion Street, AM peak hour (Operational, 2029)



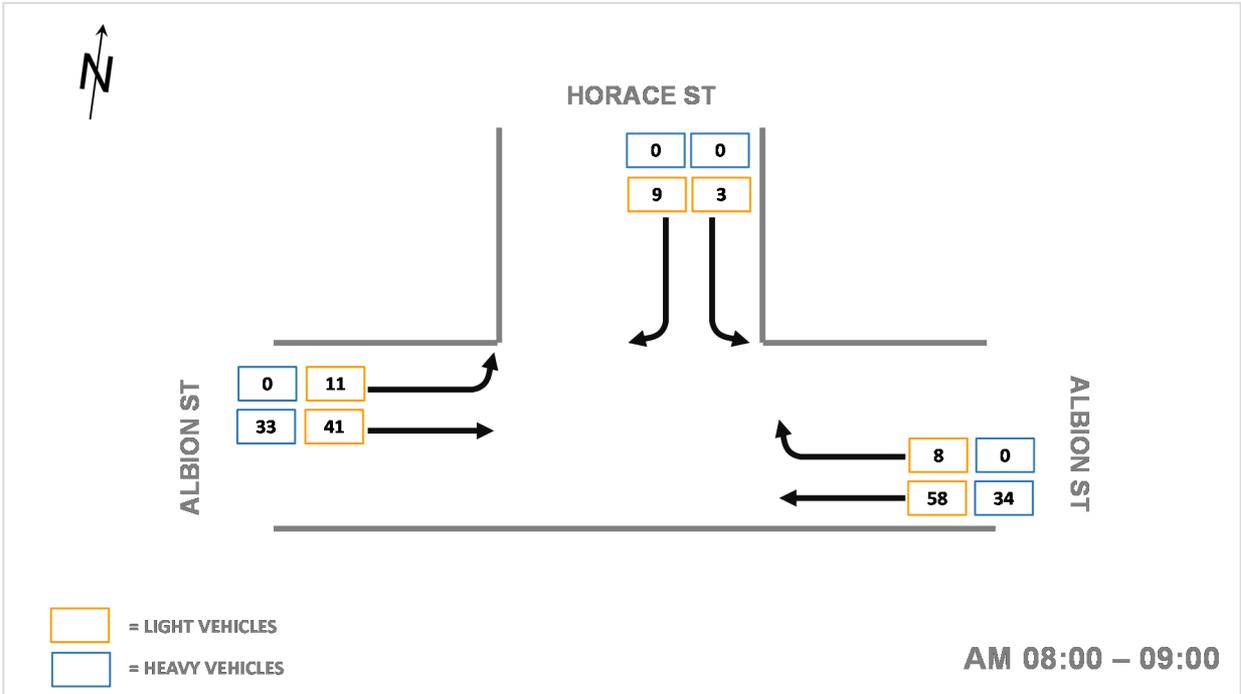
Site 2 – O'Connell Road and Albion Street, PM peak hour (Operational, 2029)



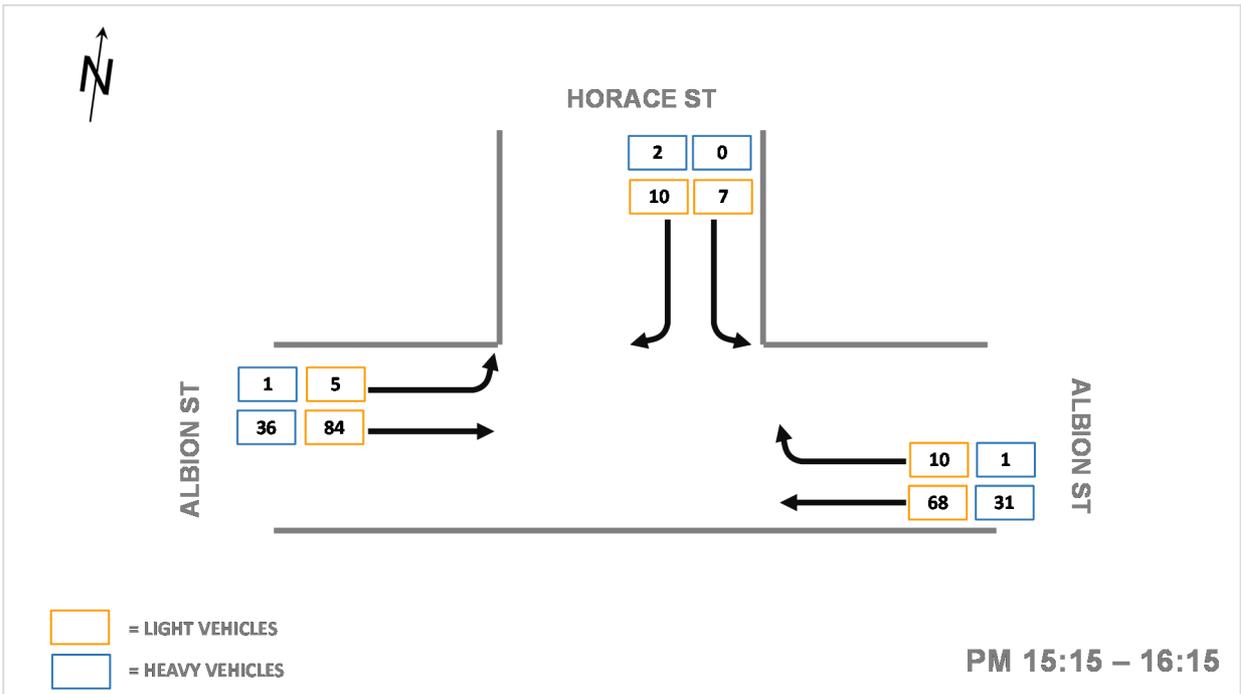
Site 3 – Lowes Mount Road and Albion Street, AM peak hour (Operational, 2029)



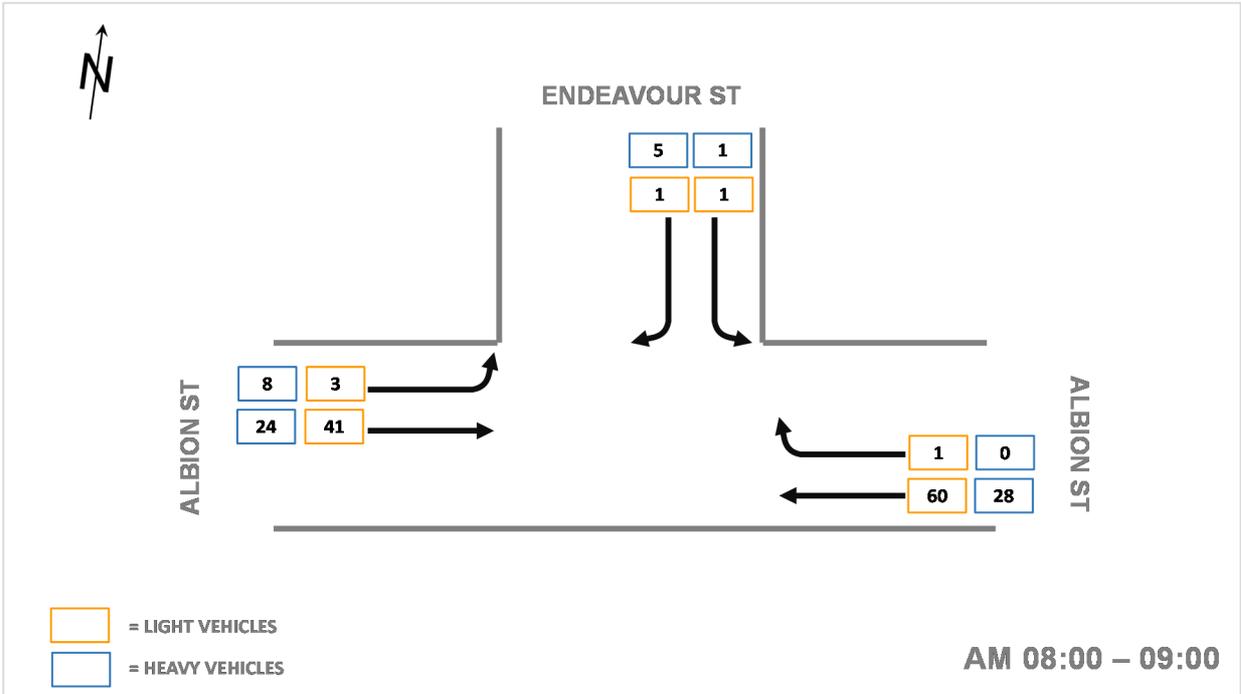
Site 3 – Lowes Mount Road and Albion Street, PM peak hour (Operational, 2029)



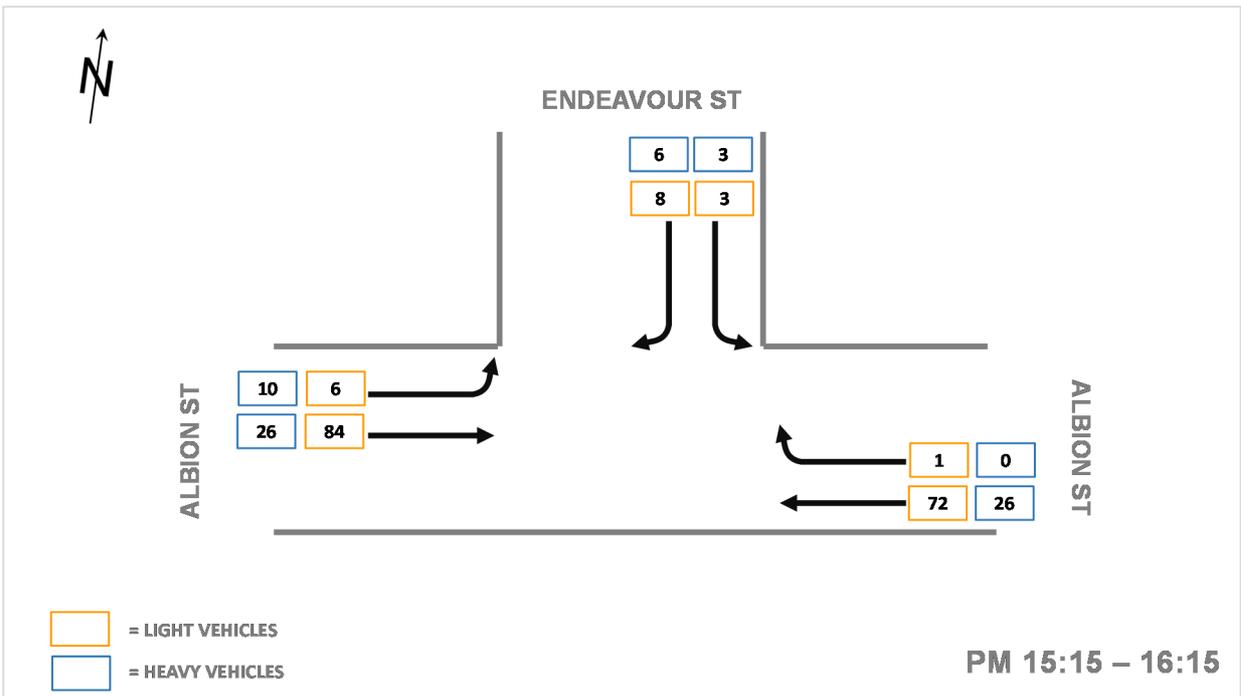
Site 4 – Albion Street and Horace Street, AM peak hour (Operational, 2029)



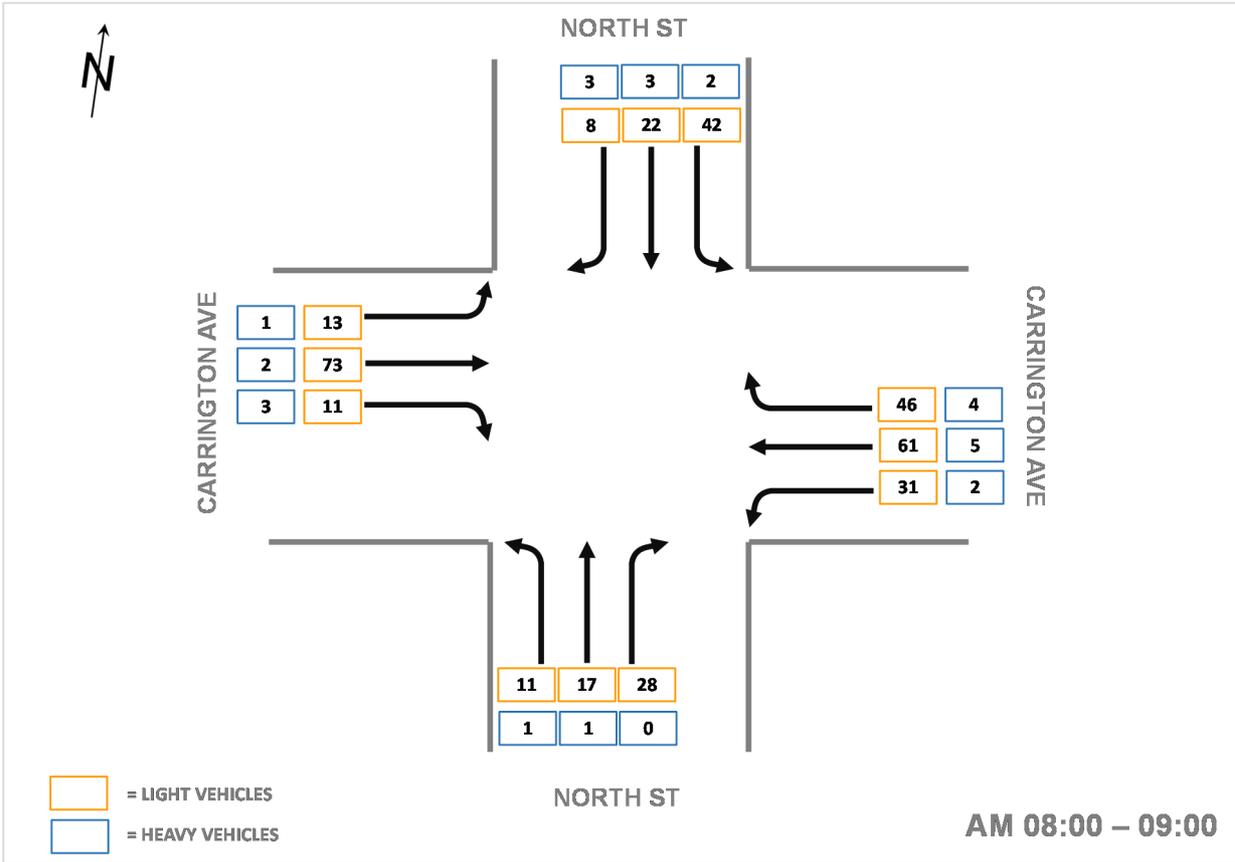
Site 4 – Albion Street and Horace Street, PM peak hour (Operational, 2029)



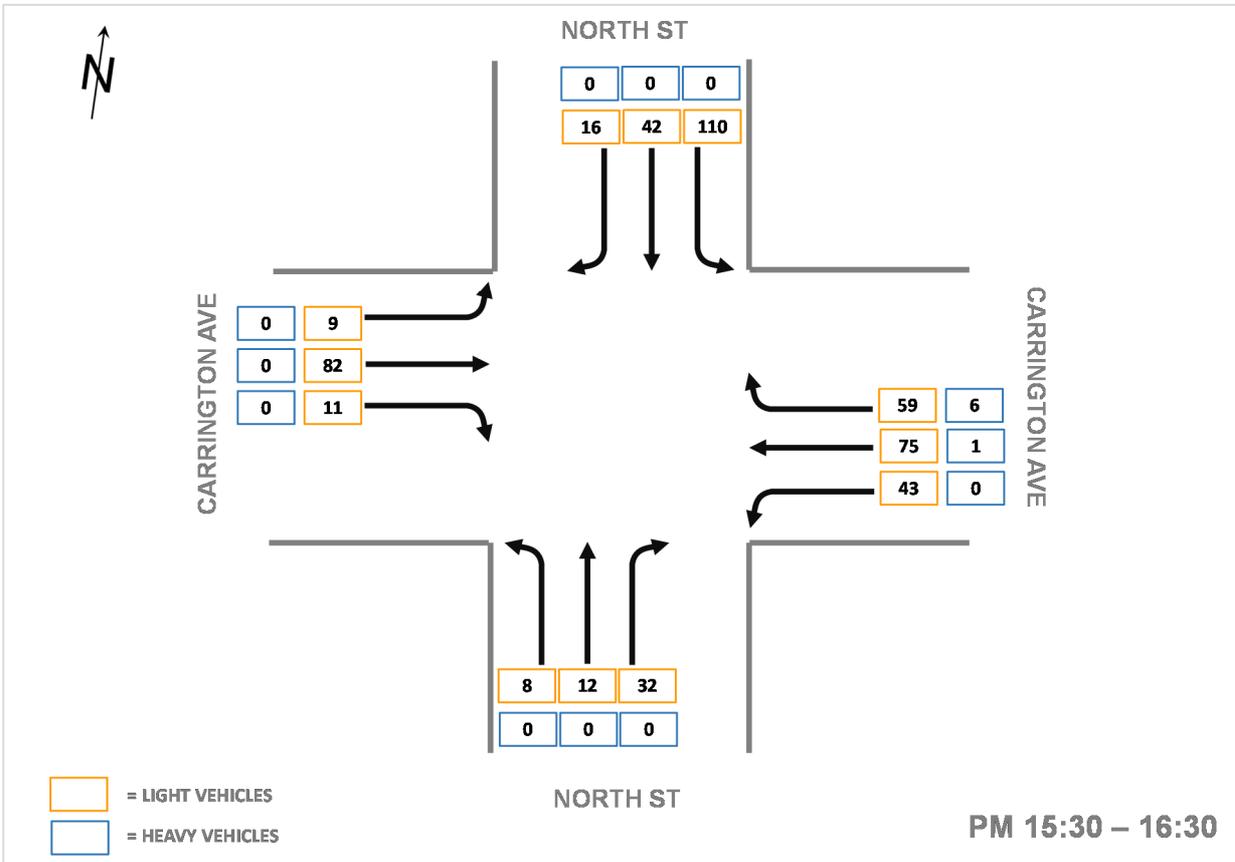
Site 5 – Albion Street and Endeavour Street, AM peak hour (Operational, 2029)



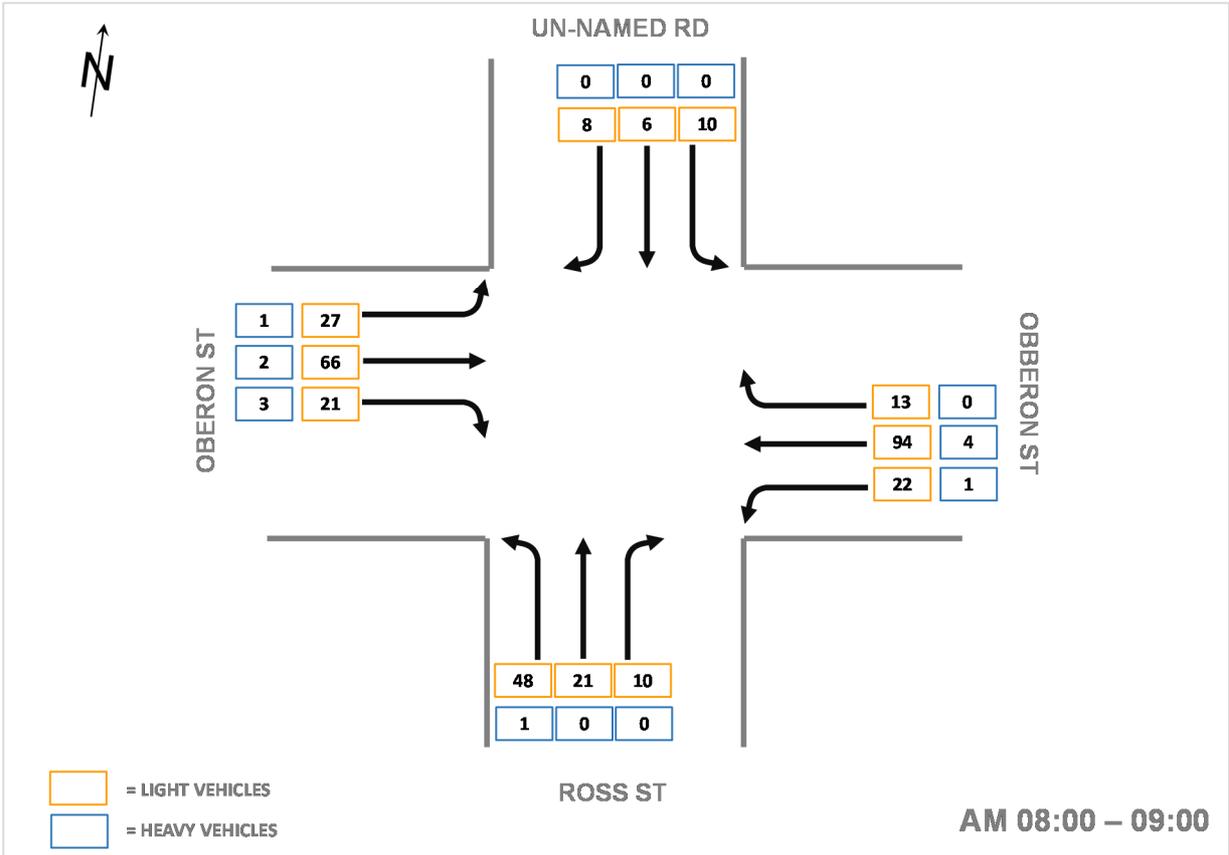
Site 5 – Albion Street and Endeavour Street, AM peak hour (Operational, 2029)



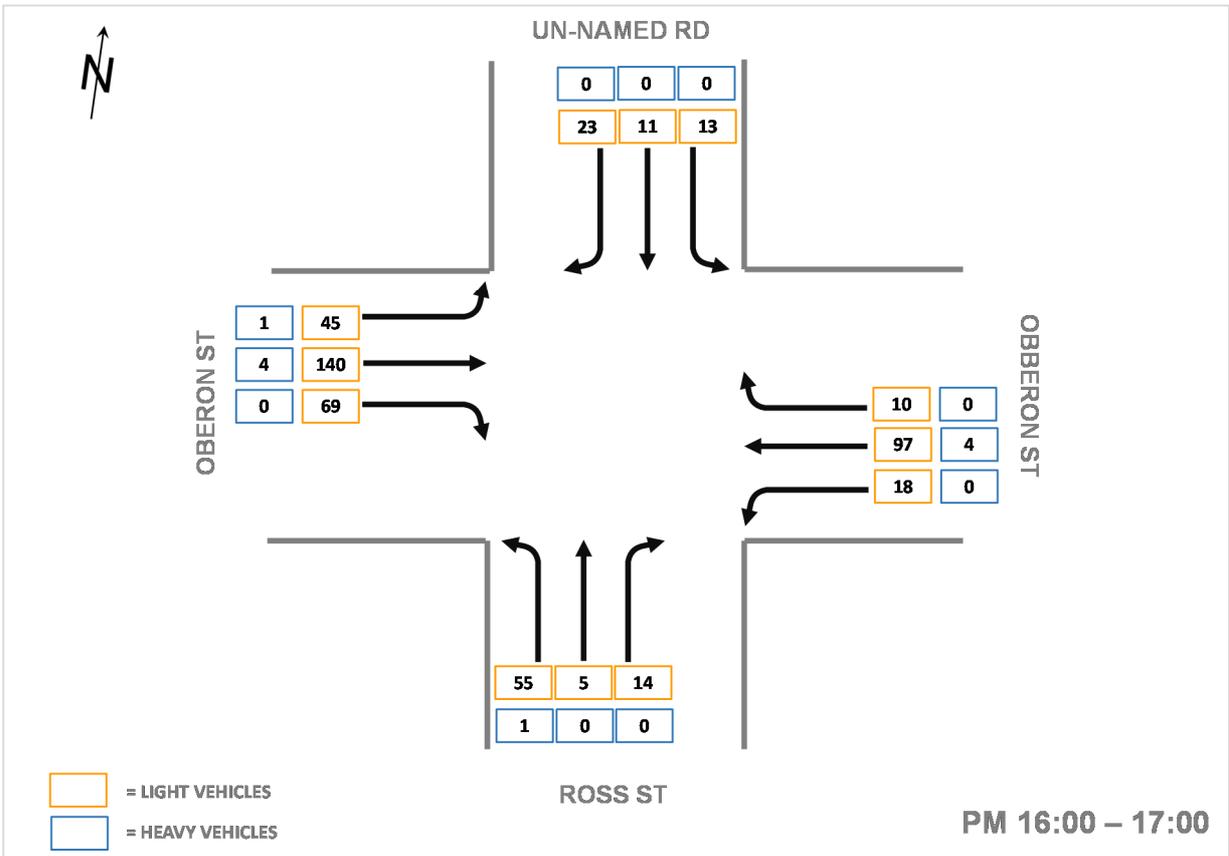
Site 6 – North Street and Carrington Avenue, AM peak hour (Operational, 2029)



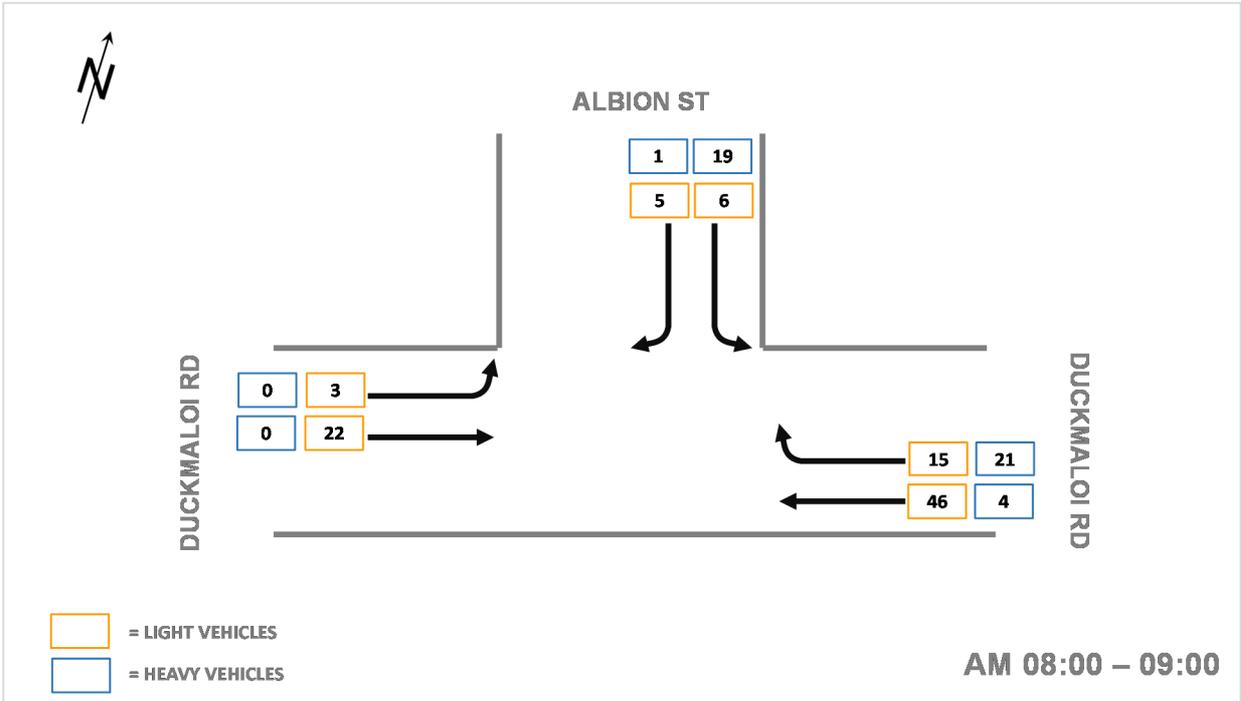
Site 6 – North Street and Carrington Avenue, PM peak hour (Operational, 2029)



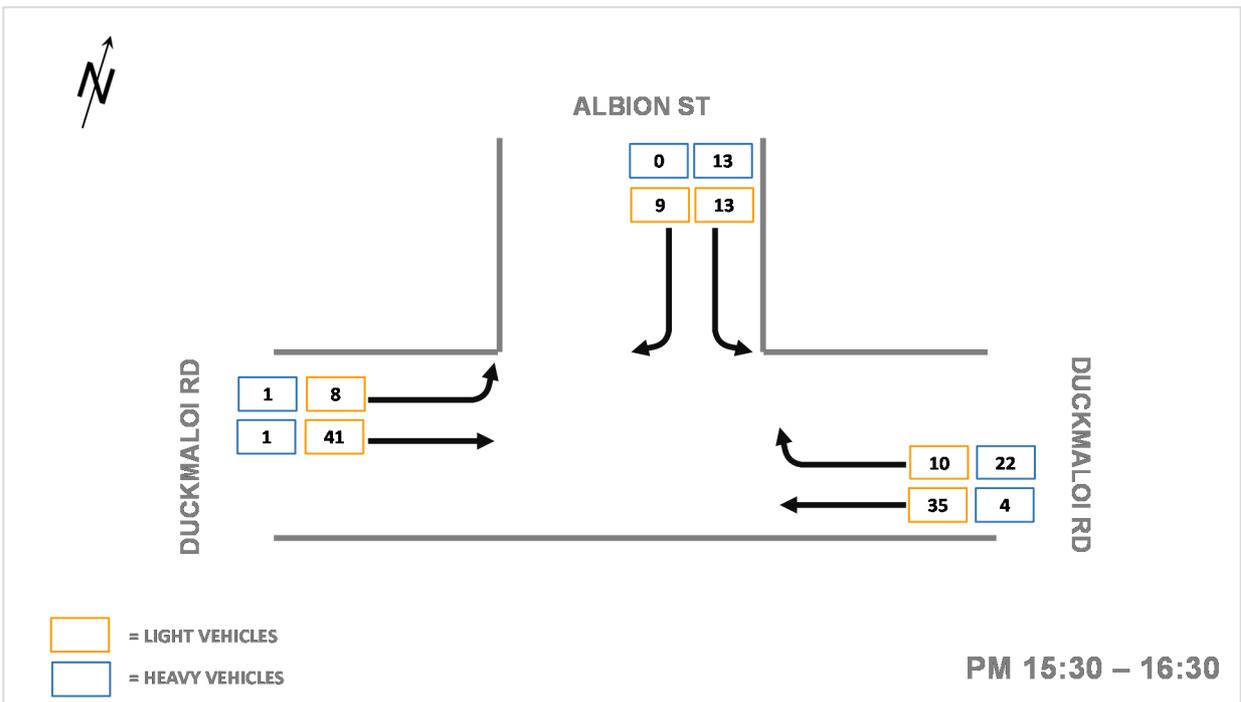
Site 7 – Oberon Street, Ross Street and unnamed road, AM peak hour (Operational, 2029)



Site 7 – Oberon Street, Ross Street and unnamed road, PM peak hour (Operational, 2029)



Site 8 – Duckmaloi Road and Albion Road, AM peak hour (Operational, 2029)



Site 8 – Duckmaloi Road and Albion Road, PM peak hour (Operational, 2029)

APPENDIX F: SIDRA INTERSECTION RESULTS (OPERATIONAL CONDITIONS)

F.1: 2019 FORECAST YEAR

F.2: 2029 FORECAST YEAR

MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2019)

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	36.4	0.040	0.0	LOS A	0.2	1.3	0.01	0.09	59.1
3	R2	51	12.5	0.040	5.7	LOS A	0.2	1.3	0.09	0.53	52.6
Approach		74	20.0	0.040	3.9	NA	0.2	1.3	0.06	0.39	54.5
East: Rupert St - eastern leg											
4	L2	26	8.0	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
6	R2	1	0.0	0.022	6.1	LOS A	0.1	0.6	0.07	0.55	53.2
Approach		27	7.7	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	18	35.3	0.011	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		19	33.3	0.011	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		120	19.3	0.040	3.7	NA	0.2	1.3	0.06	0.37	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (PM) Peak - Operational (2019)

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2019)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	54.5	0.036	0.0	LOS A	0.1	1.2	0.03	0.16	58.3
3	R2	43	7.3	0.036	5.6	LOS A	0.1	1.2	0.09	0.49	52.9
Approach		66	23.8	0.036	3.7	NA	0.1	1.2	0.07	0.37	54.7
East: Rupert St - eastern leg											
4	L2	56	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.4
6	R2	2	0.0	0.045	6.1	LOS A	0.2	1.1	0.08	0.55	53.1
Approach		58	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.3
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	25	4.2	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	4.0	0.013	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		151	11.2	0.045	3.8	NA	0.2	1.2	0.06	0.38	55.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Operational (2019)**

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Operational (2019)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: O'Connell Rd - southern leg											
1	L2	1	0.0	0.050	4.2	LOS A	0.2	1.7	0.20	0.43	54.3
2	T1	57	3.7	0.050	4.4	LOS A	0.2	1.7	0.20	0.43	55.5
3	R2	5	0.0	0.050	9.0	LOS A	0.2	1.7	0.20	0.43	55.6
Approach		63	3.3	0.050	4.8	LOS A	0.2	1.7	0.20	0.43	55.5
East: Albion St - eastern leg											
4	L2	4	0.0	0.054	4.1	LOS A	0.2	2.3	0.20	0.55	52.3
5	T1	14	61.5	0.054	5.0	LOS A	0.2	2.3	0.20	0.55	52.2
6	R2	41	33.3	0.054	9.4	LOS A	0.2	2.3	0.20	0.55	52.2
Approach		59	37.5	0.054	8.0	LOS A	0.2	2.3	0.20	0.55	52.2
North: O'Connell Rd - northern leg											
7	L2	53	28.0	0.081	4.2	LOS A	0.4	3.2	0.10	0.44	54.1
8	T1	53	8.0	0.081	4.2	LOS A	0.4	3.2	0.10	0.44	56.1
9	R2	6	0.0	0.081	8.8	LOS A	0.4	3.2	0.10	0.44	56.3
Approach		112	17.0	0.081	4.5	LOS A	0.4	3.2	0.10	0.44	55.1
West: Abercrombie Rd - western leg											
10	L2	5	0.0	0.015	4.3	LOS A	0.1	0.6	0.26	0.44	54.2
11	T1	9	55.6	0.015	5.3	LOS A	0.1	0.6	0.26	0.44	54.2
12	R2	1	0.0	0.015	9.1	LOS A	0.1	0.6	0.26	0.44	55.5
Approach		16	33.3	0.015	5.2	LOS A	0.1	0.6	0.26	0.44	54.3
All Vehicles		249	19.4	0.081	5.5	LOS A	0.4	3.2	0.16	0.46	54.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Operational (2019)**

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Operational (2019)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: O'Connell Rd - southern leg											
1	L2	2	0.0	0.044	4.0	LOS A	0.2	1.6	0.14	0.40	54.8
2	T1	54	13.7	0.044	4.4	LOS A	0.2	1.6	0.14	0.40	55.8
3	R2	1	0.0	0.044	8.9	LOS A	0.2	1.6	0.14	0.40	56.1
Approach		57	13.0	0.044	4.4	LOS A	0.2	1.6	0.14	0.40	55.8
East: Albion St - eastern leg											
4	L2	2	50.0	0.022	4.9	LOS A	0.1	0.8	0.22	0.56	50.9
5	T1	5	20.0	0.022	4.6	LOS A	0.1	0.8	0.22	0.56	53.1
6	R2	18	23.5	0.022	9.4	LOS A	0.1	0.8	0.22	0.56	52.6
Approach		25	25.0	0.022	8.0	LOS A	0.1	0.8	0.22	0.56	52.5
North: O'Connell Rd - northern leg											
7	L2	32	36.7	0.081	4.4	LOS A	0.4	3.2	0.14	0.43	53.5
8	T1	65	9.7	0.081	4.3	LOS A	0.4	3.2	0.14	0.43	55.8
9	R2	8	12.5	0.081	9.0	LOS A	0.4	3.2	0.14	0.43	55.4
Approach		105	18.0	0.081	4.7	LOS A	0.4	3.2	0.14	0.43	55.0
West: Abercrombie Rd - western leg											
10	L2	7	14.3	0.032	4.4	LOS A	0.1	1.3	0.22	0.45	53.6
11	T1	23	50.0	0.032	5.0	LOS A	0.1	1.3	0.22	0.45	54.1
12	R2	4	0.0	0.032	9.0	LOS A	0.1	1.3	0.22	0.45	55.3
Approach		35	36.4	0.032	5.3	LOS A	0.1	1.3	0.22	0.45	54.1
All Vehicles		222	20.4	0.081	5.1	LOS A	0.4	3.2	0.16	0.44	54.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Operational (2019)**

Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Operational (2019)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	23	4.5	0.083	4.3	LOS A	0.4	3.1	0.24	0.54	53.1
2	T1	27	0.0	0.083	4.5	LOS A	0.4	3.1	0.24	0.54	54.5
3	R2	48	26.1	0.083	9.5	LOS A	0.4	3.1	0.24	0.54	53.4
Approach		99	13.8	0.083	6.9	LOS A	0.4	3.1	0.24	0.54	53.6
East: Albion St - eastern leg											
4	L2	47	6.7	0.094	4.3	LOS A	0.5	3.9	0.23	0.47	54.2
5	T1	41	30.8	0.094	4.8	LOS A	0.5	3.9	0.23	0.47	55.0
6	R2	20	68.4	0.094	10.0	LOS A	0.5	3.9	0.23	0.47	52.9
Approach		108	27.2	0.094	5.5	LOS A	0.5	3.9	0.23	0.47	54.3
North: Lowes Mount Rd - northern leg											
7	L2	27	69.2	0.070	5.4	LOS A	0.3	2.9	0.29	0.49	51.7
8	T1	32	3.3	0.070	4.6	LOS A	0.3	2.9	0.29	0.49	54.9
9	R2	14	30.8	0.070	9.7	LOS A	0.3	2.9	0.29	0.49	53.7
Approach		73	33.3	0.070	5.9	LOS A	0.3	2.9	0.29	0.49	53.4
West: Albion St - western leg											
10	L2	8	37.5	0.058	4.9	LOS A	0.3	2.3	0.27	0.52	51.8
11	T1	29	39.3	0.058	5.1	LOS A	0.3	2.3	0.27	0.52	53.3
12	R2	24	13.0	0.058	9.4	LOS A	0.3	2.3	0.27	0.52	53.6
Approach		62	28.8	0.058	6.7	LOS A	0.3	2.3	0.27	0.52	53.2
All Vehicles		342	24.9	0.094	6.2	LOS A	0.5	3.9	0.25	0.50	53.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 3: Lowes Mount Rd - Albion St - North St (PM) Peak - Operational (2019)**

Site 3: Lowes Mount Rd - Albion St -North St (PM) Peak - Operational (2019)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	28	3.7	0.111	4.3	LOS A	0.6	4.2	0.24	0.53	53.0
2	T1	47	13.3	0.111	4.6	LOS A	0.6	4.2	0.24	0.53	54.1
3	R2	62	8.5	0.111	9.2	LOS A	0.6	4.2	0.24	0.53	54.0
Approach		138	9.2	0.111	6.6	LOS A	0.6	4.2	0.24	0.53	53.8
East: Albion St - eastern leg											
4	L2	66	9.5	0.107	4.5	LOS A	0.5	4.5	0.30	0.51	53.9
5	T1	27	34.6	0.107	5.1	LOS A	0.5	4.5	0.30	0.51	54.7
6	R2	21	70.0	0.107	10.5	LOS A	0.5	4.5	0.30	0.51	52.7
Approach		115	26.6	0.107	5.8	LOS A	0.5	4.5	0.30	0.51	53.9
North: Lowes Mount Rd - northern leg											
7	L2	25	62.5	0.100	5.8	LOS A	0.5	3.9	0.36	0.53	51.6
8	T1	55	0.0	0.100	4.9	LOS A	0.5	3.9	0.36	0.53	54.7
9	R2	22	33.3	0.100	10.1	LOS A	0.5	3.9	0.36	0.53	53.3
Approach		102	22.7	0.100	6.2	LOS A	0.5	3.9	0.36	0.53	53.6
West: Albion St - western leg											
10	L2	15	42.9	0.109	5.2	LOS A	0.5	4.5	0.33	0.54	51.5
11	T1	58	43.6	0.109	5.4	LOS A	0.5	4.5	0.33	0.54	53.0
12	R2	39	2.7	0.109	9.4	LOS A	0.5	4.5	0.33	0.54	53.8
Approach		112	29.2	0.109	6.8	LOS A	0.5	4.5	0.33	0.54	53.1
All Vehicles		466	21.2	0.111	6.4	LOS A	0.6	4.5	0.30	0.53	53.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 4: Horace St - Albion St (AM) Peak - Operational (2019)

Site 4: Horace St - Albion St (AM) Peak - Operational (2019)
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - western leg											
5	T1	94	34.8	0.063	0.0	LOS A	0.1	0.5	0.04	0.05	59.2
6	R2	8	0.0	0.063	5.7	LOS A	0.1	0.5	0.04	0.05	57.0
Approach		102	32.0	0.063	0.5	NA	0.1	0.5	0.04	0.05	59.0
North: Horace St - northern leg											
7	L2	3	0.0	0.011	5.8	LOS A	0.0	0.2	0.21	0.56	53.0
9	R2	9	0.0	0.011	6.1	LOS A	0.0	0.2	0.21	0.56	52.5
Approach		13	0.0	0.011	6.0	LOS A	0.0	0.2	0.21	0.56	52.7
West: Albion St - western leg											
10	L2	12	0.0	0.055	5.5	LOS A	0.0	0.0	0.00	0.08	57.3
11	T1	75	42.3	0.055	0.0	LOS A	0.0	0.0	0.00	0.08	58.9
Approach		86	36.6	0.055	0.7	NA	0.0	0.0	0.00	0.08	58.6
All Vehicles		201	31.9	0.063	0.9	NA	0.1	0.5	0.03	0.10	58.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 4 - Horace St - Albion St.sip6

MOVEMENT SUMMARY

▽ Site: Site 4: Horace St - Albion St (PM) Peak - Operational (2019)

Site 4: Horace St - Albion St (PM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Albion St - western leg											
5	T1	101	29.2	0.069	0.1	LOS A	0.1	0.7	0.06	0.06	59.1
6	R2	12	9.1	0.069	6.0	LOS A	0.1	0.7	0.06	0.06	56.4
Approach		113	27.1	0.069	0.7	NA	0.1	0.7	0.06	0.06	58.8
North: Horace St - northern leg											
7	L2	7	0.0	0.019	5.9	LOS A	0.1	0.5	0.26	0.57	52.9
9	R2	13	16.7	0.019	6.6	LOS A	0.1	0.5	0.26	0.57	51.6
Approach		20	10.5	0.019	6.4	LOS A	0.1	0.5	0.26	0.57	52.1
West: Albion St - western leg											
10	L2	6	16.7	0.079	5.7	LOS A	0.0	0.0	0.00	0.03	57.2
11	T1	123	28.2	0.079	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		129	27.6	0.079	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		262	26.1	0.079	0.9	NA	0.1	0.7	0.05	0.08	58.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 5: Endeavour St - Albion St (AM) Peak - Operational (2019)

Site 5: Endeavour St - Albion St (AM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	89	29.4	0.056	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
6	R2	1	100.0	0.056	6.6	LOS A	0.0	0.1	0.01	0.01	55.0
Approach		91	30.2	0.056	0.2	NA	0.0	0.1	0.01	0.01	59.8
North: Endeavour St - northern leg											
7	L2	2	50.0	0.010	6.4	LOS A	0.0	0.4	0.23	0.56	50.9
9	R2	6	83.3	0.010	7.6	LOS A	0.0	0.4	0.23	0.56	48.9
Approach		8	75.0	0.010	7.3	LOS A	0.0	0.4	0.23	0.56	49.4
West: Albion St - western leg											
10	L2	12	72.7	0.050	6.4	LOS A	0.0	0.0	0.00	0.09	54.5
11	T1	65	33.9	0.050	0.0	LOS A	0.0	0.0	0.00	0.09	59.6
Approach		77	39.7	0.050	1.0	NA	0.0	0.0	0.00	0.09	58.8
All Vehicles		176	36.5	0.056	0.8	NA	0.0	0.4	0.02	0.07	58.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 5 - Endeavour St - Albion St.sip6

MOVEMENT SUMMARY

Site: Site 5: Endeavour St - Albion St (PM) Peak - Operational (2019)

Site 5: Endeavour St - Albion St (PM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	100	24.2	0.060	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
6	R2	1	0.0	0.060	5.9	LOS A	0.0	0.1	0.01	0.01	57.6
Approach		101	24.0	0.060	0.1	NA	0.0	0.1	0.01	0.01	59.9
North: Endeavour St - northern leg											
7	L2	6	50.0	0.023	6.6	LOS A	0.1	0.8	0.27	0.58	50.8
9	R2	15	42.9	0.023	7.1	LOS A	0.1	0.8	0.27	0.58	50.5
Approach		21	45.0	0.023	7.0	LOS A	0.1	0.8	0.27	0.58	50.6
West: Albion St - western leg											
10	L2	17	62.5	0.079	6.3	LOS A	0.0	0.0	0.00	0.07	55.0
11	T1	113	21.5	0.079	0.0	LOS A	0.0	0.0	0.00	0.07	59.6
Approach		129	26.8	0.079	0.8	NA	0.0	0.0	0.00	0.07	59.0
All Vehicles		252	27.2	0.079	1.0	NA	0.1	0.8	0.03	0.09	58.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 5 - Endeavour St - Albion St.sip6

MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (AM) Peak - Operational (2019)

Site 6: North St - Carrington Ave (AM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	13	8.3	0.027	5.8	LOS A	0.1	0.7	0.19	0.54	53.3
2	T1	19	5.6	0.027	5.1	LOS A	0.1	0.7	0.19	0.54	53.7
3	R2	29	0.0	0.035	6.9	LOS A	0.1	0.8	0.35	0.62	52.3
Approach		61	3.4	0.035	6.1	LOS A	0.1	0.8	0.27	0.58	52.9
East: Carrington Ave - eastern leg											
4	L2	35	6.1	0.091	5.8	LOS A	0.4	2.7	0.16	0.30	54.8
5	T1	69	7.6	0.091	0.2	LOS A	0.4	2.7	0.16	0.30	56.5
6	R2	53	8.0	0.091	5.9	LOS A	0.4	2.7	0.16	0.30	54.4
Approach		157	7.4	0.091	3.3	NA	0.4	2.7	0.16	0.30	55.4
North: North St - northern leg											
7	L2	46	4.5	0.031	5.8	LOS A	0.1	0.9	0.17	0.54	52.9
8	T1	26	12.0	0.042	5.3	LOS A	0.1	1.2	0.34	0.58	53.2
9	R2	12	27.3	0.042	7.3	LOS A	0.1	1.2	0.34	0.58	52.0
Approach		84	10.0	0.042	5.9	LOS A	0.1	1.2	0.24	0.56	52.9
West: Carrington Ave - western leg											
10	L2	15	7.1	0.061	5.8	LOS A	0.1	1.0	0.09	0.15	56.4
11	T1	79	2.7	0.061	0.1	LOS A	0.1	1.0	0.09	0.15	58.3
12	R2	15	21.4	0.061	6.1	LOS A	0.1	1.0	0.09	0.15	55.5
Approach		108	5.8	0.061	1.7	NA	0.1	1.0	0.09	0.15	57.7
All Vehicles		411	6.9	0.091	3.8	NA	0.4	2.7	0.17	0.35	55.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (PM) Peak - Operational (2019)

Site 6: North St - Carrington Ave (PM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	8	0.0	0.018	5.7	LOS A	0.1	0.4	0.20	0.53	53.7
2	T1	13	0.0	0.018	5.1	LOS A	0.1	0.4	0.20	0.53	53.8
3	R2	34	0.0	0.045	7.5	LOS A	0.1	1.0	0.41	0.66	51.9
Approach		55	0.0	0.045	6.6	LOS A	0.1	1.0	0.33	0.61	52.6
East: Carrington Ave - eastern leg											
4	L2	45	0.0	0.104	5.7	LOS A	0.4	3.0	0.16	0.31	55.0
5	T1	80	1.3	0.104	0.2	LOS A	0.4	3.0	0.16	0.31	56.4
6	R2	62	0.0	0.104	5.8	LOS A	0.4	3.0	0.16	0.31	54.7
Approach		187	0.6	0.104	3.4	NA	0.4	3.0	0.16	0.31	55.5
North: North St - northern leg											
7	L2	116	0.0	0.076	5.8	LOS A	0.3	2.2	0.18	0.54	53.1
8	T1	44	0.0	0.062	5.2	LOS A	0.2	1.5	0.34	0.58	53.6
9	R2	17	0.0	0.062	6.7	LOS A	0.2	1.5	0.34	0.58	53.2
Approach		177	0.0	0.076	5.7	LOS A	0.3	2.2	0.23	0.56	53.2
West: Carrington Ave - western leg											
10	L2	9	0.0	0.057	5.8	LOS A	0.1	0.6	0.07	0.11	57.1
11	T1	86	0.0	0.057	0.1	LOS A	0.1	0.6	0.07	0.11	58.7
12	R2	12	0.0	0.057	5.9	LOS A	0.1	0.6	0.07	0.11	56.8
Approach		107	0.0	0.057	1.2	NA	0.1	0.6	0.07	0.11	58.3
All Vehicles		526	0.2	0.104	4.1	NA	0.4	3.0	0.18	0.38	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Operational (2019)

Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Operational (2019)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Ross St - southern leg											
1	L2	52	2.0	0.067	5.9	LOS A	0.3	1.8	0.22	0.55	53.2
2	T1	22	0.0	0.067	5.1	LOS A	0.3	1.8	0.22	0.55	53.4
3	R2	11	0.0	0.067	6.6	LOS A	0.3	1.8	0.22	0.55	52.7
Approach		84	1.3	0.067	5.7	LOS A	0.3	1.8	0.22	0.55	53.2
East: Oberon St - eastern leg											
4	L2	24	4.3	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.6
5	T1	103	4.1	0.076	0.0	LOS A	0.1	0.8	0.06	0.15	58.3
6	R2	14	0.0	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.2
Approach		141	3.7	0.076	1.6	NA	0.1	0.8	0.06	0.15	57.8
North: Un-named Rd - northern leg											
7	L2	11	0.0	0.023	5.7	LOS A	0.1	0.6	0.19	0.56	53.3
8	T1	6	0.0	0.023	5.0	LOS A	0.1	0.6	0.19	0.56	53.5
9	R2	8	0.0	0.023	6.8	LOS A	0.1	0.6	0.19	0.56	52.8
Approach		25	0.0	0.023	5.9	LOS A	0.1	0.6	0.19	0.56	53.2
West: Oberon St - western leg											
10	L2	29	3.6	0.072	5.8	LOS A	0.2	1.6	0.13	0.24	55.6
11	T1	72	2.9	0.072	0.2	LOS A	0.2	1.6	0.13	0.24	57.3
12	R2	25	12.5	0.072	6.0	LOS A	0.2	1.6	0.13	0.24	54.6
Approach		126	5.0	0.072	2.6	NA	0.2	1.6	0.13	0.24	56.3
All Vehicles		377	3.4	0.076	3.2	NA	0.3	1.8	0.13	0.30	55.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Operational (2019)

Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Operational (2019)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Ross St - southern leg											
1	L2	59	1.8	0.064	5.9	LOS A	0.2	1.7	0.21	0.56	53.0
2	T1	5	0.0	0.064	5.7	LOS A	0.2	1.7	0.21	0.56	53.2
3	R2	15	0.0	0.064	7.2	LOS A	0.2	1.7	0.21	0.56	52.6
Approach		79	1.3	0.064	6.1	LOS A	0.2	1.7	0.21	0.56	52.9
East: Oberon St - eastern leg											
4	L2	19	0.0	0.073	5.8	LOS A	0.1	0.7	0.07	0.12	57.0
5	T1	106	4.0	0.073	0.1	LOS A	0.1	0.7	0.07	0.12	58.5
6	R2	11	0.0	0.073	6.0	LOS A	0.1	0.7	0.07	0.12	56.4
Approach		136	3.1	0.073	1.3	NA	0.1	0.7	0.07	0.12	58.1
North: Un-named Rd - northern leg											
7	L2	14	0.0	0.054	6.0	LOS A	0.2	1.3	0.33	0.61	52.8
8	T1	12	0.0	0.054	5.6	LOS A	0.2	1.3	0.33	0.61	52.9
9	R2	24	0.0	0.054	7.5	LOS A	0.2	1.3	0.33	0.61	52.3
Approach		49	0.0	0.054	6.6	LOS A	0.2	1.3	0.33	0.61	52.5
West: Oberon St - western leg											
10	L2	48	2.2	0.151	5.9	LOS A	0.6	4.0	0.17	0.24	55.5
11	T1	152	2.8	0.151	0.2	LOS A	0.6	4.0	0.17	0.24	57.0
12	R2	73	0.0	0.151	5.8	LOS A	0.6	4.0	0.17	0.24	55.0
Approach		273	1.9	0.151	2.7	NA	0.6	4.0	0.17	0.24	56.2
All Vehicles		537	2.0	0.151	3.2	NA	0.6	4.0	0.16	0.29	55.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 8: Albion St - Duckmaloi Rd (AM) Peak - Operational (2019)

Site 8: Albion St - Duckmaloi Rd (AM) Peak - Operational (2019)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Duckmaloi Rd - eastern leg											
5	T1	53	8.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	35	54.5	0.032	6.2	LOS A	0.1	1.3	0.10	0.57	50.5
Approach		87	26.5	0.032	2.5	NA	0.1	1.3	0.04	0.23	55.8
North: Albion St - northern leg											
7	L2	23	72.7	0.032	6.5	LOS A	0.1	1.2	0.09	0.55	50.4
9	R2	6	16.7	0.032	6.5	LOS A	0.1	1.2	0.09	0.55	52.4
Approach		29	60.7	0.032	6.5	LOS A	0.1	1.2	0.09	0.55	50.8
West: Duckmaloi Rd - western leg											
10	L2	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
11	T1	23	0.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	0.0	0.012	0.7	NA	0.0	0.0	0.00	0.07	59.2
All Vehicles		143	28.7	0.032	3.0	NA	0.1	1.3	0.04	0.26	55.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 8 - Albion St - Duckmaloi Rd.sip6

MOVEMENT SUMMARY

▽ Site: Site 8: Albion St - Duckmaloi Rd (PM) Peak - Operational (2019)

Site 8: Albion St - Duckmaloi Rd (PM) Peak - Operational (2019)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Duckmaloi Rd - eastern leg											
5	T1	41	10.3	0.022	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	31	65.5	0.030	6.6	LOS A	0.1	1.3	0.16	0.56	49.9
Approach		72	33.8	0.030	2.8	NA	0.1	1.3	0.07	0.24	55.2
North: Albion St - northern leg											
7	L2	24	43.5	0.033	6.3	LOS A	0.1	1.1	0.14	0.55	51.4
9	R2	9	0.0	0.033	6.3	LOS A	0.1	1.1	0.14	0.55	53.0
Approach		34	31.3	0.033	6.3	LOS A	0.1	1.1	0.14	0.55	51.8
West: Duckmaloi Rd - western leg											
10	L2	9	11.1	0.006	5.7	LOS A	0.0	0.0	0.00	0.57	53.2
11	T1	44	2.4	0.023	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		54	3.9	0.023	1.0	NA	0.0	0.0	0.00	0.10	58.7
All Vehicles		159	23.2	0.033	2.9	NA	0.1	1.3	0.06	0.26	55.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 8 - Albion St - Duckmaloi Rd.sip6

MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2029)

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2029)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	36.4	0.040	0.0	LOS A	0.2	1.3	0.01	0.09	59.1
3	R2	51	12.5	0.040	5.7	LOS A	0.2	1.3	0.09	0.53	52.6
Approach		74	20.0	0.040	3.9	NA	0.2	1.3	0.06	0.39	54.5
East: Rupert St - eastern leg											
4	L2	26	8.0	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
6	R2	1	0.0	0.022	6.1	LOS A	0.1	0.6	0.07	0.55	53.2
Approach		27	7.7	0.022	5.7	LOS A	0.1	0.6	0.07	0.55	53.1
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	18	35.3	0.011	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		19	33.3	0.011	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		120	19.3	0.040	3.7	NA	0.2	1.3	0.06	0.37	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 1: Abercrombie Rd - Rupert St (PM) Peak - Operational (2029)

Site 1: Abercrombie Rd - Rupert St (AM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Abercrombie Rd - southern leg											
2	T1	23	54.5	0.036	0.0	LOS A	0.1	1.2	0.03	0.16	58.3
3	R2	43	7.3	0.036	5.6	LOS A	0.1	1.2	0.09	0.49	52.9
Approach		66	23.8	0.036	3.7	NA	0.1	1.2	0.07	0.37	54.7
East: Rupert St - eastern leg											
4	L2	56	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.4
6	R2	2	0.0	0.045	6.1	LOS A	0.2	1.1	0.08	0.55	53.1
Approach		58	0.0	0.045	5.6	LOS A	0.2	1.1	0.08	0.55	53.3
North: Abercrombie Rd - northern leg											
7	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
8	T1	25	4.2	0.013	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	4.0	0.013	0.2	NA	0.0	0.0	0.00	0.02	59.7
All Vehicles		151	11.2	0.045	3.8	NA	0.2	1.2	0.06	0.38	55.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Operational (2029)**

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (AM) Peak - Operational (2029)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: O'Connell Rd - southern leg											
1	L2	1	0.0	0.050	4.2	LOS A	0.2	1.7	0.21	0.43	54.3
2	T1	57	3.7	0.050	4.4	LOS A	0.2	1.7	0.21	0.43	55.5
3	R2	5	0.0	0.050	9.0	LOS A	0.2	1.7	0.21	0.43	55.6
Approach		63	3.3	0.050	4.8	LOS A	0.2	1.7	0.21	0.43	55.5
East: Albion St - eastern leg											
4	L2	4	0.0	0.055	4.1	LOS A	0.3	2.4	0.20	0.55	52.3
5	T1	14	61.5	0.055	5.0	LOS A	0.3	2.4	0.20	0.55	52.2
6	R2	42	35.0	0.055	9.5	LOS A	0.3	2.4	0.20	0.55	52.2
Approach		60	38.6	0.055	8.1	LOS A	0.3	2.4	0.20	0.55	52.2
North: O'Connell Rd - northern leg											
7	L2	54	29.4	0.082	4.2	LOS A	0.4	3.3	0.10	0.44	54.0
8	T1	53	8.0	0.082	4.2	LOS A	0.4	3.3	0.10	0.44	56.1
9	R2	6	0.0	0.082	8.8	LOS A	0.4	3.3	0.10	0.44	56.3
Approach		113	17.8	0.082	4.5	LOS A	0.4	3.3	0.10	0.44	55.1
West: Abercrombie Rd - western leg											
10	L2	5	0.0	0.015	4.3	LOS A	0.1	0.6	0.27	0.45	54.2
11	T1	9	55.6	0.015	5.3	LOS A	0.1	0.6	0.27	0.45	54.2
12	R2	1	0.0	0.015	9.2	LOS A	0.1	0.6	0.27	0.45	55.5
Approach		16	33.3	0.015	5.2	LOS A	0.1	0.6	0.27	0.45	54.3
All Vehicles		252	20.1	0.082	5.5	LOS A	0.4	3.3	0.16	0.46	54.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Operational (2029)**

Site 2: O'Connell Rd - Abercrombie Rd - Albion St (PM) Peak - Operational (2029)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: O'Connell Rd - southern leg											
1	L2	2	0.0	0.044	4.0	LOS A	0.2	1.6	0.14	0.40	54.8
2	T1	54	13.7	0.044	4.4	LOS A	0.2	1.6	0.14	0.40	55.8
3	R2	1	0.0	0.044	8.9	LOS A	0.2	1.6	0.14	0.40	56.1
Approach		57	13.0	0.044	4.4	LOS A	0.2	1.6	0.14	0.40	55.8
East: Albion St - eastern leg											
4	L2	2	50.0	0.024	4.9	LOS A	0.1	0.9	0.22	0.56	50.9
5	T1	5	20.0	0.024	4.6	LOS A	0.1	0.9	0.22	0.56	53.1
6	R2	19	27.8	0.024	9.4	LOS A	0.1	0.9	0.22	0.56	52.4
Approach		26	28.0	0.024	8.1	LOS A	0.1	0.9	0.22	0.56	52.4
North: O'Connell Rd - northern leg											
7	L2	33	38.7	0.082	4.4	LOS A	0.4	3.3	0.14	0.44	53.5
8	T1	65	9.7	0.082	4.3	LOS A	0.4	3.3	0.14	0.44	55.8
9	R2	8	12.5	0.082	9.0	LOS A	0.4	3.3	0.14	0.44	55.4
Approach		106	18.8	0.082	4.7	LOS A	0.4	3.3	0.14	0.44	55.0
West: Abercrombie Rd - western leg											
10	L2	7	14.3	0.032	4.4	LOS A	0.1	1.3	0.23	0.45	53.6
11	T1	23	50.0	0.032	5.0	LOS A	0.1	1.3	0.23	0.45	54.1
12	R2	4	0.0	0.032	9.0	LOS A	0.1	1.3	0.23	0.45	55.3
Approach		35	36.4	0.032	5.4	LOS A	0.1	1.3	0.23	0.45	54.1
All Vehicles		224	21.1	0.082	5.2	LOS A	0.4	3.3	0.16	0.44	54.7

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Operational (2029)**

Site 3: Lowes Mount Rd - Albion St - North St (AM) Peak - Operational (2029)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: North St - southern leg											
1	L2	23	4.5	0.084	4.3	LOS A	0.4	3.1	0.25	0.54	53.0
2	T1	27	0.0	0.084	4.5	LOS A	0.4	3.1	0.25	0.54	54.5
3	R2	48	26.1	0.084	9.5	LOS A	0.4	3.1	0.25	0.54	53.4
Approach		99	13.8	0.084	6.9	LOS A	0.4	3.1	0.25	0.54	53.6
East: Albion St - eastern leg											
4	L2	47	6.7	0.098	4.3	LOS A	0.5	4.2	0.23	0.48	54.2
5	T1	41	30.8	0.098	4.8	LOS A	0.5	4.2	0.23	0.48	55.0
6	R2	23	72.7	0.098	10.1	LOS A	0.5	4.2	0.23	0.48	52.7
Approach		112	29.2	0.098	5.7	LOS A	0.5	4.2	0.23	0.48	54.2
North: Lowes Mount Rd - northern leg											
7	L2	31	72.4	0.075	5.5	LOS A	0.3	3.2	0.29	0.50	51.6
8	T1	32	3.3	0.075	4.6	LOS A	0.3	3.2	0.29	0.50	54.9
9	R2	15	35.7	0.075	9.8	LOS A	0.3	3.2	0.29	0.50	53.5
Approach		77	37.0	0.075	6.0	LOS A	0.3	3.2	0.29	0.50	53.3
West: Albion St - western leg											
10	L2	9	44.4	0.060	5.0	LOS A	0.3	2.4	0.28	0.52	51.6
11	T1	29	39.3	0.060	5.1	LOS A	0.3	2.4	0.28	0.52	53.2
12	R2	24	13.0	0.060	9.4	LOS A	0.3	2.4	0.28	0.52	53.6
Approach		63	30.0	0.060	6.7	LOS A	0.3	2.4	0.28	0.52	53.1
All Vehicles		351	26.7	0.098	6.3	LOS A	0.5	4.2	0.26	0.51	53.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

 **Site: Site 3: Lowes Mount Rd - Albion St - North St (PM) Peak - Operational (2029)**

Site 3: Lowes Mount Rd - Albion St -North St (PM) Peak - Operational (2029)
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	28	3.7	0.112	4.3	LOS A	0.6	4.2	0.25	0.54	53.0
2	T1	47	13.3	0.112	4.7	LOS A	0.6	4.2	0.25	0.54	54.0
3	R2	62	8.5	0.112	9.3	LOS A	0.6	4.2	0.25	0.54	54.0
Approach		138	9.2	0.112	6.7	LOS A	0.6	4.2	0.25	0.54	53.8
East: Albion St - eastern leg											
4	L2	66	9.5	0.112	4.6	LOS A	0.5	4.7	0.31	0.51	53.9
5	T1	27	34.6	0.112	5.1	LOS A	0.5	4.7	0.31	0.51	54.7
6	R2	24	73.9	0.112	10.6	LOS A	0.5	4.7	0.31	0.51	52.5
Approach		118	28.6	0.112	5.9	LOS A	0.5	4.7	0.31	0.51	53.8
North: Lowes Mount Rd - northern leg											
7	L2	28	66.7	0.106	5.9	LOS A	0.5	4.2	0.36	0.53	51.5
8	T1	55	0.0	0.106	4.9	LOS A	0.5	4.2	0.36	0.53	54.7
9	R2	23	36.4	0.106	10.2	LOS A	0.5	4.2	0.36	0.53	53.2
Approach		106	25.7	0.106	6.3	LOS A	0.5	4.2	0.36	0.53	53.5
West: Albion St - western leg											
10	L2	16	46.7	0.111	5.3	LOS A	0.5	4.6	0.34	0.55	51.4
11	T1	58	43.6	0.111	5.4	LOS A	0.5	4.6	0.34	0.55	53.0
12	R2	39	2.7	0.111	9.4	LOS A	0.5	4.6	0.34	0.55	53.8
Approach		113	29.9	0.111	6.8	LOS A	0.5	4.6	0.34	0.55	53.0
All Vehicles		475	22.6	0.112	6.4	LOS A	0.6	4.7	0.31	0.53	53.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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MOVEMENT SUMMARY

▽ Site: Site 4: Horace St - Albion St (AM) Peak - Operational (2029)

Site 4: Horace St - Albion St (AM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Albion St - western leg											
5	T1	97	37.0	0.066	0.0	LOS A	0.1	0.5	0.04	0.05	59.2
6	R2	8	0.0	0.066	5.7	LOS A	0.1	0.5	0.04	0.05	57.0
Approach		105	34.0	0.066	0.5	NA	0.1	0.5	0.04	0.05	59.0
North: Horace St - northern leg											
7	L2	3	0.0	0.011	5.8	LOS A	0.0	0.3	0.22	0.57	53.0
9	R2	9	0.0	0.011	6.1	LOS A	0.0	0.3	0.22	0.57	52.5
Approach		13	0.0	0.011	6.0	LOS A	0.0	0.3	0.22	0.57	52.6
West: Albion St - western leg											
10	L2	12	0.0	0.058	5.5	LOS A	0.0	0.0	0.00	0.08	57.3
11	T1	78	44.6	0.058	0.0	LOS A	0.0	0.0	0.00	0.08	58.9
Approach		89	38.8	0.058	0.7	NA	0.0	0.0	0.00	0.08	58.6
All Vehicles		207	34.0	0.066	0.9	NA	0.1	0.5	0.03	0.09	58.4

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 4: Horace St - Albion St (PM) Peak - Operational (2029)

Site 4: Horace St - Albion St (PM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Albion St - western leg											
5	T1	104	31.3	0.072	0.1	LOS A	0.1	0.7	0.06	0.06	59.1
6	R2	12	9.1	0.072	6.0	LOS A	0.1	0.7	0.06	0.06	56.4
Approach		116	29.1	0.072	0.7	NA	0.1	0.7	0.06	0.06	58.8
North: Horace St - northern leg											
7	L2	7	0.0	0.019	5.9	LOS A	0.1	0.5	0.26	0.57	52.9
9	R2	13	16.7	0.019	6.7	LOS A	0.1	0.5	0.26	0.57	51.6
Approach		20	10.5	0.019	6.4	LOS A	0.1	0.5	0.26	0.57	52.1
West: Albion St - western leg											
10	L2	6	16.7	0.081	5.7	LOS A	0.0	0.0	0.00	0.03	57.2
11	T1	126	30.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.03	59.7
Approach		133	29.4	0.081	0.3	NA	0.0	0.0	0.00	0.03	59.6
All Vehicles		268	27.8	0.081	0.9	NA	0.1	0.7	0.05	0.08	58.6

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 5: Endeavour St - Albion St (AM) Peak - Operational (2029)

Site 5: Endeavour St - Albion St (AM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	93	31.8	0.059	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
6	R2	1	100.0	0.059	6.7	LOS A	0.0	0.1	0.01	0.01	55.0
Approach		94	32.6	0.059	0.2	NA	0.0	0.1	0.01	0.01	59.8
North: Endeavour St - northern leg											
7	L2	2	50.0	0.010	6.4	LOS A	0.0	0.4	0.24	0.56	50.9
9	R2	6	83.3	0.010	7.6	LOS A	0.0	0.4	0.24	0.56	48.9
Approach		8	75.0	0.010	7.3	LOS A	0.0	0.4	0.24	0.56	49.4
West: Albion St - western leg											
10	L2	12	72.7	0.053	6.4	LOS A	0.0	0.0	0.00	0.08	54.5
11	T1	68	36.9	0.053	0.0	LOS A	0.0	0.0	0.00	0.08	59.6
Approach		80	42.1	0.053	0.9	NA	0.0	0.0	0.00	0.08	58.8
All Vehicles		182	38.7	0.059	0.8	NA	0.0	0.4	0.01	0.07	58.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 5 - Endeavour St - Albion St.sip6

MOVEMENT SUMMARY

▽ Site: Site 5: Endeavour St - Albion St (PM) Peak - Operational (2029)

Site 5: Endeavour St - Albion St (PM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Albion St - eastern leg											
5	T1	103	26.5	0.063	0.0	LOS A	0.0	0.1	0.01	0.01	59.9
6	R2	1	0.0	0.063	5.9	LOS A	0.0	0.1	0.01	0.01	57.6
Approach		104	26.3	0.063	0.1	NA	0.0	0.1	0.01	0.01	59.9
North: Endeavour St - northern leg											
7	L2	6	50.0	0.023	6.6	LOS A	0.1	0.8	0.28	0.59	50.8
9	R2	15	42.9	0.023	7.2	LOS A	0.1	0.8	0.28	0.59	50.5
Approach		21	45.0	0.023	7.0	LOS A	0.1	0.8	0.28	0.59	50.6
West: Albion St - western leg											
10	L2	17	62.5	0.082	6.3	LOS A	0.0	0.0	0.00	0.07	55.0
11	T1	116	23.6	0.082	0.0	LOS A	0.0	0.0	0.00	0.07	59.6
Approach		133	28.6	0.082	0.8	NA	0.0	0.0	0.00	0.07	59.0
All Vehicles		258	29.0	0.082	1.0	NA	0.1	0.8	0.03	0.09	58.5

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (AM) Peak - Operational (2029)

Site 6: North St - Carrington Ave (AM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	13	8.3	0.027	5.8	LOS A	0.1	0.7	0.19	0.54	53.3
2	T1	19	5.6	0.027	5.1	LOS A	0.1	0.7	0.19	0.54	53.7
3	R2	29	0.0	0.035	6.9	LOS A	0.1	0.8	0.35	0.62	52.3
Approach		61	3.4	0.035	6.1	LOS A	0.1	0.8	0.27	0.58	52.9
East: Carrington Ave - eastern leg											
4	L2	35	6.1	0.091	5.8	LOS A	0.4	2.7	0.16	0.30	54.8
5	T1	69	7.6	0.091	0.2	LOS A	0.4	2.7	0.16	0.30	56.5
6	R2	53	8.0	0.091	5.9	LOS A	0.4	2.7	0.16	0.30	54.4
Approach		157	7.4	0.091	3.3	NA	0.4	2.7	0.16	0.30	55.4
North: North St - northern leg											
7	L2	46	4.5	0.031	5.8	LOS A	0.1	0.9	0.17	0.54	52.9
8	T1	26	12.0	0.042	5.3	LOS A	0.1	1.2	0.34	0.58	53.2
9	R2	12	27.3	0.042	7.3	LOS A	0.1	1.2	0.34	0.58	52.0
Approach		84	10.0	0.042	5.9	LOS A	0.1	1.2	0.24	0.56	52.9
West: Carrington Ave - western leg											
10	L2	15	7.1	0.061	5.8	LOS A	0.1	1.0	0.09	0.15	56.4
11	T1	79	2.7	0.061	0.1	LOS A	0.1	1.0	0.09	0.15	58.3
12	R2	15	21.4	0.061	6.1	LOS A	0.1	1.0	0.09	0.15	55.5
Approach		108	5.8	0.061	1.7	NA	0.1	1.0	0.09	0.15	57.7
All Vehicles		411	6.9	0.091	3.8	NA	0.4	2.7	0.17	0.35	55.1

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 6: North St - Carrington Ave (PM) Peak - Operational (2029)

Site 6: North St - Carrington Ave (PM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: North St - southern leg											
1	L2	8	0.0	0.018	5.7	LOS A	0.1	0.4	0.20	0.53	53.7
2	T1	13	0.0	0.018	5.1	LOS A	0.1	0.4	0.20	0.53	53.8
3	R2	34	0.0	0.045	7.5	LOS A	0.1	1.0	0.41	0.66	51.9
Approach		55	0.0	0.045	6.6	LOS A	0.1	1.0	0.33	0.61	52.6
East: Carrington Ave - eastern leg											
4	L2	45	0.0	0.104	5.7	LOS A	0.4	3.0	0.16	0.31	55.0
5	T1	80	1.3	0.104	0.2	LOS A	0.4	3.0	0.16	0.31	56.4
6	R2	62	0.0	0.104	5.8	LOS A	0.4	3.0	0.16	0.31	54.7
Approach		187	0.6	0.104	3.4	NA	0.4	3.0	0.16	0.31	55.5
North: North St - northern leg											
7	L2	116	0.0	0.076	5.8	LOS A	0.3	2.2	0.18	0.54	53.1
8	T1	44	0.0	0.062	5.2	LOS A	0.2	1.5	0.34	0.58	53.6
9	R2	17	0.0	0.062	6.7	LOS A	0.2	1.5	0.34	0.58	53.2
Approach		177	0.0	0.076	5.7	LOS A	0.3	2.2	0.23	0.56	53.2
West: Carrington Ave - western leg											
10	L2	9	0.0	0.057	5.8	LOS A	0.1	0.6	0.07	0.11	57.1
11	T1	86	0.0	0.057	0.1	LOS A	0.1	0.6	0.07	0.11	58.7
12	R2	12	0.0	0.057	5.9	LOS A	0.1	0.6	0.07	0.11	56.8
Approach		107	0.0	0.057	1.2	NA	0.1	0.6	0.07	0.11	58.3
All Vehicles		526	0.2	0.104	4.1	NA	0.4	3.0	0.18	0.38	54.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Operational (2029)

Site 7: Oberon St - Un-named Rd - Ross St (AM) Peak - Operational (2029)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
South: Ross St - southern leg											
1	L2	52	2.0	0.067	5.9	LOS A	0.3	1.8	0.22	0.55	53.2
2	T1	22	0.0	0.067	5.1	LOS A	0.3	1.8	0.22	0.55	53.4
3	R2	11	0.0	0.067	6.6	LOS A	0.3	1.8	0.22	0.55	52.7
Approach		84	1.3	0.067	5.7	LOS A	0.3	1.8	0.22	0.55	53.2
East: Oberon St - eastern leg											
4	L2	24	4.3	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.6
5	T1	103	4.1	0.076	0.0	LOS A	0.1	0.8	0.06	0.15	58.3
6	R2	14	0.0	0.076	5.7	LOS A	0.1	0.8	0.06	0.15	56.2
Approach		141	3.7	0.076	1.6	NA	0.1	0.8	0.06	0.15	57.8
North: Un-named Rd - northern leg											
7	L2	11	0.0	0.023	5.7	LOS A	0.1	0.6	0.19	0.56	53.3
8	T1	6	0.0	0.023	5.0	LOS A	0.1	0.6	0.19	0.56	53.5
9	R2	8	0.0	0.023	6.8	LOS A	0.1	0.6	0.19	0.56	52.8
Approach		25	0.0	0.023	5.9	LOS A	0.1	0.6	0.19	0.56	53.2
West: Oberon St - western leg											
10	L2	29	3.6	0.072	5.8	LOS A	0.2	1.6	0.13	0.24	55.6
11	T1	72	2.9	0.072	0.2	LOS A	0.2	1.6	0.13	0.24	57.3
12	R2	25	12.5	0.072	6.0	LOS A	0.2	1.6	0.13	0.24	54.6
Approach		126	5.0	0.072	2.6	NA	0.2	1.6	0.13	0.24	56.3
All Vehicles		377	3.4	0.076	3.2	NA	0.3	1.8	0.13	0.30	55.9

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Operational (2029)

Site 7: Oberon St - Un-named Rd - Ross St (PM) Peak - Operational (2029)
 Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
South: Ross St - southern leg											
1	L2	59	1.8	0.064	5.9	LOS A	0.2	1.7	0.21	0.56	53.0
2	T1	5	0.0	0.064	5.7	LOS A	0.2	1.7	0.21	0.56	53.2
3	R2	15	0.0	0.064	7.2	LOS A	0.2	1.7	0.21	0.56	52.6
Approach		79	1.3	0.064	6.1	LOS A	0.2	1.7	0.21	0.56	52.9
East: Oberon St - eastern leg											
4	L2	19	0.0	0.073	5.8	LOS A	0.1	0.7	0.07	0.12	57.0
5	T1	106	4.0	0.073	0.1	LOS A	0.1	0.7	0.07	0.12	58.5
6	R2	11	0.0	0.073	6.0	LOS A	0.1	0.7	0.07	0.12	56.4
Approach		136	3.1	0.073	1.3	NA	0.1	0.7	0.07	0.12	58.1
North: Un-named Rd - northern leg											
7	L2	14	0.0	0.054	6.0	LOS A	0.2	1.3	0.33	0.61	52.8
8	T1	12	0.0	0.054	5.6	LOS A	0.2	1.3	0.33	0.61	52.9
9	R2	24	0.0	0.054	7.5	LOS A	0.2	1.3	0.33	0.61	52.3
Approach		49	0.0	0.054	6.6	LOS A	0.2	1.3	0.33	0.61	52.5
West: Oberon St - western leg											
10	L2	48	2.2	0.151	5.9	LOS A	0.6	4.0	0.17	0.24	55.5
11	T1	152	2.8	0.151	0.2	LOS A	0.6	4.0	0.17	0.24	57.0
12	R2	73	0.0	0.151	5.8	LOS A	0.6	4.0	0.17	0.24	55.0
Approach		273	1.9	0.151	2.7	NA	0.6	4.0	0.17	0.24	56.2
All Vehicles		537	2.0	0.151	3.2	NA	0.6	4.0	0.16	0.29	55.8

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

MOVEMENT SUMMARY

▽ Site: Site 8: Albion St - Duckmaloi Rd (AM) Peak - Operational (2029)

Site 8: Albion St - Duckmaloi Rd (AM) Peak - Operational (2029)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		Total veh/h	HV %	v/c	sec		Vehicles veh	Distance m	per veh	km/h	
East: Duckmaloi Rd - eastern leg											
5	T1	53	8.0	0.028	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	38	58.3	0.035	6.3	LOS A	0.1	1.5	0.11	0.57	50.3
Approach		91	29.1	0.035	2.6	NA	0.1	1.5	0.04	0.24	55.5
North: Albion St - northern leg											
7	L2	26	76.0	0.035	6.6	LOS A	0.1	1.4	0.09	0.55	50.3
9	R2	6	16.7	0.035	6.6	LOS A	0.1	1.4	0.09	0.55	52.4
Approach		33	64.5	0.035	6.6	LOS A	0.1	1.4	0.09	0.55	50.7
West: Duckmaloi Rd - western leg											
10	L2	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	53.6
11	T1	23	0.0	0.012	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		26	0.0	0.012	0.7	NA	0.0	0.0	0.00	0.07	59.2
All Vehicles		149	31.7	0.035	3.1	NA	0.1	1.5	0.05	0.28	55.0

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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Project: I:\projects\30011699 - Borg Panel Oberon TIA\SIDRA\Models\20160416\Site 8 - Albion St - Duckmaloi Rd.sip6

MOVEMENT SUMMARY

▽ Site: Site 8: Albion St - Duckmaloi Rd (PM) Peak - Operational (2029)

Site 8: Albion St - Duckmaloi Rd (PM) Peak - Operational (2029)
 Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows		Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total veh/h	HV %								
East: Duckmaloi Rd - eastern leg											
5	T1	41	10.3	0.022	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
6	R2	34	68.8	0.034	6.6	LOS A	0.1	1.5	0.17	0.56	49.8
Approach		75	36.6	0.034	3.0	NA	0.1	1.5	0.07	0.25	54.9
North: Albion St - northern leg											
7	L2	27	50.0	0.077	6.4	LOS A	0.3	3.2	0.19	0.55	50.9
9	R2	33	71.0	0.077	7.9	LOS A	0.3	3.2	0.19	0.55	49.8
Approach		60	61.4	0.077	7.2	LOS A	0.3	3.2	0.19	0.55	50.3
West: Duckmaloi Rd - western leg											
10	L2	9	11.1	0.006	5.7	LOS A	0.0	0.0	0.00	0.57	53.2
11	T1	44	2.4	0.023	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		54	3.9	0.023	1.0	NA	0.0	0.0	0.00	0.10	58.7
All Vehicles		188	35.2	0.077	3.8	NA	0.3	3.2	0.09	0.31	54.3

Level of Service (LOS) Method: Delay (RTA NSW).

Vehicle movement LOS values are based on average delay per movement

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

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

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: Traditional M1.

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

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