

TRAFFIC ASSESSMENT
OF
SECTION 96 APPLICATION FOR
TEMPORARY OPERATIONS OF
VEOLIA WASTE TRANSFER TERMINAL
AT
INTERSECTION OF BEAUCHAMP ROAD /
PERRY STREET / VEOLIA ACCESS ROAD
BANKSMEADOW

Ref. 15131-2R

6 June 2016

Prepared By

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1.0 INTRODUCTION

Veolia Environmental Services (Australia) Pty Ltd (Veolia) received approval for the construction and operation of a Waste Transfer Terminal at 14 Beauchamp Road and 34-36 McPherson Street, Banksmeadow on 28 April 2015.

Consent Conditions 23 to 26 relate to improvement works at the traffic signal controlled intersection of Beauchamp Road, Perry Street and Veolia Access Road.

Veolia is progressing these improvement works, but due to delays in the design and construction of these works is seeking approval to begin operations for a period of 6 months using the existing geometry and traffic signal operation at the Beauchamp Road / Perry Street / Veolia Access Road intersection.

Veolia has contractual obligations with a number of companies to accept waste at the Transfer Terminal and therefore needs to commence operations in July 2016.

Transport and Urban Planning Pty Ltd has been engaged by Veolia to assess the impacts of Veolia operations on the existing intersection. **Figure 1** shows the location of the intersection.

This report documents the findings of the assessment. In this regard the following sections of this report address the following matters;

- Section 2 provides details of the proposed Veolia operations for the 6 month period;
- Section 3 assesses the existing conditions at the Beauchamp Road / Perry Street / Veolia Access Road intersection, as well as the impacts of the temporary Veolia operations; and
- Section 4 provides conclusions.



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N



NOT TO SCALE

FIGURE 1

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET,
BANKSMEADOW

SITE LOCATION

JOB NO. 15131-2R

2.0 VEOLIA PROPOSAL

Veolia's proposal is to use the existing signalised intersection (ie. geometry and phasing) for a 6 month period, to meet its contractual obligations.

Veolia has already agreed to a No Right Turn Restriction to be implemented between 6am to 8pm for the right turn from Beauchamp Road (northern approach) into the Veolia Access Road and this will be implemented prior to the commencement of operations.

Veolia has provided details of the expected truck numbers per day between July 2016 and the end of December 2016 which are shown in Table 2.1.

Reference to Table 2.1 shows that the maximum number of trucks per day is estimated at 115 truck loads. Assuming two way trips the maximum daily traffic generation is expected to be 115 trucks in / 115 trucks out (per day).

The maximum size truck will be a 10.0 metre long waste collection vehicle.

TABLE 2.1

**DAILY NUMBER OF WASTE COLLECTION TRUCKS PROJECTED TO ARRIVE AT
BANKSMEADOW WASTE TRANSFER TERMINAL
BETWEEN JULY AND DECEMBER 2016**

Time Period	Trucks per Day (one way)
11 Jul to 7 Aug	42
8 Aug to 21 Aug	47
22 Aug to 28 Aug	57
29 Aug to 27 Nov	102
28 Nov to 25 Dec	115

Source: Veolia

The facility will operate 24 hours per day and Veolia have provided the hourly split of waste expected to arrive at the facility over the 24 hour period. This split has been derived from Veolia's existing waste facility at Clyde.

Table 2.2 shows the expected hourly split.

Reference to Table 2.2 shows that the maximum amount arrives between 9am – 10am at 9.8%.

For those periods that coincide with weekday AM and PM peak periods between 7am – 9am and 4pm – 6pm the highest hourly volumes are:

- 5.0% in the AM peak hour; and
- 0.8% in the PM peak hour.

Converting these proportions into truck numbers and using the highest daily truck volume of 115 truck loads the estimated truck volumes during the 6 month temporary operation are:

- 5.7 trucks (say 6 trucks) in the AM peak hour;

- 0.69 trucks (say 1 truck) in the PM peak hour; and
- 11.3 trucks (say 12 trucks) in the 9am – 10am period.

TABLE 2.2**HOURLY SPLIT FOR WASTE ARRIVING AT WASTE TRANSFER TERMINAL**

Hour Commencing	Proportion of Waste
12:00 AM	2.5%
1:00 AM	4.0%
2:00 AM	5.5%
3:00 AM	6.3%
4:00 AM	7.1%
5:00 AM	6.5%
6:00 AM	5.3%
7:00 AM	4.4%
8:00 AM	5.0%
9:00 AM	9.8%
10:00 AM	8.8%
11:00 AM	5.4%
12:00 PM	6.2%
1:00 PM	7.2%
2:00 PM	4.3%
3:00 PM	2.0%
4:00 PM	0.8%
5:00 PM	0.3%
6:00 PM	0.6%
7:00 PM	0.5%
8:00 PM	1.0%
9:00 PM	1.5%
10:00 PM	2.3%
11:00 PM	2.5%

Source: Veolia

3.0 ASSESSMENT OF TRAFFIC IMPACTS ON VEOLIA'S INTERIM OPERATION

3.1 Existing and Proposed Traffic Management

Figure 2 shows the existing traffic management at the intersection and **Figure 3A** shows the existing traffic signal geometry and phasing. **Figure 3B** shows the proposed NRT ban between 6am and 8pm from Beauchamp Road (northern approach) into Veolia Access Road.

3.2 Existing Peak Hour Traffic Volumes

Traffic and pedestrian counts were undertaken at the Beauchamp Road / Perry Street / Veolia Access Road intersection on Tuesday 24 May 2016 during the 7am – 9am and 4pm – 6pm periods.

These counts recorded total traffic volumes undertaking each movement at the intersection including the number of heavy vehicles (ie. Austroad Class 3-12) as well as pedestrian volumes crossing at the intersection.

Figure 4 shows the AM and PM peak hour traffic and pedestrian volumes at the intersection during the 7.45am – 8.45am hour (AM peak hour) and 4.15pm – 5.15pm hour (PM peak hour), as recorded in the counts.

Reference to **Figure 4** indicates that very small numbers of pedestrians cross at the intersection in the AM and PM peak hours.

3.3 Assessment of the Impacts of Veolia Waste Trucks on the Intersection

3.3.1 Assumed Traffic Generation of Veolia

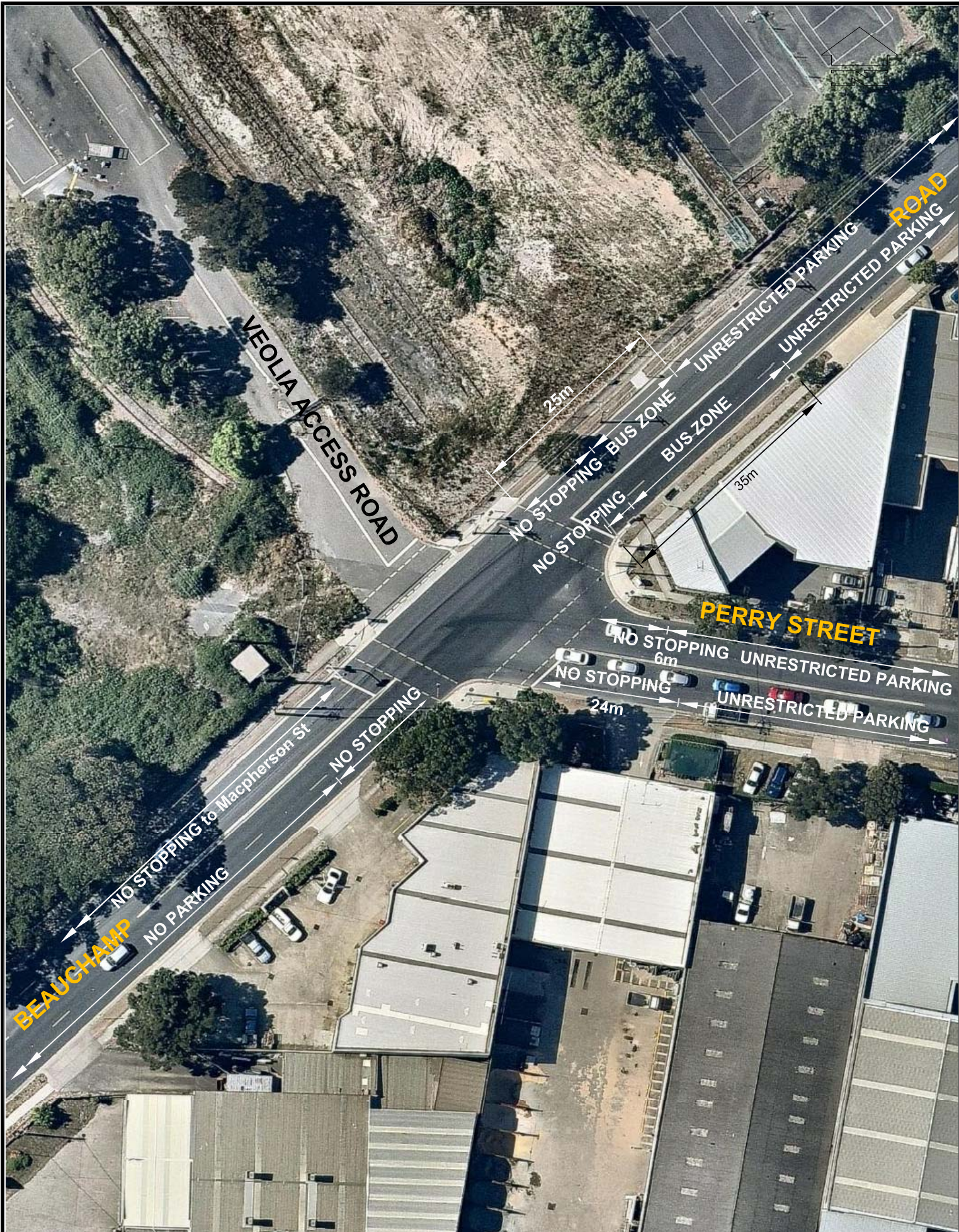
Section 2 notes that the truck volumes entering and exiting the waste transfer station are estimated to be:

- 6 inbound trucks / 6 outbound trucks in the AM peak hour;
- 1 inbound truck / 1 outbound truck in the PM peak hour; and
- Up to 12 inbound / 12 outbound trucks in the maximum hour which is estimated to occur between 9am – 10am.

To ensure that a worst case scenario is examined and allow for some flexibility in terms of operations for Veolia, it is assumed that up to **18 inbound** and **18 outbound** trucks will arrive and depart the waste transfer station in the AM and PM peak hours.

In addition 2 additional inbound light vehicle trips have been included in AM peak hour and 2 additional outbound light vehicle trips in the PM peak hour to account for trips by managers.

These truck numbers are significantly higher than the forecasted truck numbers expected to enter and depart the waste terminal in the AM and PM peak hours.



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FIGURE 2

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMADOW

EXISTING TRAFFIC MANAGEMENT AT INTERSECTION

JOB NO.15131-2R

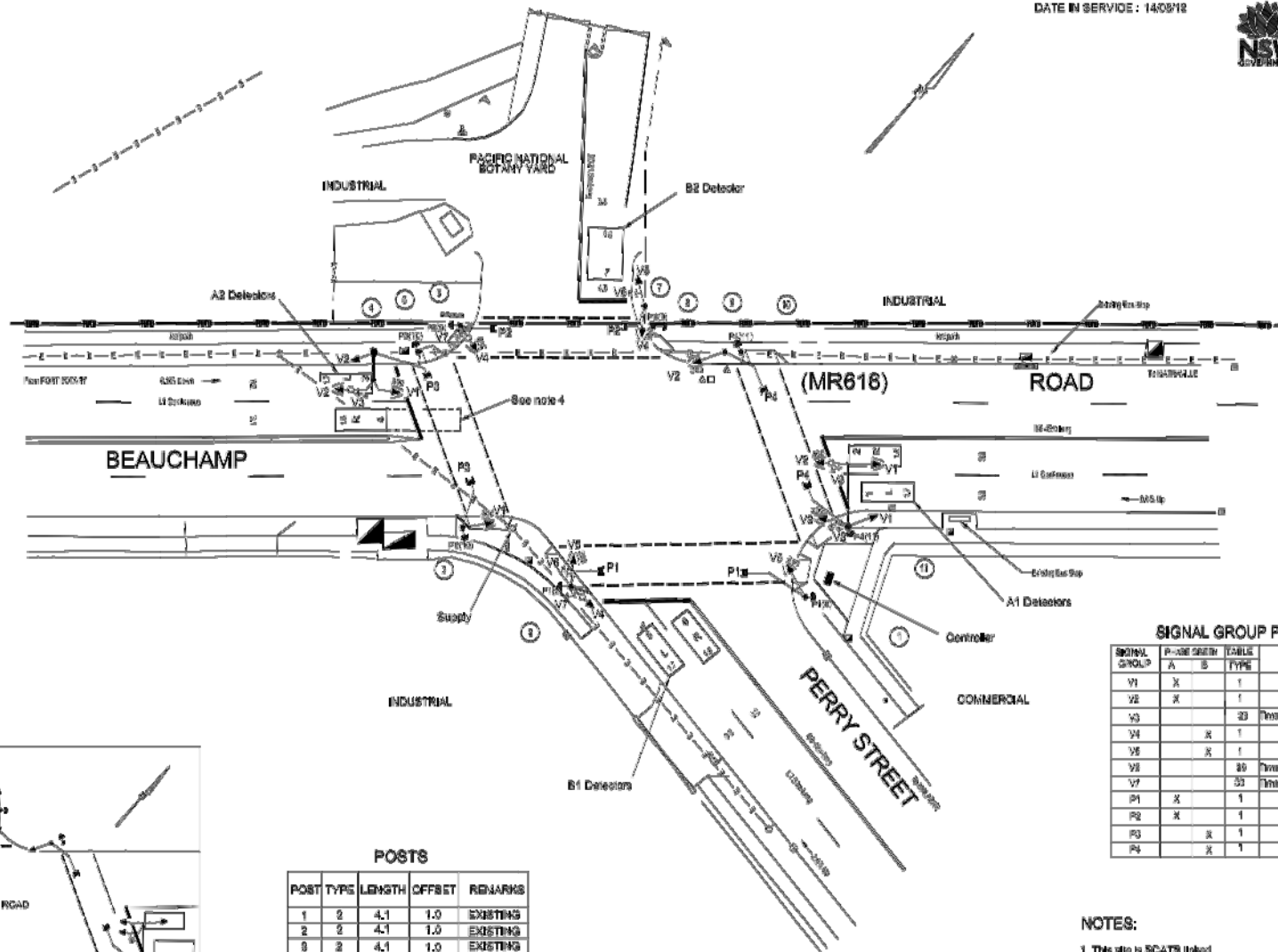
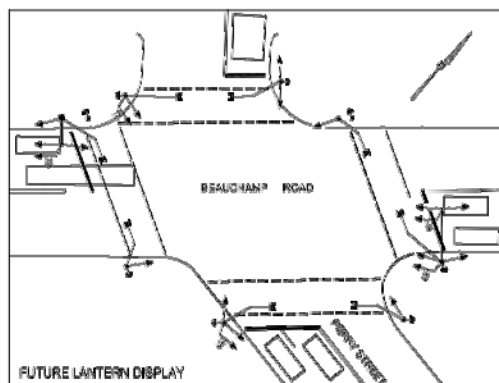
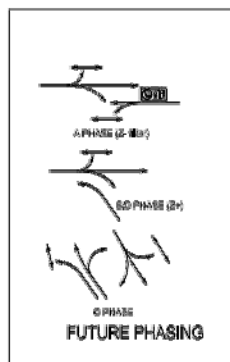
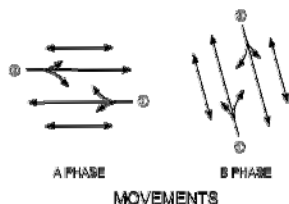
0616.381.VV.1532

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE: 14/09/18



Transport
Roads & Maritime
Services



POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXISTING
2	2	4.1	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	25	-	1.0	EXISTING
5	13	1.5	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	0.7	EXISTING
8	13	1.5	1.0	EXISTING
9	2	4.1	1.0	EXISTING
10	13	1.5	1.0	EXISTING
11	5xL	-	1.0	EXISTING

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE	TYPE	REMARKS
V1	X	1	-
V2	X	1	-
V3		23	Three RED ARROW for P1 pedestrian
V4	X	1	-
V5	X	1	-
V6		20	Three RED ARROW for P3 pedestrian
V7		23	Three RED ARROW for P4 pedestrian
P1	X	1	-
P2	X	1	-
P3	X	1	-
P4	X	1	-

NOTES:

- This site is SCATS linked.
- Spectal STOP sign (R1-4) is placed on post 2 and 7.
- All push buttons are audio tactile.
- Departure detector installed, but not connected in the controller housing.

FIGURE 3A
SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEADOW
EXISTING TRAFFIC SIGNAL OPERATION

JOB NO.15131-2R

A CRITICAL ISSUE
NAME: [Redacted]
PROJECT: [Redacted]
DRAWN BY: [Redacted]
CHECKED BY: [Redacted]
DATE: 14/09/18

DESIGN APPROVAL
[Signature]
DATE: 14/09/18

ROADS AND MARITIME SERVICES
RANDWICK COUNCIL AREA
TRAFFIC SIGNALS AT
BEAUCHAMP ROAD (M.R.616)
AND PERRY STREET
MATRVILLE

EXISTING [X] PROPOSED []
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SCALE: 1:1000
FILE: 381 TS 303
REQN: 0616.381.VV.1532

DESIGN LAYOUT
TOS No: 1532

EXISTING [X] PROPOSED []
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SCALE: 1:1000
FILE: 381 TS 303
REQN: 0616.381.VV.1532

DESIGN LAYOUT
TOS No: 1532

EXISTING [X] PROPOSED []
CADD FILE: VV1532_1C.dgn
SCALE: 1:1000
FILE: 381 TS 303
REQN: 0616.381.VV.1532

DESIGN LAYOUT
TOS No: 1532

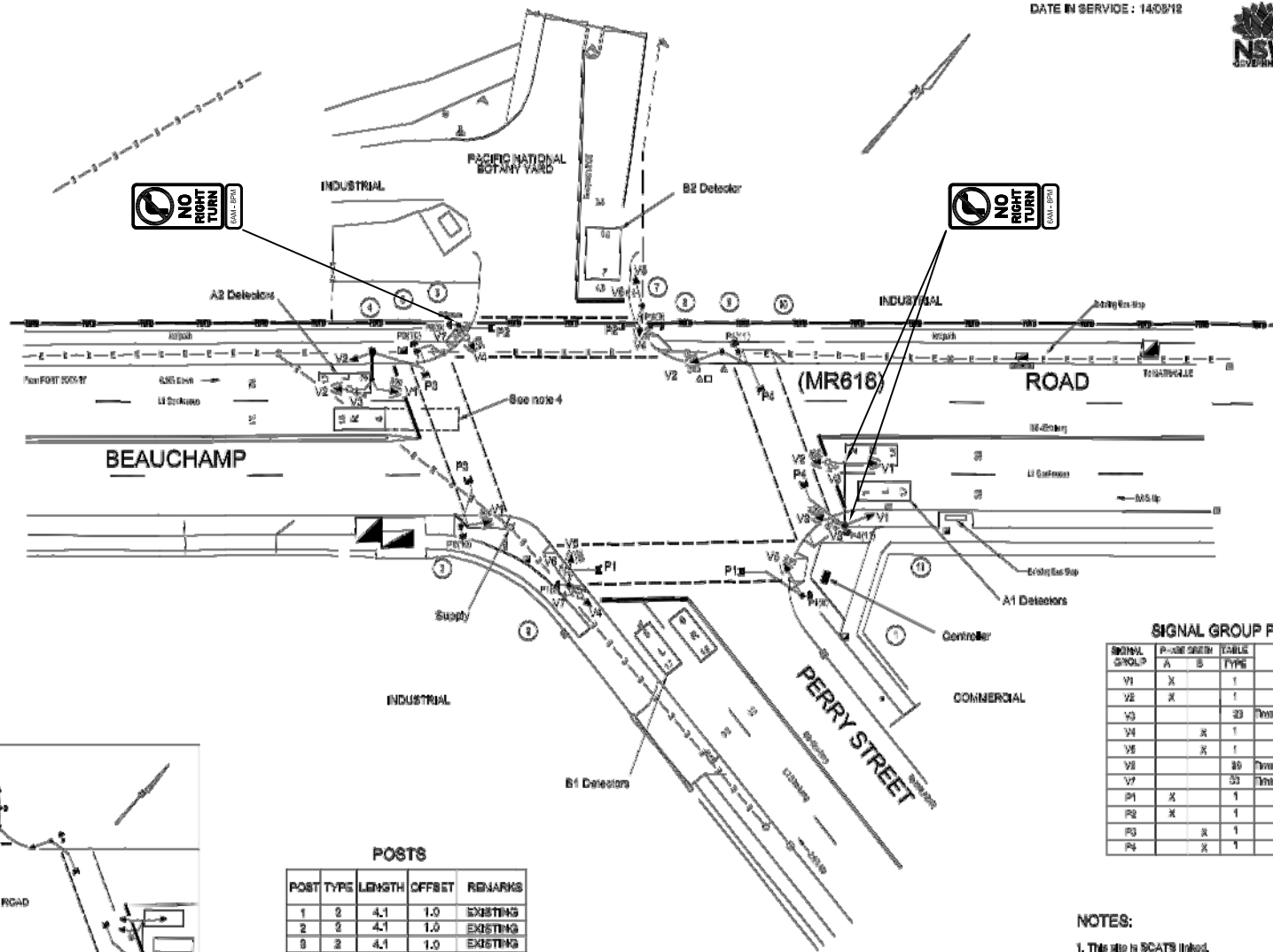
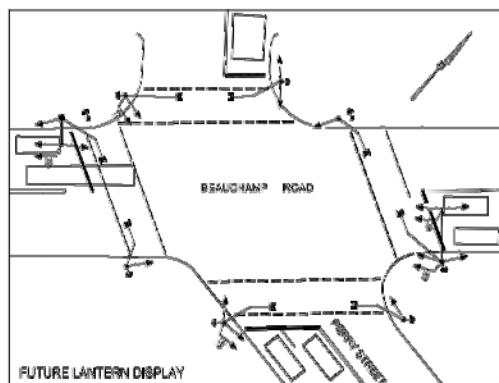
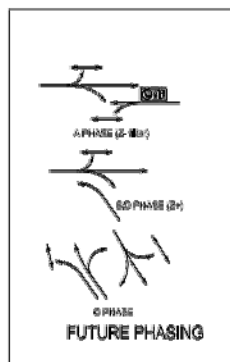
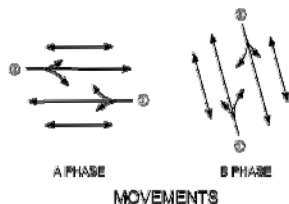
0616.381.VV.1532

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE: 14/09/18



Transport
Roads & Maritime
Services



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE	TYPE	REMARKS
V1	X	1	—
V2	X	1	—
V3		23	Three RED ARROW for P1 pedestrian
V4	X	1	—
V5	X	1	—
V6		30	Three RED ARROW for P3 pedestrian
V7		33	Three RED ARROW for P4 pedestrian
P1	X	1	—
P2	X	1	—
P3	X	1	—
P4	X	1	—

NOTES:

- This site is SCATS linked.
- Spectral STOP sign (R1-4) is placed on post 2 and 7.
- All push buttons are audio tactile.
- Departure detector installed, but not connected in the controller housing.

FIGURE 3B

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEADOW

PROPOSED NO RIGHT TURN 6am-8pm

JOB NO.15131-2R

A CRITICAL ISSUE
NAME: [Redacted]
PROJECT: [Redacted]
DRAWN BY: [Redacted]
CHECKED BY: [Redacted]
DATE: 14/09/18

DESIGNER: [Redacted]
CHECKED: [Redacted]
DATE: 14/09/18

APPROVED: [Redacted]
DATE: 14/09/18

DESIGNER: [Redacted]
CHECKED: [Redacted]
DATE: 14/09/18

APPROVED: [Redacted]
DATE: 14/09/18

DESIGNER: [Redacted]
CHECKED: [Redacted]
DATE: 14/09/18

APPROVED: [Redacted]
DATE: 14/09/18

DESIGNER: [Redacted]
CHECKED: [Redacted]
DATE: 14/09/18

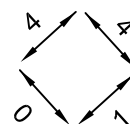
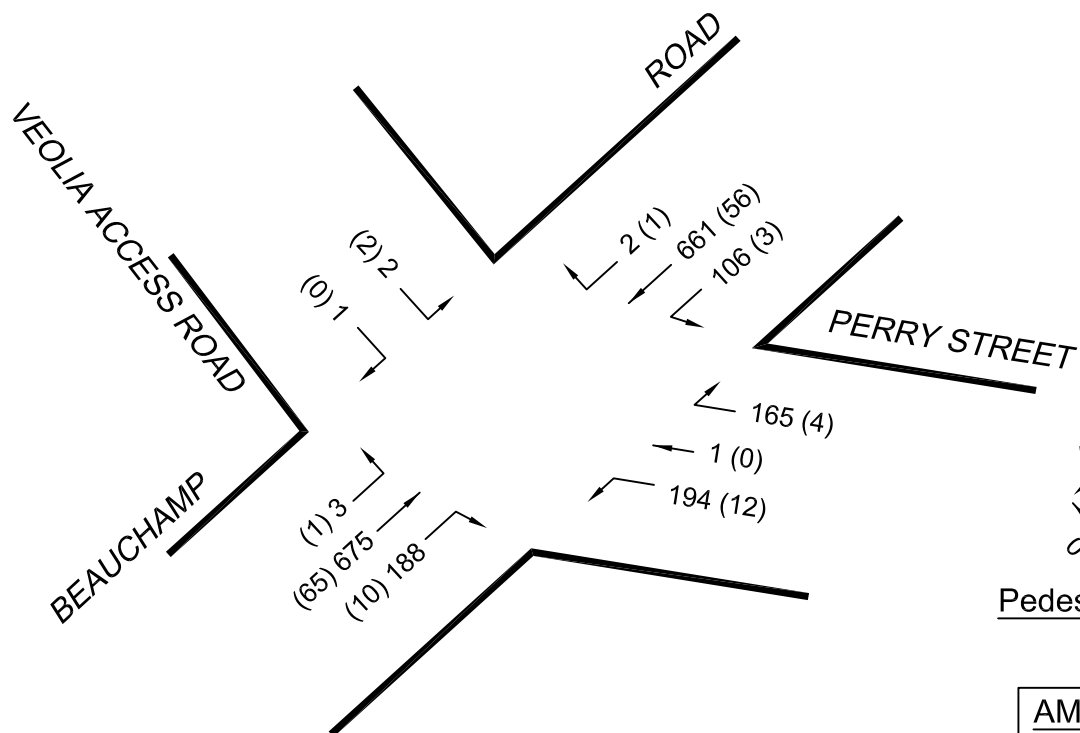
APPROVED: [Redacted]
DATE: 14/09/18

ROADS AND MARITIME SERVICES

RANDWICK COUNCIL AREA
TRAFFIC SIGNALS AT
BEAUCHAMP ROAD (M.R.616)
AND PERRY STREET
MATRVILLE

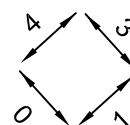
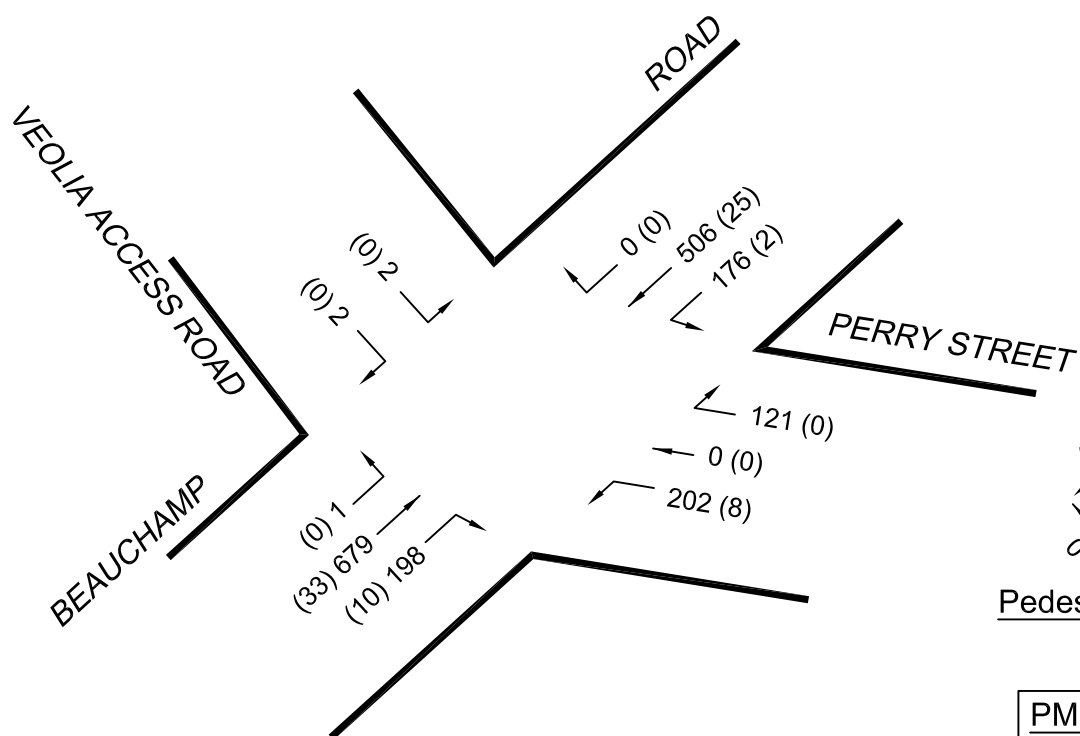
TOS No: 1532

EXISTING	PROPOSED
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FILE: 381 TS 303	FILE: 381 TS 303
REQ. NO: 0616.381.VV.1532	REQ. NO: 0616.381.VV.1532
SHEET: 1	SHEET: 1



Pedestrian Volumes

AM PEAK HOUR
7.45am - 8.45am



Pedestrian Volumes

PM PEAK HOUR
4.15pm - 5.15pm

KEY

186 TOTAL VOLUME
(22) HEAVY VEHICLES

Source:
Traffic Count, Tuesday 24 May 2016

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FIGURE 4

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEDOW

**EXISTING 2016 TRAFFIC & PEDESTRIAN
PEAK HOUR VOLUMES**

JOB NO.15131-2R

Figure 5 shows the additional vehicles adopted for the modelling for the Veolia operations, assigned to the intersection during the AM and PM peak hours.

3.3.2 Traffic Impacts

The SIDRA 7.0 traffic model has been used to examine the impacts of Veolia's operation on the intersection of Beauchamp Road / Perry Street / Veolia Access Road.

SIDRA assesses the operational performance of intersections under traffic signal roundabout or sign control. The best criteria for assessing intersections controlled by traffic signals are Level of Service (LS), Degree of Saturation (DS) and Average Vehicle Delay (AVD). Table 3.1 shows the Level of Service Criteria for intersection as reproduced from the RTA's Guide to Traffic Generating Developments.

A Level of Service D or better (i.e. A, B, C or D) is generally considered to be minimum design requirement for intersections. For intersections controlled by traffic signals the level of service is determined by the average vehicle delay for all vehicle using the intersection.

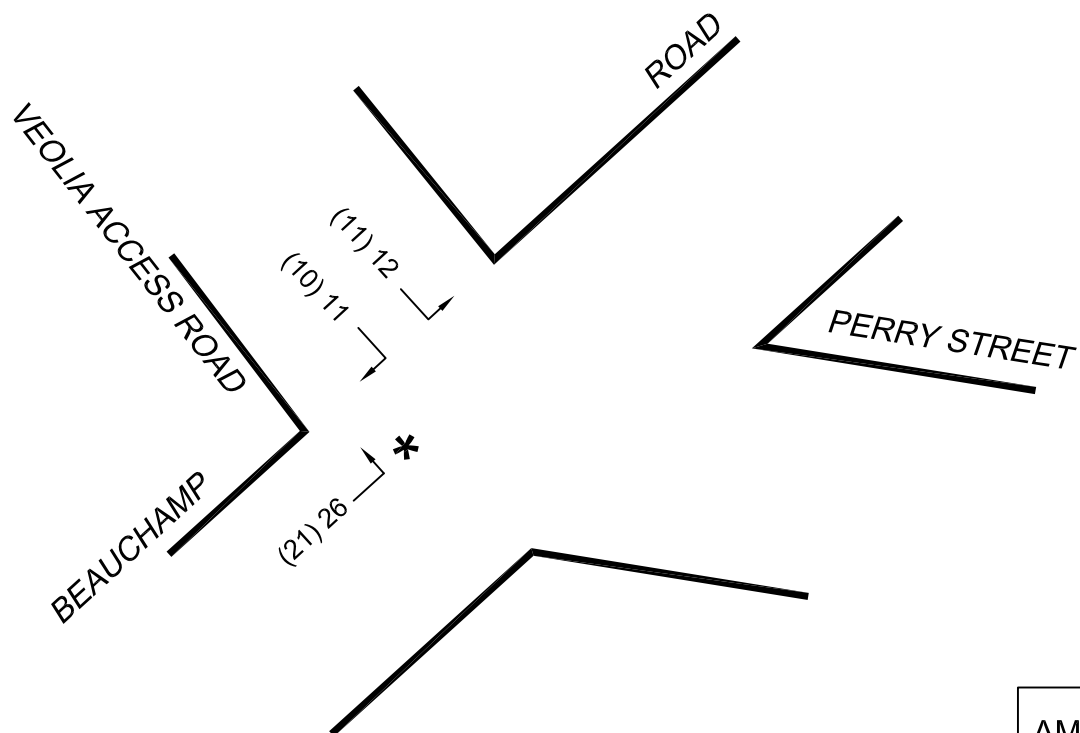
Average vehicle delay for intersections controlled by traffic signals is based on the delay for all vehicles using the intersection and not individual traffic movements. Provided that the average vehicle delay for all vehicles at the intersection is equivalent to a Level of Service D or better, then the intersection is considered to have satisfactory operation.

LEVEL 3.1

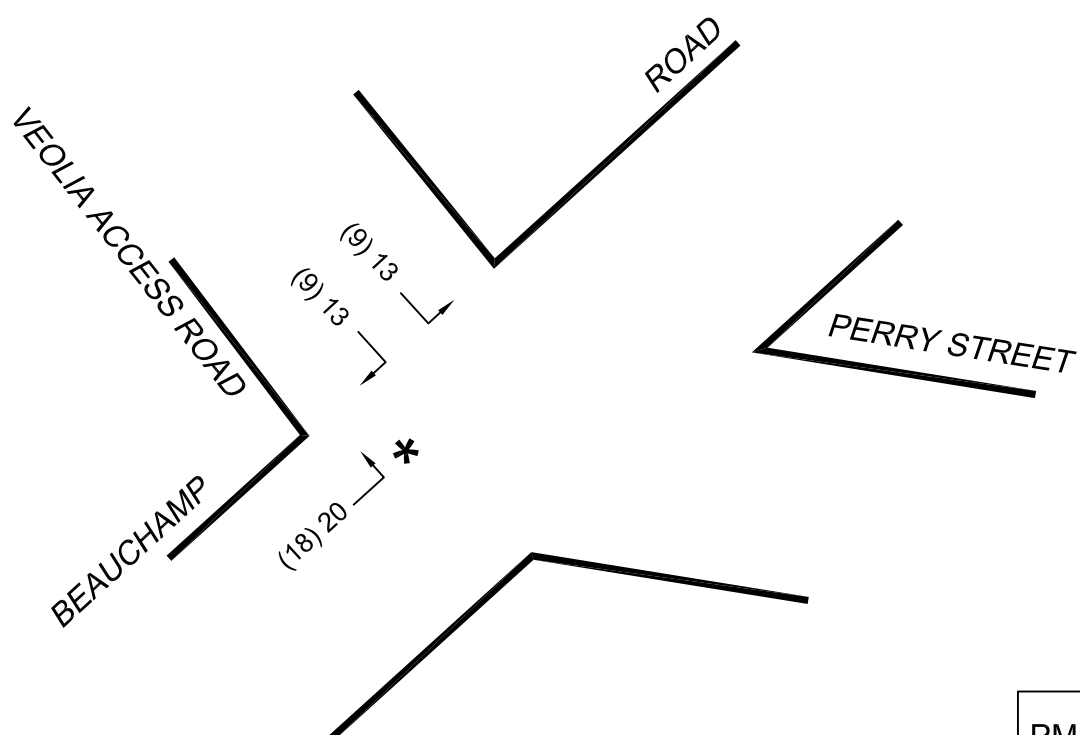
LEVEL OF SERVICE CRITERIA FOR INTERSECTIONS

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Intersection is oversaturated	Oversaturated, requires other control mode

The modelling has been undertaken for the existing conditions in the AM and PM peak hours based on the traffic and pedestrian volumes shown in **Figure 4**, including the proportion of heavy vehicles. The Veolia vehicle volumes shown in **Figure 5** have been overlaid on the existing volumes for the Veolia proposal. The intersection has been modelled as an isolated intersection adopting a cycle length of 72 seconds for the AM and PM peak hours. Surveys confirmed that the average cycle length that operated in



AM PEAK HOUR



PM PEAK HOUR

KEY

- 186 TOTAL VOLUME
(22) HEAVY VEHICLES
* INCLUDES VOLUME DISPLACED BY NO RIGHT TURN BAN

NOTE:

ADDITIONAL VEOLIA VEHICLES INCLUDE 18 WASTE TRUCKS IN/OUT IN BOTH PEAK HOURS, PLUS 2 INBOUND CARS IN AM PEAK + 2 OUTBOUND CARS IN PM PEAK.

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FIGURE 5

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEADOW

**ADDITIONAL VOLUMES MODELLED
FOR VEOLIA'S SECTION 96 APPLICATION**

JOB NO.15131-2R

the AM peak is 72 seconds and during the PM peak is 65 seconds, hence the adoption of the 72 second cycle length.

A reduction in the lane capacity of 6% has been adopted in the kerbside lane in the northern approach of Beauchamp Road to account for the impact of the bus stop.

This reduction was calculated from the scheduled bus services in the AM and PM peak hours (4-5 buses per hour) and assuming a bus dwell time at the bus stop of 40 seconds per bus.

The results of the SIDRA traffic modelling are shown in Table 3.2.

Reference to Table 3.2 shows that existing operation at the intersection is a Level of Service B operation in both peak hours (ie. a reasonably good operation), with average vehicle delays in the order of 17.6 to 20.1 seconds.

With the additional trucks from Veolia average vehicle delays will be in the order of 19.1 to 22.4 seconds per vehicle, which is a minor increase in delay of 1.5 to 2.3 second per vehicle. The intersection will retain a Level of Service B operation, which is a reasonably good operation and indicates spare capacity.

It should be noted that the additional Veolia truck volume adopted for the modelling is significantly higher than the estimated peak hour truck volumes (ie. 300%) and 50% higher than the estimated maximum hourly volume which will occur during day time business hours.

Based on the above it is concluded that the impacts on the operation of the intersection in terms of level of service and vehicle delay will be relatively minor and the intersection will continue to operate at a satisfactory to good level of service, with spare capacity.

TABLE 3.2

**SIDRA TRAFFIC MODELLING RESULTS FOR
BEAUCHAMP ROAD / PERRY STREET / VEOLIA ACCESS ROAD
INTERSECTION FOR EXISTING CONDITIONS AND WITH VEOLIA'S
TEMPORARY OPERATION**

Criteria	Existing		With Veolia	
	AM	PM	AM	PM
LS	B	B	B	B
DS	0.884	0.861	0.908	0.866
AVD	20.1	17.6	22.4	19.1

Where LS - Level of Service
DS - Degree of Saturation
AVD - Average Vehicle Delay in Seconds

3.4 Geometric Considerations

Figures 6A, 6B and 6C show the turnpath diagrams for a 10.0 metre long waste truck using the existing geometry of the Beauchamp Road / Perry Street / Veolia Access Road. The turnpaths for the Veolia trucks include:

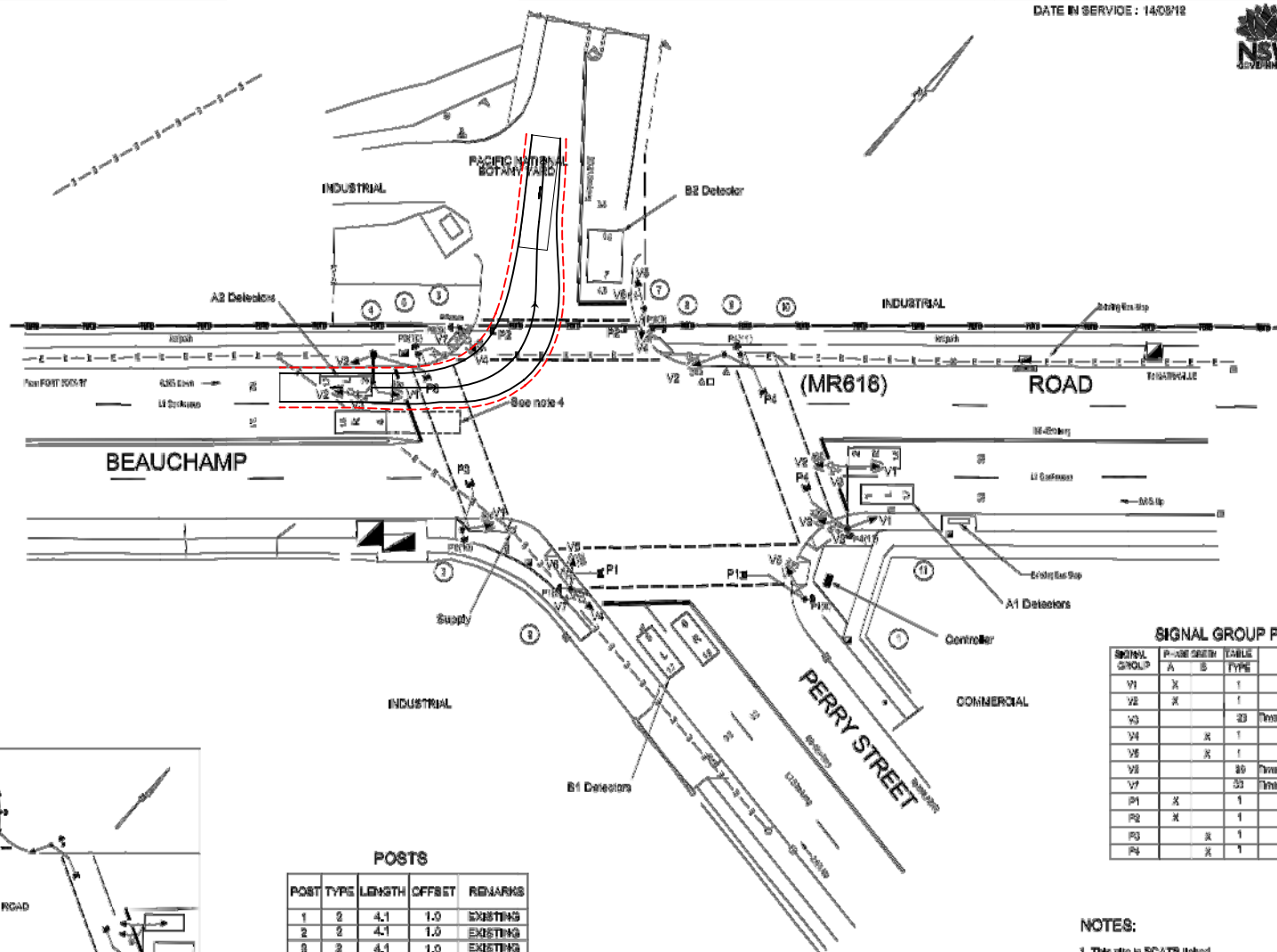
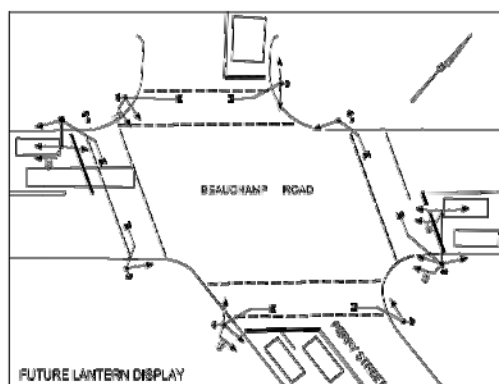
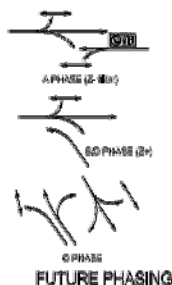
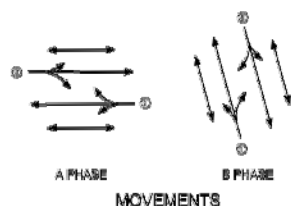
- Turning left into Veolia Access Road from Beauchamp Road; and
- Turning left and right out of Veolia Access Road, into Beauchamp Road.

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DATE IN SERVICE: 140818



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SIGNAL GROUP PHASE CHART

SPECIAL GROUP	P-DISE STATUS		TABLE TYPE	REMARKS
	A	B		
V1	X		1	—
V2	X		1	—
V3			33	Three RED ARROW for P1 patients
V4		X	1	—
V5		X	1	—
V6			80	Three RED ARROW for P2 patients
V7			33	Three RED ARROW for P2 patients
P1	X		1	—
P2	X		1	—
P3		X	1	—
P4		X	1	—

POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXISTING
2	2	4.1	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	2B	-	1.0	EXISTING
5	6	13	1.5	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	0.7	EXISTING
8	13	1.5	1.0	EXISTING
9	2	4.1	1.0	EXISTING
10	13	1.5	1.0	EXISTING
45	END	-	1.5	EXISTING

NOTES:

1. This site is SCATS linked.
2. Special STOP sign (R1-4) is placed on post 2 and 7.
3. All push buttons are audio capable.
4. Departure detector installed, but not connected to the controller housing.

FIGURE 6A

SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMADOW

TURNPATH - 10m WASTE TRUCK

JOB NO.15131-2R

A ORIGINAL ISSUE ISSUE: An official for the subject company, Mr. J. H. Smith, advised that the company is currently conducting an investigation into the recent increasing in production of the subject company's products. He stated that the company is currently conducting an investigation into the recent increasing in production of the subject company's products. DATE: 10/10/2001 BY: J. H. Smith	ISSUE: An official for the subject company, Mr. J. H. Smith, advised that the company is currently conducting an investigation into the recent increasing in production of the subject company's products. He stated that the company is currently conducting an investigation into the recent increasing in production of the subject company's products. DATE: 10/10/2001 BY: J. H. Smith
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[illegible][illegible]

NAME	DATE	REMARKS
APPROVED BY		
SIGNATURE		
DATE		

ROADS AND MARITIME SERVICES
RANDWICK COUNCIL AREA
TRAFFIC SIGNALS AT
BEAUCHAMP ROAD (M.R.616)
AND PERRY STREET
MATRAVILLE

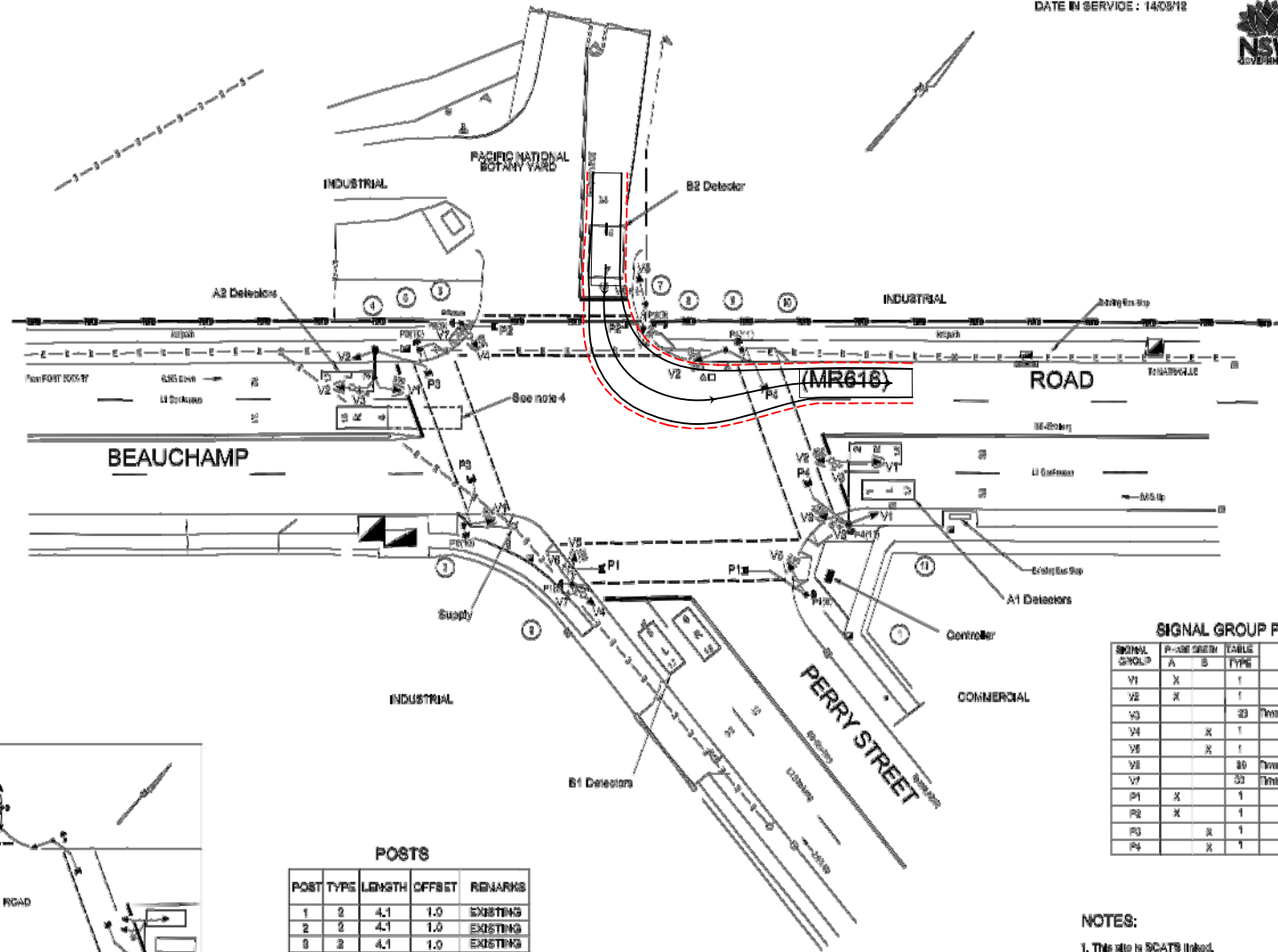
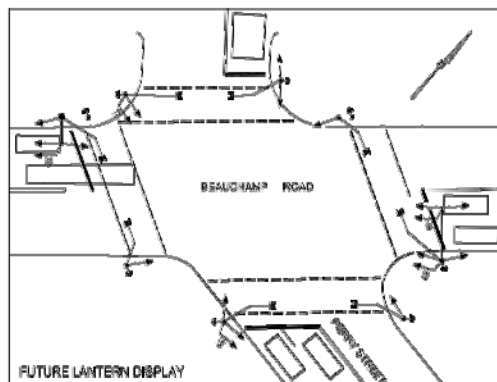
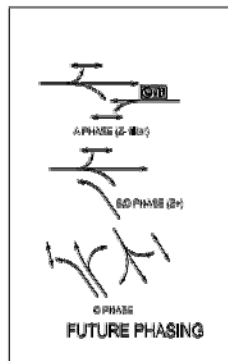
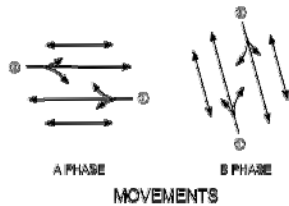
EXISTING ☒		PROPOSED ☐	
GADD FILE: VV1532 1C.dgn			
SCALE 1" = 1'-0"		DATE 1/1/00	
FILE 381 TS 303		DESCRIPTION 1/A	
REQD. 0616-381 VV 1532		SHEET 1	

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE: 14/09/18



Transport
Roads & Maritime
Services



POSTS

POST	TYPE	LENGTH	OFFSET	REMARKS
1	2	4.1	1.0	EXISTING
2	2	4.1	1.0	EXISTING
3	2	4.1	1.0	EXISTING
4	2	4.1	1.0	EXISTING
5	2	4.1	1.0	EXISTING
6	2	4.1	1.0	EXISTING
7	2	4.1	1.0	EXISTING
8	2	4.1	1.0	EXISTING
9	2	4.1	1.0	EXISTING
10	2	4.1	1.0	EXISTING
11	2	4.1	1.0	EXISTING
12	2	4.1	1.0	EXISTING
13	2	4.1	1.0	EXISTING
14	2	4.1	1.0	EXISTING
15	2	4.1	1.0	EXISTING
16	2	4.1	1.0	EXISTING
17	2	4.1	1.0	EXISTING
18	2	4.1	1.0	EXISTING
19	2	4.1	1.0	EXISTING
20	2	4.1	1.0	EXISTING
21	2	4.1	1.0	EXISTING
22	2	4.1	1.0	EXISTING
23	2	4.1	1.0	EXISTING
24	2	4.1	1.0	EXISTING
25	2	4.1	1.0	EXISTING
26	2	4.1	1.0	EXISTING
27	2	4.1	1.0	EXISTING
28	2	4.1	1.0	EXISTING
29	2	4.1	1.0	EXISTING
30	2	4.1	1.0	EXISTING
31	2	4.1	1.0	EXISTING
32	2	4.1	1.0	EXISTING
33	2	4.1	1.0	EXISTING
34	2	4.1	1.0	EXISTING
35	2	4.1	1.0	EXISTING
36	2	4.1	1.0	EXISTING
37	2	4.1	1.0	EXISTING
38	2	4.1	1.0	EXISTING
39	2	4.1	1.0	EXISTING
40	2	4.1	1.0	EXISTING
41	2	4.1	1.0	EXISTING
42	2	4.1	1.0	EXISTING
43	2	4.1	1.0	EXISTING
44	2	4.1	1.0	EXISTING
45	2	4.1	1.0	EXISTING
46	2	4.1	1.0	EXISTING
47	2	4.1	1.0	EXISTING
48	2	4.1	1.0	EXISTING
49	2	4.1	1.0	EXISTING
50	2	4.1	1.0	EXISTING
51	2	4.1	1.0	EXISTING
52	2	4.1	1.0	EXISTING
53	2	4.1	1.0	EXISTING
54	2	4.1	1.0	EXISTING
55	2	4.1	1.0	EXISTING
56	2	4.1	1.0	EXISTING
57	2	4.1	1.0	EXISTING
58	2	4.1	1.0	EXISTING
59	2	4.1	1.0	EXISTING
60	2	4.1	1.0	EXISTING
61	2	4.1	1.0	EXISTING
62	2	4.1	1.0	EXISTING
63	2	4.1	1.0	EXISTING
64	2	4.1	1.0	EXISTING
65	2	4.1	1.0	EXISTING
66	2	4.1	1.0	EXISTING
67	2	4.1	1.0	EXISTING
68	2	4.1	1.0	EXISTING
69	2	4.1	1.0	EXISTING
70	2	4.1	1.0	EXISTING
71	2	4.1	1.0	EXISTING
72	2	4.1	1.0	EXISTING
73	2	4.1	1.0	EXISTING
74	2	4.1	1.0	EXISTING
75	2	4.1	1.0	EXISTING
76	2	4.1	1.0	EXISTING
77	2	4.1	1.0	EXISTING
78	2	4.1	1.0	EXISTING
79	2	4.1	1.0	EXISTING
80	2	4.1	1.0	EXISTING
81	2	4.1	1.0	EXISTING
82	2	4.1	1.0	EXISTING
83	2	4.1	1.0	EXISTING
84	2	4.1	1.0	EXISTING
85	2	4.1	1.0	EXISTING
86	2	4.1	1.0	EXISTING
87	2	4.1	1.0	EXISTING
88	2	4.1	1.0	EXISTING
89	2	4.1	1.0	EXISTING
90	2	4.1	1.0	EXISTING
91	2	4.1	1.0	EXISTING
92	2	4.1	1.0	EXISTING
93	2	4.1	1.0	EXISTING
94	2	4.1	1.0	EXISTING
95	2	4.1	1.0	EXISTING
96	2	4.1	1.0	EXISTING
97	2	4.1	1.0	EXISTING
98	2	4.1	1.0	EXISTING
99	2	4.1	1.0	EXISTING
100	2	4.1	1.0	EXISTING

SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE	TYPE	REMARKS
V1	X	1	—
V2	X	1	—
V3		23	Three RED ARROW for P1 pedestrian
V4	X	1	—
V5	X	1	—
V6		20	Three RED ARROW for P3 pedestrian
V7		23	Three RED ARROW for P4 pedestrian
P1	X	1	—
P2	X	1	—
P3	X	1	—
P4	X	1	—

NOTES:

- This site is SCATS linked.
- Spectra STOP sign (R1-4) is placed on post 2 and 7.
- All push buttons are audio tactile.
- Departure detector installed, but not connected in the controller housing.

FIGURE 6B
SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEADOW
TURNPATH - 10m WASTE TRUCK

JOB NO.15131-2R

A CRITICAL ISSUE
NAME: [Redacted]
PROJECT: [Redacted]
DATE: [Redacted]
DRAWN BY: [Redacted]
CHECKED BY: [Redacted]
APPROVED BY: [Redacted]
DATE: [Redacted]

DESIGN APPROVAL
DESIGNER: [Redacted]
CHECKED BY: [Redacted]
APPROVED BY: [Redacted]
DATE: [Redacted]

ROADS AND MARITIME SERVICES
RANDWICK COUNCIL AREA
TRAFFIC SIGNALS AT
BEAUCHAMP ROAD (M.R.616)
AND PERRY STREET
MATRVILLE

DESIGN LAYOUT
TOS No: 1532

EXISTING ☒ **PROPOSED** ☐
CADD FILE: VV1532_1C.dgn
SCALE: 1:1000
FILE: 301 TS 303
REQD: 0616.381.VV.1532
SHEET: 1

DESIGN LAYOUT
TOS No: 1532

DESIGN LAYOUT
TOS No: 1532

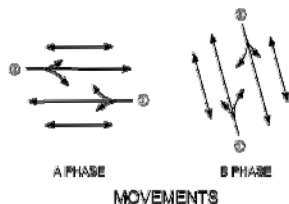
0616.381.VV.1532

DRAWN BY CADD
DO NOT AMEND MANUALLY

DATE IN SERVICE: 14/09/18



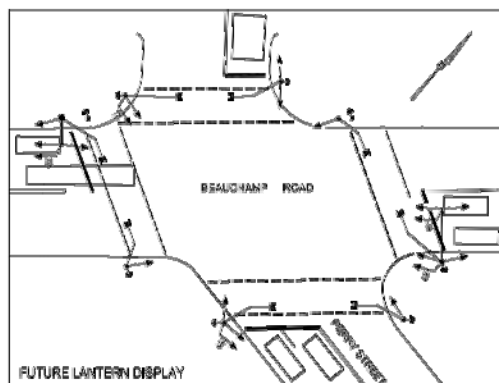
Transport
Roads & Maritime
Services



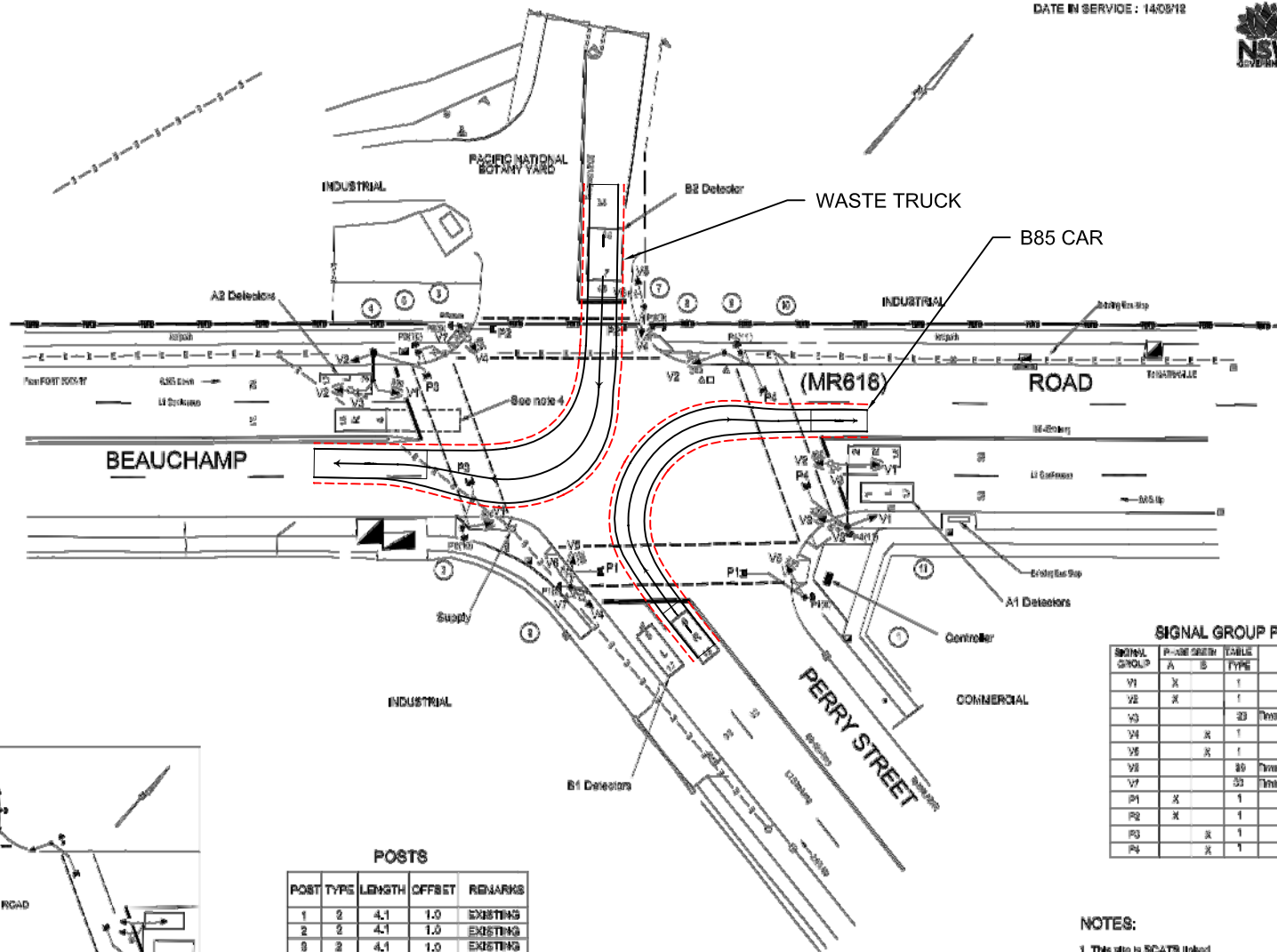
MOVEMENTS



FUTURE PHASING



FUTURE LANTERN DISPLAY



SIGNAL GROUP PHASE CHART

SIGNAL GROUP	PHASE	TYPE	REMARKS
V1	X	1	—
V2	X	1	—
V3		23	Times RED ARROW for P1 pedestrian
V4	X	1	—
V5	X	1	—
V6		20	Times RED ARROW for P3 pedestrian
V7		23	Times RED ARROW for P4 pedestrian
P1	X	1	—
P2	X	1	—
P3	X	1	—
P4	X	1	—

NOTES:

- This site is SCATS linked.
- Spectra STOP sign (R1-4) is placed on post 2 and 7.
- All push buttons are audio tactile.
- Departure detector installed, but not connected in the controller housing.

FIGURE 6C
SECTION 96 APPLICATION FOR VEOLIA
BEAUCHAMP ROAD AT PERRY STREET, BANKSMEADOW
TURNPATH - 10m WASTE TRUCK & CAR

JOB NO.15131-2R

A CRITICAL ISSUE
NAME: [Redacted]
PROJECT: [Redacted]
DATE: 14/09/18
DRAWN BY: [Redacted]
CHECKED BY: [Redacted]
APPROVED BY: [Redacted]

DESIGN APPROVAL
DESIGNER: [Redacted]
CHECKED BY: [Redacted]
APPROVED BY: [Redacted]

ROADS AND MARITIME SERVICES
RANDWICK COUNCIL AREA
TRAFFIC SIGNALS AT
BEAUCHAMP ROAD (M.R.616)
AND PERRY STREET
MATRIVILLE

EXISTING ☒ **PROPOSED** ☐
CADD FILE: VV1532_1C.dgn
SCALE: 1:1000
FILE: 301 TS 303
REQN: 0616.381.VV.1532
SHEET: 1

DESIGN LAYOUT
TOS No: 1532

EXISTING ☒ **PROPOSED** ☐
CADD FILE: VV1532_1C.dgn
SCALE: 1:1000
FILE: 301 TS 303
REQN: 0616.381.VV.1532
SHEET: 1

Reference to these figures indicates that the manoeuvring is satisfactory and fully compliant to Austroads.

It is therefore concluded that the existing geometry at the intersection can accommodate the turnpath of the Veolia waste trucks.

4.0 CONCLUSIONS

This report documents the assessment of the impacts of temporary arrangements to allow Veolia to operate from its Waste Transfer Terminal and use the existing configuration at the intersection of Beauchamp Road / Perry Street / Veolia Access Road at Banksmeadow.

The assessment has found that the impacts would be relatively minor and the intersection will retain a satisfactory to good level of service with the Veolia waste trucks using the intersection. The existing geometry of the intersection can accommodate Veolia's waste trucks.

APPENDIX 1

Traffic Counts



Perry St & Beauchamp Rd

To

Terry Lawrence

at **TUPA**

your results for

BANKSMEADOW Perry St

supplied by

R.O.A.R. DATA Pty. Ltd.

www.roardata.com.au



R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Lights

Lights	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	22	137	0	0	0	0	0	135	30	39	0	27	390
0715 - 0730	26	139	0	0	0	0	0	128	38	42	0	30	403
0730 - 0745	28	140	1	1	0	0	1	134	36	45	0	49	435
0745 - 0800	23	134	0	0	0	0	0	149	40	48	0	30	424
0800 - 0815	28	163	1	0	0	0	1	151	42	48	1	56	491
0815 - 0830	27	157	0	0	0	0	1	151	49	39	0	38	462
0830 - 0845	25	151	0	0	0	1	0	159	47	47	0	37	467
0845 - 0900	35	105	2	0	0	1	0	161	44	45	0	35	428
Period End	214	1126	4	1	0	2	3	1168	326	353	1	302	3500

Lights

Lights	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	TOT
0700 - 0800	99	550	1	1	0	0	1	546	144	174	0	136	1652
0715 - 0815	105	576	2	1	0	0	2	562	156	183	1	165	1753
0730 - 0830	106	594	2	1	0	0	3	585	167	180	1	173	1812
0745 - 0845	103	605	1	0	0	1	2	610	178	182	1	161	1844
0800 - 0900	115	576	3	0	0	2	2	622	182	179	1	166	1848
PEAK HOUR	103	605	1	0	0	1	2	610	178	182	1	161	1844

Combined

Combined	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	22	145	0	0	0	0	0	151	30	42	0	27	417
0715 - 0730	26	144	0	0	0	0	0	149	39	45	0	31	434
0730 - 0745	28	147	1	1	0	0	1	157	36	49	0	49	469
0745 - 0800	23	149	1	0	0	0	0	170	45	52	0	30	470
0800 - 0815	28	173	1	0	0	0	1	161	44	49	1	57	515
0815 - 0830	28	170	0	1	0	0	2	168	52	43	0	39	503
0830 - 0845	27	169	0	1	0	1	0	176	47	50	0	39	510
0845 - 0900	36	120	2	1	0	1	3	172	45	49	0	36	465
Period End	218	1217	5	4	0	2	7	1304	338	379	1	308	3783

Combined

Combined	NORTH			WEST			SOUTH			EAST			TOT
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0800	99	585	2	1	0	0	1	627	150	188	0	137	1790
0715 - 0815	105	613	3	1	0	0	2	637	164	195	1	167	1888
0730 - 0830	107	639	3	2	0	0	4	656	177	193	1	175	1957
0745 - 0845	106	661	2	2	0	1	3	675	188	194	1	165	1998
0800 - 0900	119	632	3	3	0	2	6	677	188	191	1	171	1993
PEAK HOUR	106	661	2	2	0	1	3	675	188	194	1	165	1998

Client : TUPA

Job No/Name : 6082 BANKSMEADOW Perry St

Day/Date : Tuesday 24th May 2016

Heavies

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0715	0	8	0	0	0	0	0	16	0	3	0	0	27
0715 - 0730	0	5	0	0	0	0	0	21	1	3	0	1	31
0730 - 0745	0	7	0	0	0	0	0	23	0	4	0	0	34
0745 - 0800	0	15	1	0	0	0	0	21	5	4	0	0	46
0800 - 0815	0	10	0	0	0	0	0	10	2	1	0	1	24
0815 - 0830	1	13	0	1	0	0	1	17	3	4	0	1	41
0830 - 0845	2	18	0	1	0	0	0	17	0	3	0	2	43
0845 - 0900	1	15	0	1	0	0	3	11	1	4	0	1	37
Period End	4	91	1	3	0	0	4	136	12	26	0	6	283

Heavies

Heavies	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	TOT
0700 - 0800	0	35	1	0	0	0	0	81	6	14	0	1	138
0715 - 0815	0	37	1	0	0	0	0	75	8	12	0	2	135
0730 - 0830	1	45	1	1	0	0	1	71	10	13	0	2	145
0745 - 0845	3	56	1	2	0	0	1	65	10	12	0	4	154
0800 - 0900	4	56	0	3	0	0	4	55	6	12	0	5	145
PEAK HOUR	3	56	1	2	0	0	1	65	10	12	0	4	154

Peds

Time Per	NORTH	WEST	SOUTH	EAST	TOT
	Beauchanp Rd	Site Access	Beauchanp Rd	Perry St	
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0700 - 0715	0	0	0	0	0
0715 - 0730	1	0	0	0	1
0730 - 0745	0	0	0	0	0
0745 - 0800	1	0	0	1	2
0800 - 0815	0	0	0	0	0
0815 - 0830	3	3	0	0	6
0830 - 0845	0	1	0	0	1
0845 - 0900	0	2	0	0	2
Period End	5	6	0	1	12

Peds

Peak Per	NORTH	WEST	SOUTH	EAST	TOT
	Beauchanp Rd	Site Access	Beauchanp Rd	Perry St	
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0700 - 0800	2	0	0	1	3
0715 - 0815	2	0	0	1	3
0730 - 0830	4	3	0	1	8
0745 - 0845	4	4	0	1	9
0800 - 0900	3	6	0	0	9
PEAK HR	4	4	0	1	9



R.O.A.R. DATA

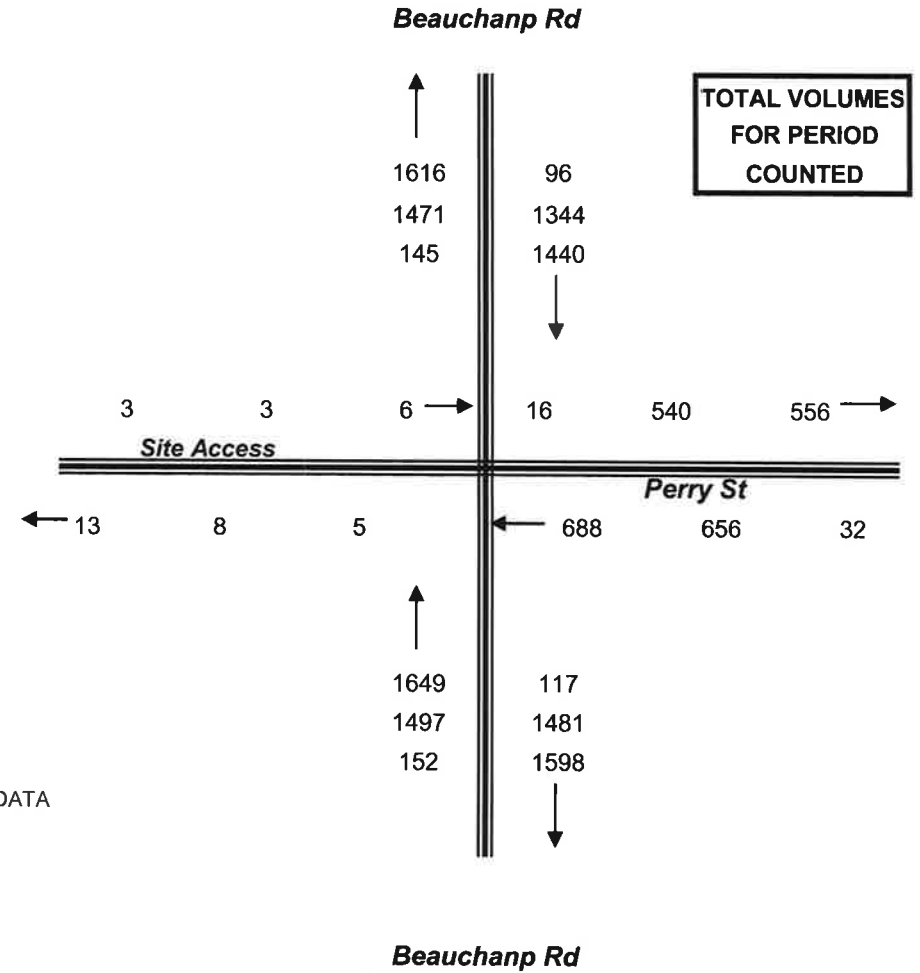
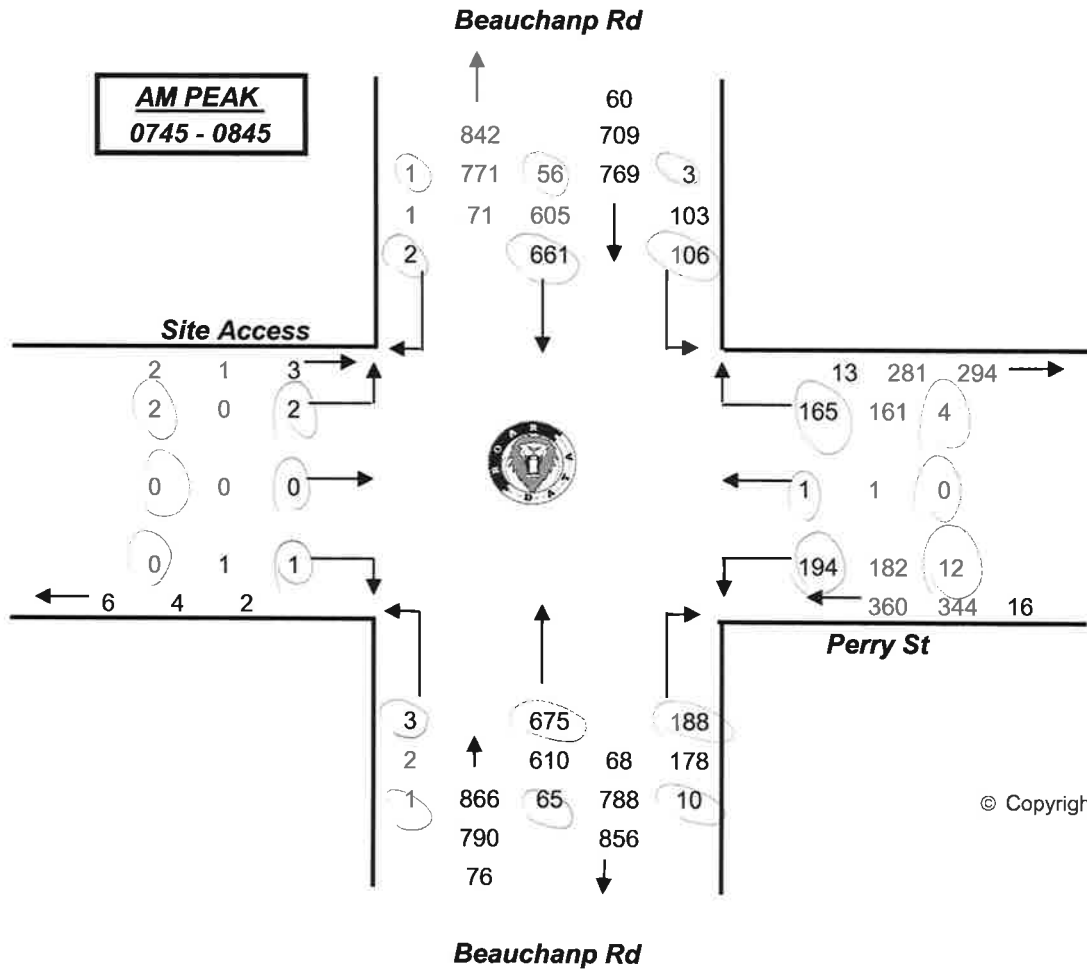
Reliable, Original & Authentic Results

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Client : TUPA

Job No/Name : 6082 BANKSMEADOW Perry St

Day/Date : Tuesday 24th May 2016



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R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Lights

Lights	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	37	138	0	3	0	3	0	134	47	42	0	37	441
1615 - 1630	36	123	0	0	0	1	1	167	63	49	0	32	472
1630 - 1645	44	138	0	0	0	0	0	142	44	40	0	37	445
1645 - 1700	42	108	0	2	0	0	0	149	44	60	0	23	428
1700 - 1715	52	112	0	0	0	1	0	188	37	45	0	29	464
1715 - 1730	36	118	0	1	0	2	0	144	32	29	0	41	403
1730 - 1745	39	127	0	0	0	0	0	165	52	33	0	24	440
1745 - 1800	32	109	0	0	0	0	0	143	35	30	0	26	375
Period End	318	973	0	6	0	7	1	1232	354	328	0	249	3468

Lights

Lights	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	159	507	0	5	0	4	1	592	198	191	0	129	1786
1615 - 1715	174	481	0	2	0	2	1	646	188	194	0	121	1809
1630 - 1730	174	476	0	3	0	3	0	623	157	174	0	130	1740
1645 - 1745	169	465	0	3	0	3	0	646	165	167	0	117	1735
1700 - 1800	159	466	0	1	0	3	0	640	156	137	0	120	1682

PEAK HOUR	174	481	0	2	0	2	1	646	188	194	0	121	1809
-----------	-----	-----	---	---	---	---	---	-----	-----	-----	---	-----	------

Combined

Combined	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	38	143	0	3	0	4	0	143	48	46	0	38	463
1615 - 1630	36	129	0	0	0	1	1	177	65	51	0	32	492
1630 - 1645	44	145	0	0	0	0	0	150	44	44	0	37	464
1645 - 1700	43	116	0	2	0	0	0	149	51	60	0	23	444
1700 - 1715	53	116	0	0	0	1	0	203	38	47	0	29	487
1715 - 1730	36	123	0	1	0	2	0	157	32	31	0	42	424
1730 - 1745	40	134	0	0	0	0	0	170	52	35	0	24	455
1745 - 1800	32	115	0	0	0	0	0	145	35	32	0	26	385
Period End	322	1021	0	6	0	8	1	1294	365	346	0	251	3614

Combined

Combined	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	161	533	0	5	0	5	1	619	208	201	0	130	1863
1615 - 1715	176	506	0	2	0	2	1	679	198	202	0	121	1887
1630 - 1730	176	500	0	3	0	3	0	659	165	182	0	131	1819
1645 - 1745	172	489	0	3	0	3	0	679	173	173	0	118	1810
1700 - 1800	161	488	0	1	0	3	0	675	157	145	0	121	1751

PEAK HOUR	176	506	0	2	0	2	1	679	198	202	0	121	1887
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Client : TUPA

Job No/Name : 6082 BANKSMEADOW Perry St

Day/Date : Tuesday 24th May 2016

Heavies

Heavies	NORTH			WEST			SOUTH			EAST			TOT
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	
1600 - 1615	1	5	0	0	0	1	0	9	1	4	0	1	22
1615 - 1630	0	6	0	0	0	0	0	10	2	2	0	0	20
1630 - 1645	0	7	0	0	0	0	0	8	0	4	0	0	19
1645 - 1700	1	8	0	0	0	0	0	0	7	0	0	0	16
1700 - 1715	1	4	0	0	0	0	0	15	1	2	0	0	23
1715 - 1730	0	5	0	0	0	0	0	13	0	2	0	1	21
1730 - 1745	1	7	0	0	0	0	0	5	0	2	0	0	15
1745 - 1800	0	6	0	0	0	0	0	2	0	2	0	0	10
Period End	4	48	0	0	0	1	0	62	11	18	0	2	146

Heavies

Heavies	NORTH			WEST			SOUTH			EAST			
	Beauchanp Rd			Site Access			Beauchanp Rd			Perry St			
Peak Time	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	<u>L</u>	<u>T</u>	<u>R</u>	TOT
1600 - 1700	2	26	0	0	0	1	0	27	10	10	0	1	77
1615 - 1715	2	25	0	0	0	0	0	33	10	8	0	0	78
1630 - 1730	2	24	0	0	0	0	0	36	8	8	0	1	79
1645 - 1745	3	24	0	0	0	0	0	33	8	6	0	1	75
1700 - 1800	2	22	0	0	0	0	0	35	1	8	0	1	69

PEAK HOUR	2	25	0	0	0	0	0	33	10	8	0	0	78
-----------	---	----	---	---	---	---	---	----	----	---	---	---	----

Peds

Time Per	NORTH	WEST	SOUTH	EAST	TOT
	Beauchanp Rd	Site Access	Beauchanp Rd	Perry St	
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
1600 - 1615	0	1	1	1	3
1615 - 1630	1	0	0	1	2
1630 - 1645	0	1	0	0	1
1645 - 1700	0	3	0	0	3
1700 - 1715	2	0	0	0	2
1715 - 1730	0	0	0	1	1
1730 - 1745	0	0	0	0	0
1745 - 1800	0	0	0	0	0
Period End	3	5	1	3	12

Peds

Peak Per	NORTH	WEST	SOUTH	EAST	TOT
	Beauchanp Rd	Site Access	Beauchanp Rd	Perry St	
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
1600 - 1700	1	5	1	2	9
1615 - 1715	3	4	0	1	8
1630 - 1730	2	4	0	1	7
1645 - 1745	2	3	0	1	6
1700 - 1800	2	0	0	1	3

PEAK HR	3	4	0	1	8
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R.O.A.R DATA

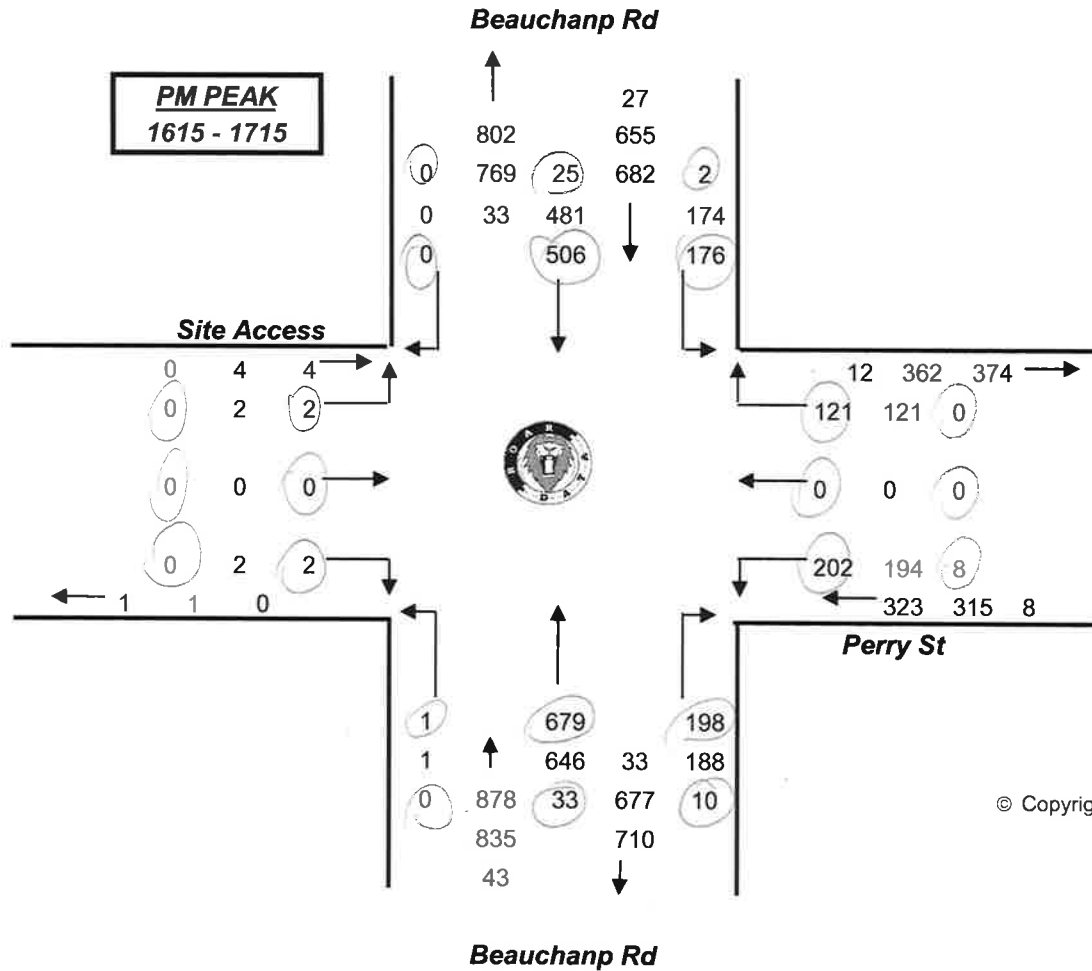
Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

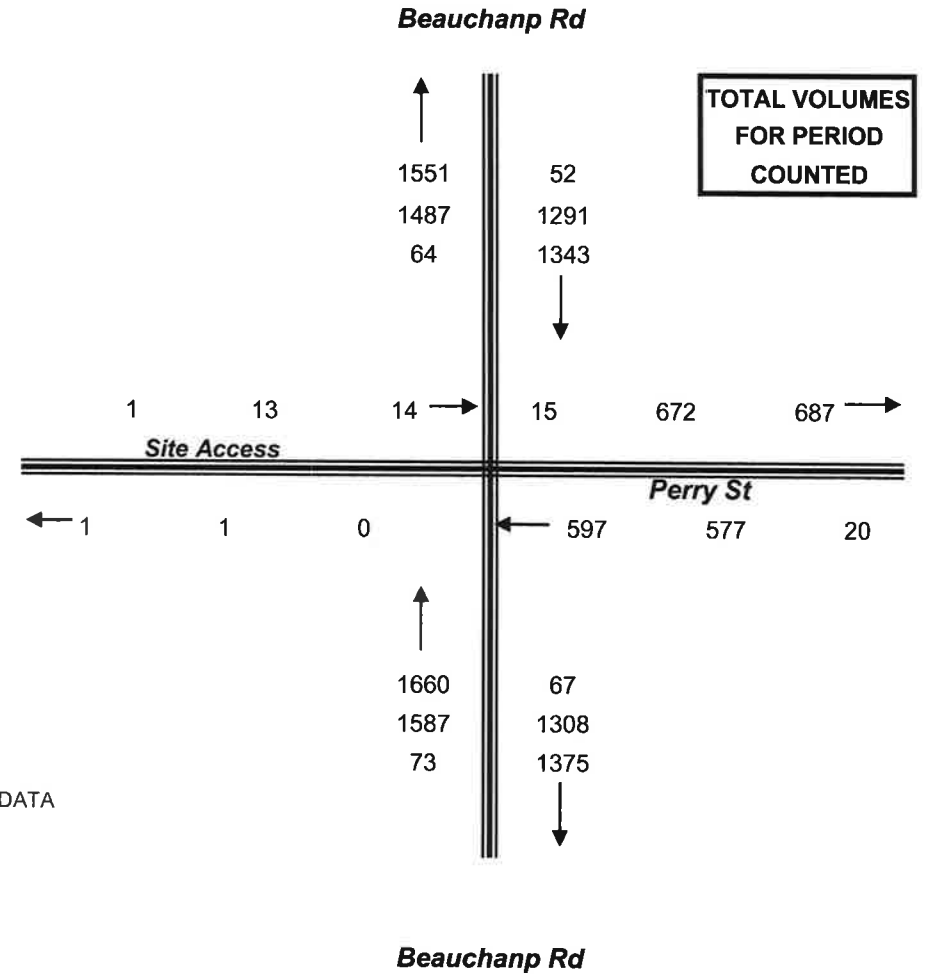
Client : TUPA

Job No/Name : 6082 BANKSMEADOW Perry St

Day/Date : Tuesday 24th May 2016



© Copyright ROAR DATA





R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob.0418-239019

Client : TUPA
Job No/Name : 6082 BANKSMEADOW Perry St
Day/Date : Tuesday 24th May 2016

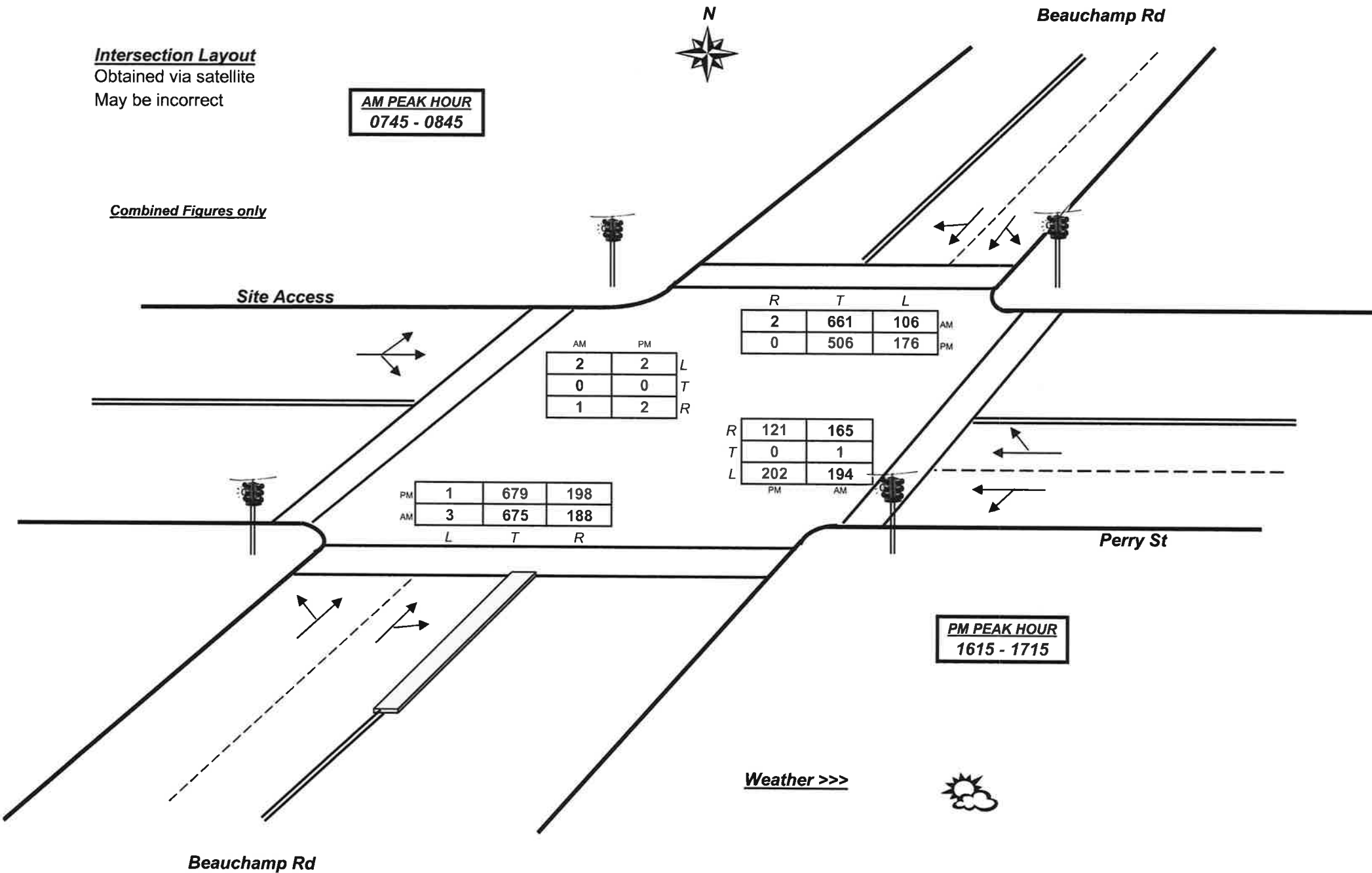
Intersection Layout

Obtained via satellite

May be incorrect

AM PEAK HOUR
0745 - 0845

Combined Figures only



APPENDIX 2

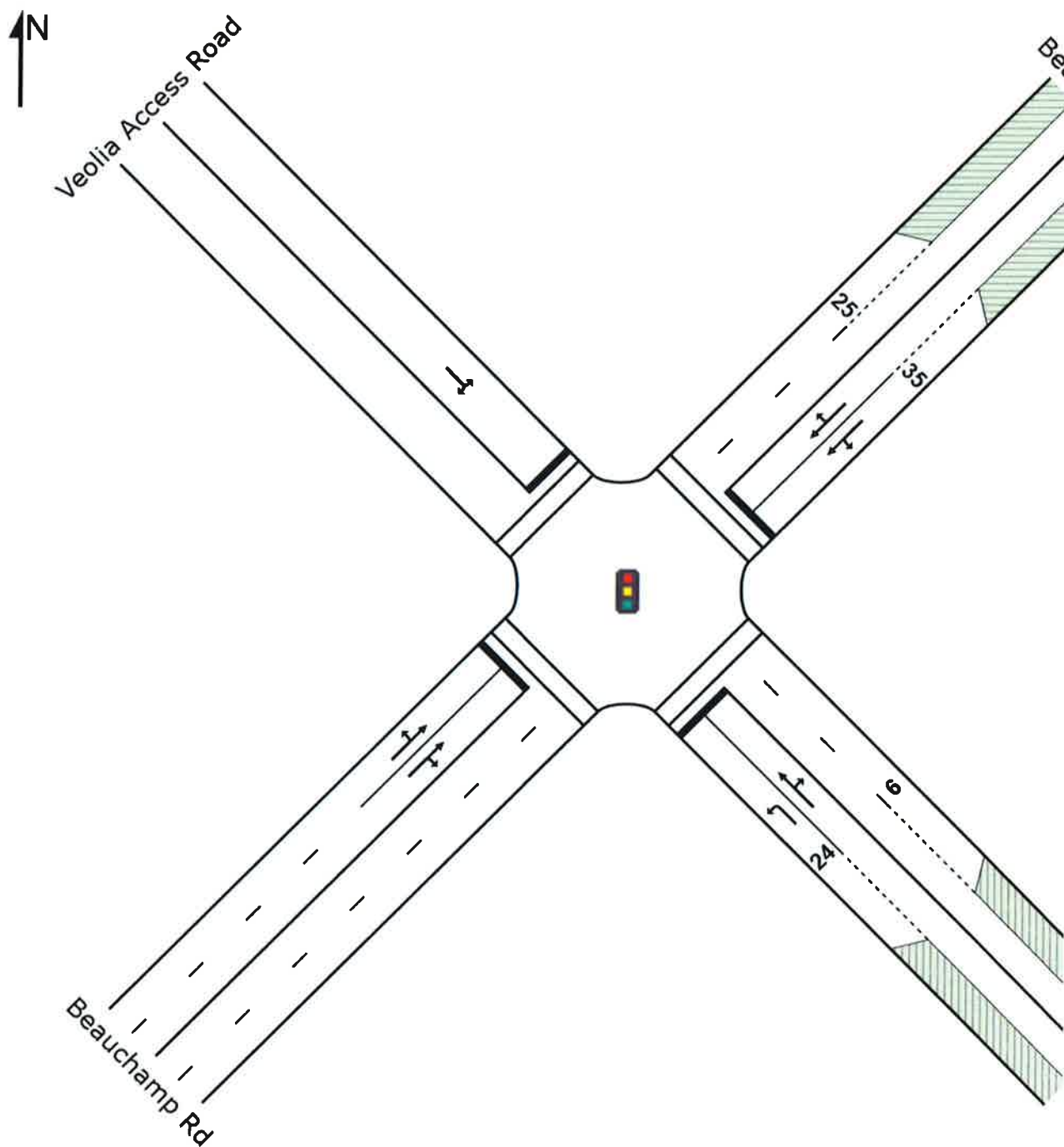
Transport and Urban Planning Pty Ltd's SIDRA Modelling Outputs

SITE LAYOUT

 **Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex AM]**

2016 Ex AM

Signals - Fixed Time Isolated



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Organisation: TRANSPORT AND URBAN PLANNING | Created: Saturday, 4 June 2016 5:59:22 PM

Project: C:\Users\Terry\Documents\15131-2 VeoliaS96 .sip7

MOVEMENT SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex AM]

2016 Ex AM

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Perry St											
21	L2	204	6.2	0.870	47.2	LOS D	8.4	61.6	1.00	1.01	33.2
22	T1	1	0.0	0.641	33.1	LOS C	6.2	44.1	0.99	0.83	36.7
23	R2	174	2.4	0.641	38.7	LOS C	6.2	44.1	0.99	0.83	36.1
Approach		379	4.4	0.870	43.2	LOS D	8.4	61.6	0.99	0.93	34.5
NorthEast: Beauchamp Rd											
24	L2	112	3.0	0.335	10.7	LOS A	5.7	42.4	0.44	0.48	52.6
25	T1	696	8.5	0.335	5.1	LOS A	6.0	45.0	0.44	0.43	54.8
26	R2	2	50.0	0.335	11.2	LOS A	6.0	45.0	0.44	0.39	52.0
Approach		809	7.8	0.335	5.9	LOS A	6.0	45.0	0.44	0.44	54.5
NorthWest: Veolia Access Road											
27	L2	2	100.0	0.025	38.6	LOS C	0.1	1.3	0.91	0.64	35.4
29	R2	1	50.0	0.025	38.6	LOS C	0.1	1.3	0.91	0.64	35.4
Approach		3	83.3	0.025	38.6	LOS C	0.1	1.3	0.91	0.64	35.4
SouthWest: Beauchamp Rd											
30	L2	3	33.3	0.205	10.5	LOS A	3.3	25.0	0.40	0.34	52.9
31	T1	711	9.6	0.884	20.0	LOS B	27.5	206.1	0.71	0.79	44.6
32	R2	198	5.3	0.884	34.0	LOS C	27.5	206.1	0.89	1.04	39.3
Approach		912	8.7	0.884	23.0	LOS B	27.5	206.1	0.75	0.85	43.3
All Vehicles		2103	7.7	0.884	20.1	LOS B	27.5	206.1	0.68	0.70	44.8

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

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

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

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

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P5	SouthEast Full Crossing	1	6.3	LOS A	0.0	0.0	0.42	0.42	
P6	NorthEast Full Crossing	3	33.1	LOS D	0.0	0.0	0.96	0.96	
P7	NorthWest Full Crossing	4	6.7	LOS A	0.0	0.0	0.43	0.43	
P8	SouthWest Full Crossing	1	32.1	LOS D	0.0	0.0	0.94	0.94	
All Pedestrians		9	18.3	LOS B			0.66	0.66	

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

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

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

PHASING SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex AM]

2016 Ex AM

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Phase times determined by the program

Sequence: Two-Phase

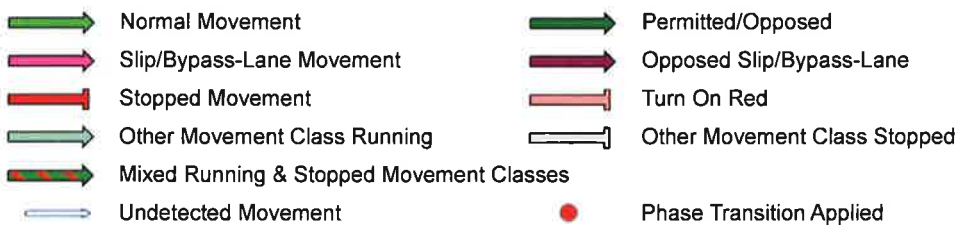
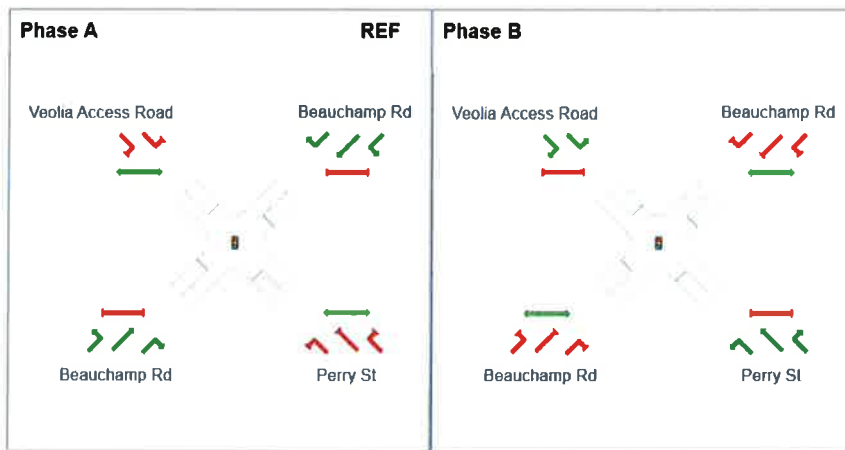
Movement Class: All Movement Classes

Input Sequence: A, B

Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	55
Green Time (sec)	49	11
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	55	17
Phase Split	76%	24%



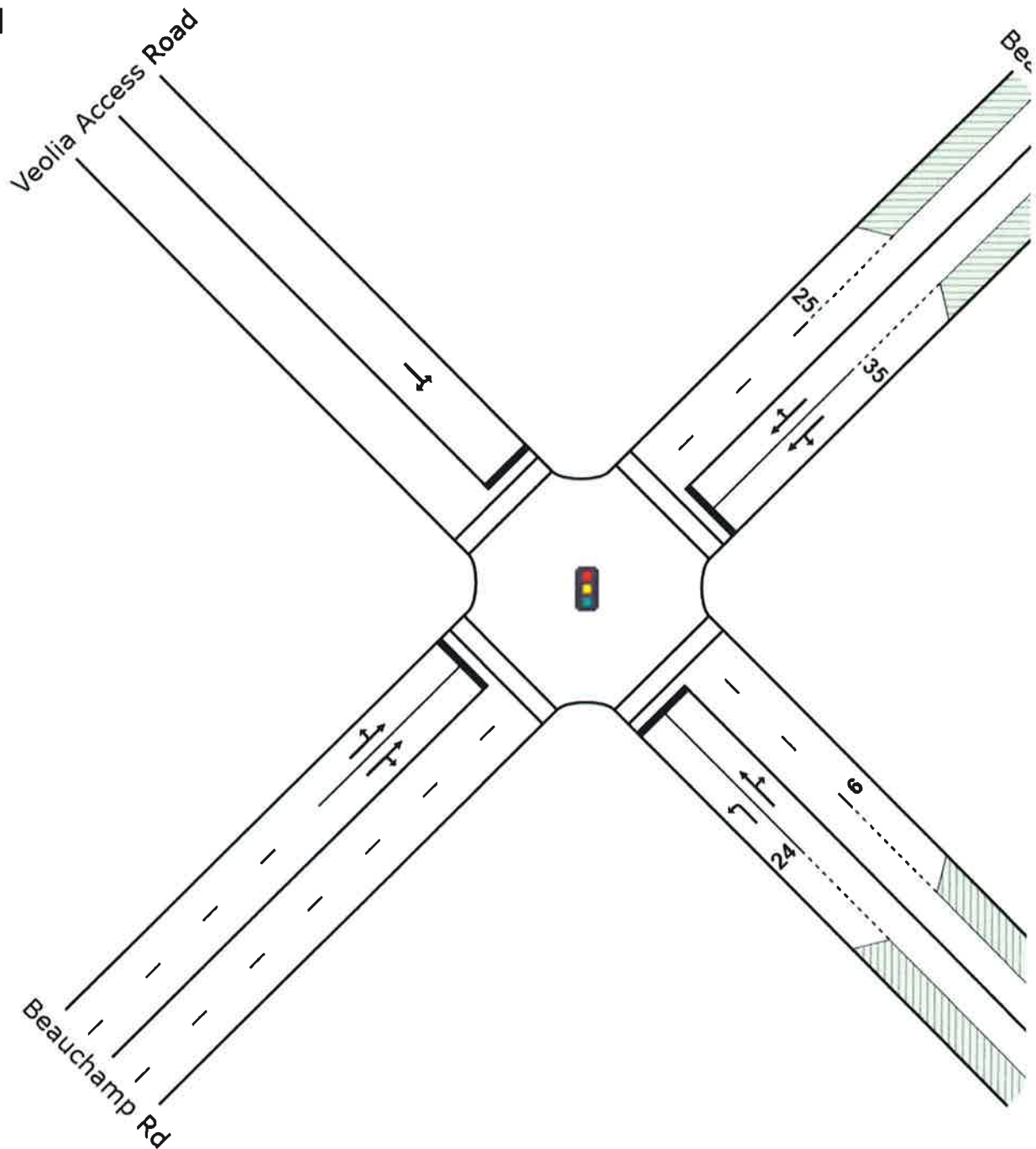
SITE LAYOUT



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex PM]

2016 Ex PM

Signals - Fixed Time Isolated



MOVEMENT SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex PM]

2016 Ex PM

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Perry St											
21	L2	213	4.0	0.861	46.3	LOS D	8.6	62.4	1.00	1.00	33.5
22	T1	1	0.0	0.451	31.3	LOS C	4.3	30.1	0.95	0.78	37.4
23	R2	127	0.0	0.451	36.9	LOS C	4.3	30.1	0.95	0.78	36.8
Approach		341	2.5	0.861	42.7	LOS D	8.6	62.4	0.98	0.92	34.7
NorthEast: Beauchamp Rd											
24	L2	185	1.1	0.291	10.5	LOS A	4.8	34.7	0.43	0.55	51.8
25	T1	533	4.9	0.291	4.9	LOS A	5.2	37.6	0.43	0.43	54.8
26	R2	1	0.0	0.291	10.4	LOS A	5.2	37.6	0.43	0.37	54.3
Approach		719	3.9	0.291	6.3	LOS A	5.2	37.6	0.43	0.46	54.0
NorthWest: Veolia Access Road											
27	L2	2	100.0	0.041	41.3	LOS C	0.1	1.5	0.94	0.64	34.5
29	R2	2	0.0	0.041	40.7	LOS C	0.1	1.5	0.94	0.64	35.4
Approach		4	50.0	0.041	41.1	LOS C	0.1	1.5	0.94	0.64	35.0
SouthWest: Beauchamp Rd											
30	L2	1	0.0	0.195	10.0	LOS A	3.2	23.4	0.39	0.34	54.4
31	T1	715	4.9	0.841	14.4	LOS A	23.5	171.2	0.68	0.71	47.8
32	R2	208	5.1	0.841	25.4	LOS B	23.5	171.2	0.83	0.91	43.3
Approach		924	4.9	0.841	16.9	LOS B	23.5	171.2	0.71	0.76	46.7
All Vehicles		1988	4.2	0.861	17.6	LOS B	23.5	171.2	0.66	0.68	46.2

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

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

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

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

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

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	1	6.3	LOS A	0.0	0.0	0.42	0.42
P6	NorthEast Full Crossing	3	33.1	LOS D	0.0	0.0	0.96	0.96
P7	NorthWest Full Crossing	4	6.7	LOS A	0.0	0.0	0.43	0.43
P8	SouthWest Full Crossing	1	32.1	LOS D	0.0	0.0	0.94	0.94
All Pedestrians		9	18.3	LOS B			0.66	0.66

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

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

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

PHASING SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- Ex PM]

2016 Ex PM

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Phase times determined by the program

Sequence: Two-Phase

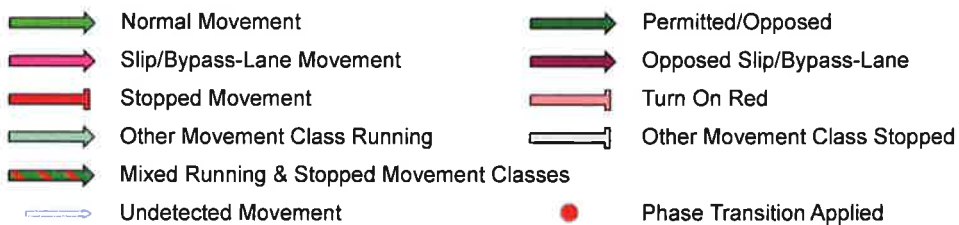
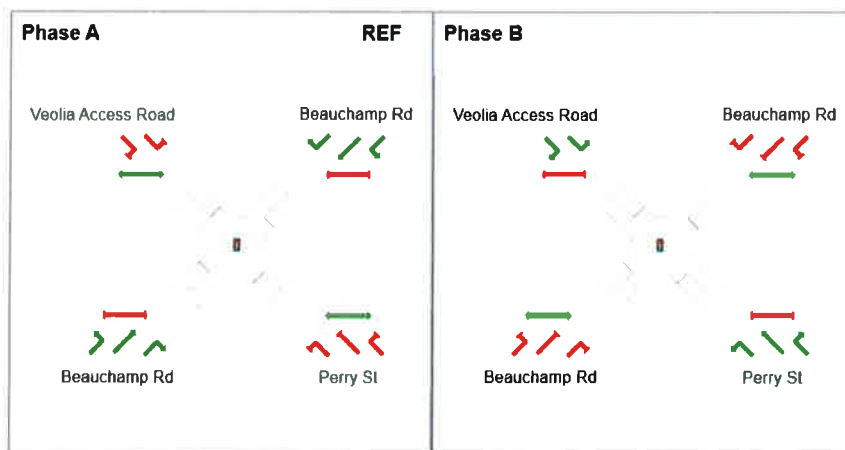
Movement Class: All Movement Classes

Input Sequence: A, B

Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	55
Green Time (sec)	49	11
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	55	17
Phase Split	76%	24%



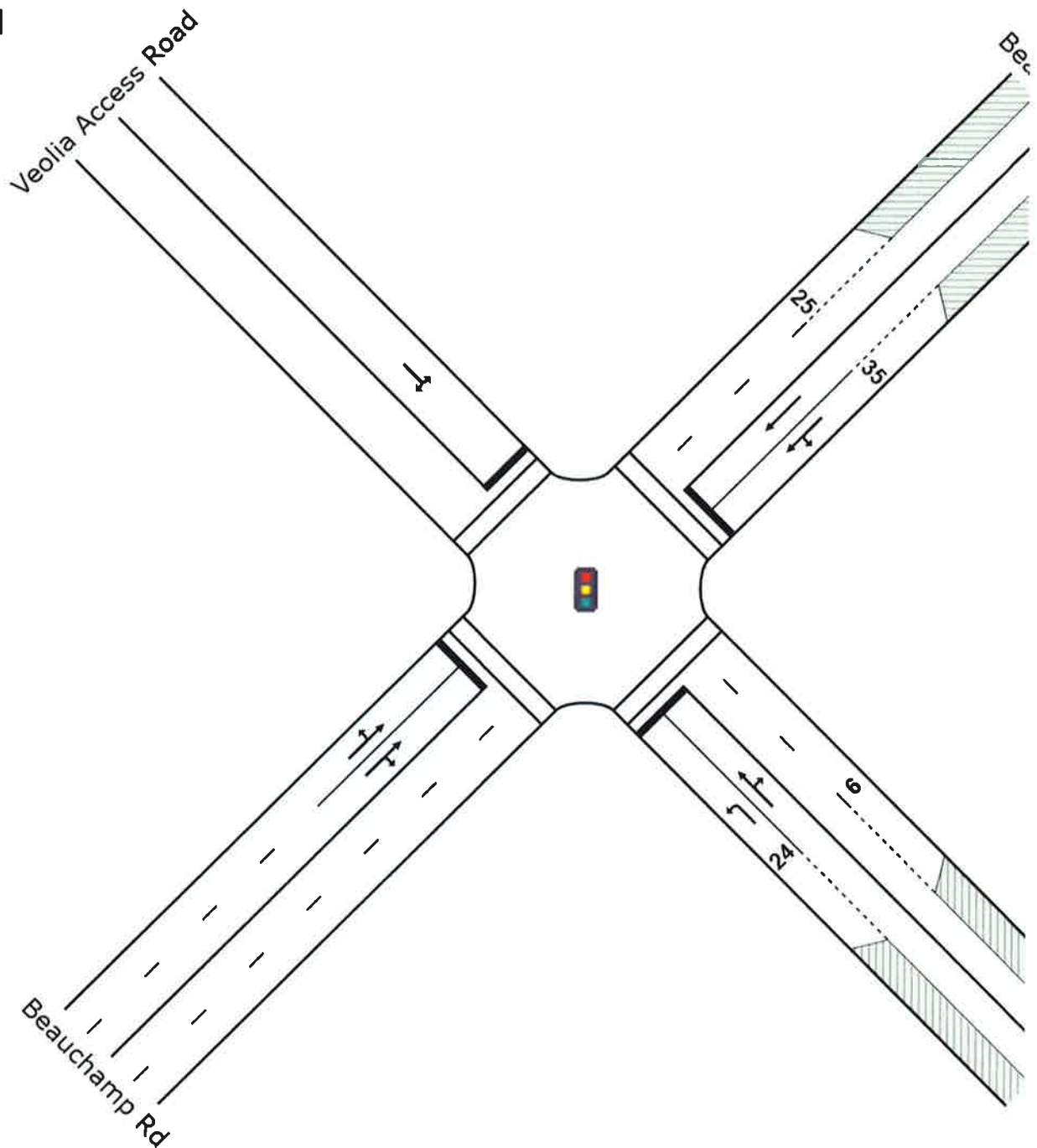
SITE LAYOUT



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- AM & Veolia]

2016 with Veolia

Signals - Fixed Time Isolated



MOVEMENT SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- AM & Veolia]

2016 with Veolia

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Perry St											
21	L2	204	6.2	0.873	47.5	LOS D	8.4	61.9	1.00	1.02	33.1
22	T1	1	0.0	0.657	33.4	LOS C	6.2	44.5	0.99	0.84	36.6
23	R2	174	2.4	0.657	39.0	LOS C	6.2	44.5	0.99	0.84	35.9
Approach		379	4.4	0.873	43.5	LOS D	8.4	61.9	1.00	0.94	34.4
NorthEast: Beauchamp Rd											
24	L2	112	3.0	0.331	10.7	LOS A	5.6	41.8	0.44	0.48	52.6
25	T1	696	8.5	0.331	5.1	LOS A	6.0	45.0	0.44	0.43	54.8
Approach		807	7.7	0.331	5.8	LOS A	6.0	45.0	0.44	0.43	54.5
NorthWest: Veolia Access Road											
27	L2	12	81.8	0.195	41.7	LOS C	0.8	9.7	0.95	0.71	33.9
29	R2	11	100.0	0.195	41.4	LOS C	0.8	9.7	0.95	0.71	34.5
Approach		22	90.5	0.195	41.5	LOS C	0.8	9.7	0.95	0.71	34.2
SouthWest: Beauchamp Rd											
30	L2	26	80.0	0.210	11.0	LOS A	3.2	25.9	0.40	0.38	51.0
31	T1	711	9.6	0.908	24.8	LOS B	31.6	237.1	0.76	0.89	42.1
32	R2	198	5.3	0.908	39.7	LOS C	31.6	237.1	0.92	1.12	37.1
Approach		935	10.7	0.908	27.6	LOS B	31.6	237.1	0.78	0.92	41.1
All Vehicles		2143	9.3	0.908	22.4	LOS B	31.6	237.1	0.69	0.74	43.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.

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

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

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

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

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	1	6.3	LOS A	0.0	0.0	0.42	0.42
P6	NorthEast Full Crossing	3	33.1	LOS D	0.0	0.0	0.96	0.96
P7	NorthWest Full Crossing	4	6.7	LOS A	0.0	0.0	0.43	0.43
P8	SouthWest Full Crossing	1	32.1	LOS D	0.0	0.0	0.94	0.94
All Pedestrians		9	18.3	LOS B			0.66	0.66

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

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

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

PHASING SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- AM & Veolia]

2016 with Veolia

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Phase times determined by the program

Sequence: Two-Phase

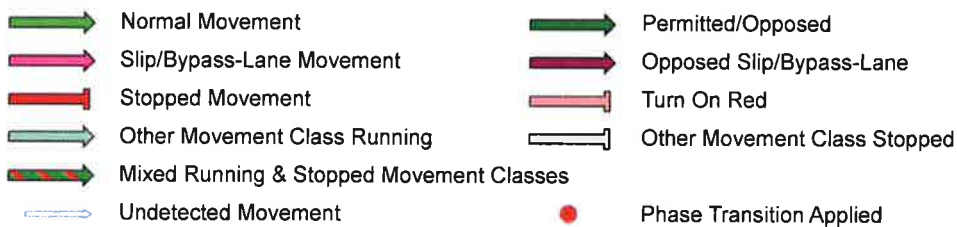
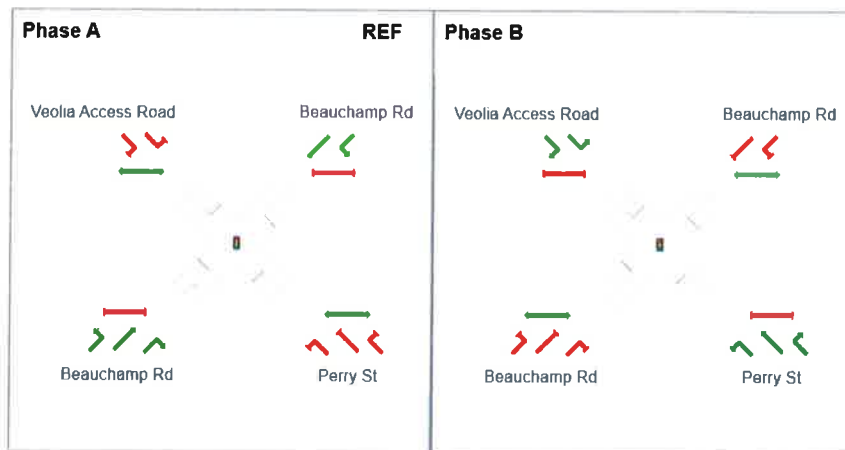
Movement Class: All Movement Classes

Input Sequence: A, B

Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	55
Green Time (sec)	49	11
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	55	17
Phase Split	76%	24%



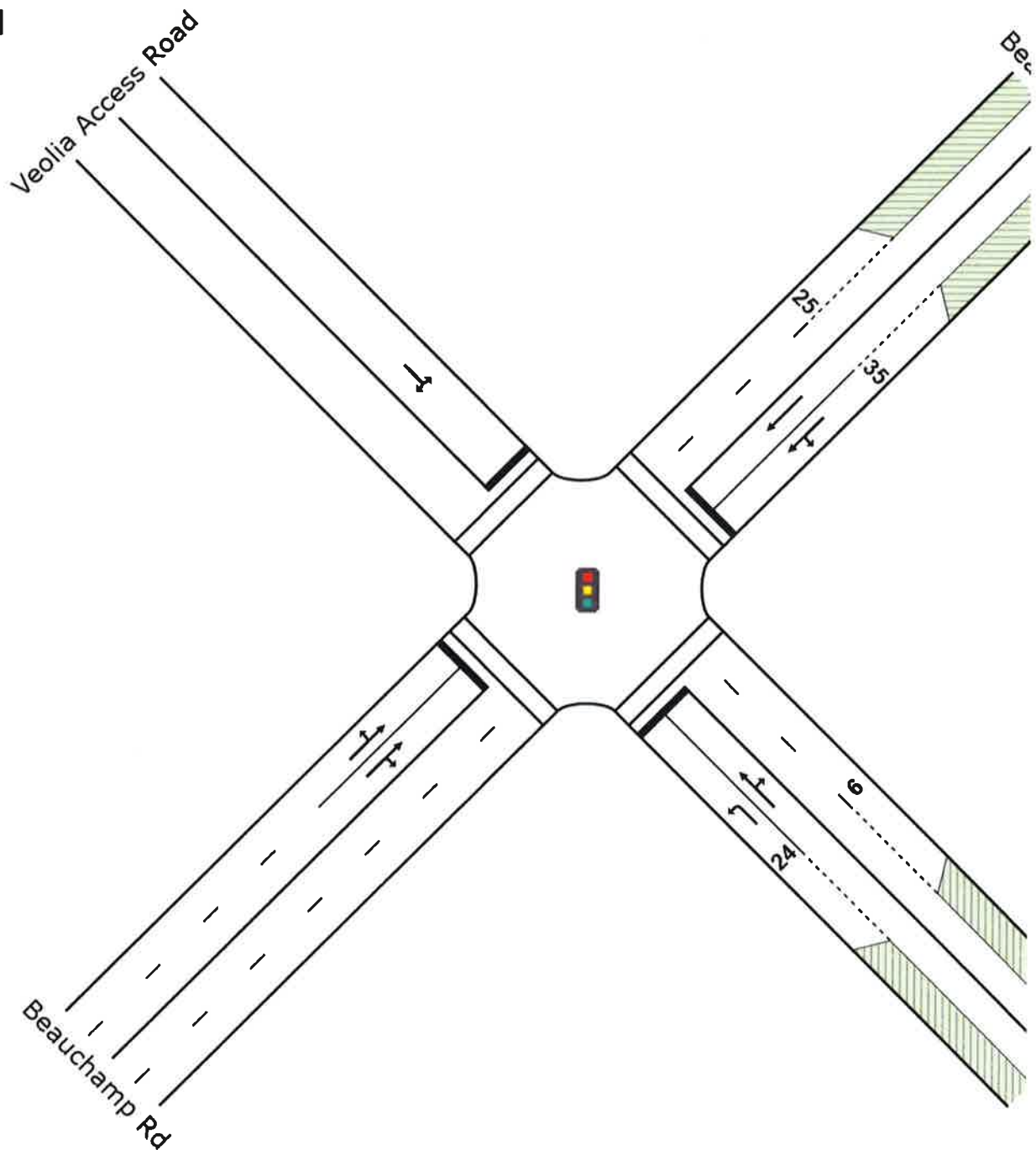
SITE LAYOUT



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- PM & Veolia]

2016 PM with Veolia

Signals - Fixed Time Isolated



MOVEMENT SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- PM & Veolia]

2016 PM with Veolia

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
SouthEast: Perry St											
21	L2	213	4.0	0.866	46.7	LOS D	8.7	62.7	1.00	1.01	33.4
22	T1	1	0.0	0.471	31.5	LOS C	4.3	30.3	0.96	0.79	37.3
23	R2	127	0.0	0.471	37.0	LOS C	4.3	30.3	0.96	0.79	36.7
Approach		341	2.5	0.866	43.0	LOS D	8.7	62.7	0.98	0.92	34.6
NorthEast: Beauchamp Rd											
24	L2	185	1.1	0.289	10.4	LOS A	4.8	34.4	0.43	0.55	51.8
25	T1	533	4.9	0.289	4.9	LOS A	5.2	37.6	0.43	0.43	54.8
Approach		718	3.9	0.289	6.3	LOS A	5.2	37.6	0.43	0.46	54.0
NorthWest: Veolia Access Road											
27	L2	13	75.0	0.242	43.1	LOS D	0.9	10.5	0.97	0.72	33.6
29	R2	13	75.0	0.242	43.1	LOS D	0.9	10.5	0.97	0.72	33.7
Approach		25	75.0	0.242	43.1	LOS D	0.9	10.5	0.97	0.72	33.6
SouthWest: Beauchamp Rd											
30	L2	20	94.7	0.200	11.2	LOS A	3.1	24.1	0.39	0.36	50.5
31	T1	715	4.9	0.862	17.1	LOS B	26.3	191.6	0.71	0.78	46.2
32	R2	208	5.1	0.862	28.4	LOS B	26.3	191.6	0.86	0.96	41.9
Approach		943	6.8	0.862	19.4	LOS B	26.3	191.6	0.74	0.81	45.2
All Vehicles		2027	5.9	0.866	19.1	LOS B	26.3	191.6	0.67	0.70	45.3

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

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

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

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

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

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

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P5	SouthEast Full Crossing	1	6.3	LOS A	0.0	0.0	0.42	0.42	
P6	NorthEast Full Crossing	3	33.1	LOS D	0.0	0.0	0.96	0.96	
P7	NorthWest Full Crossing	4	6.7	LOS A	0.0	0.0	0.43	0.43	
P8	SouthWest Full Crossing	1	32.1	LOS D	0.0	0.0	0.94	0.94	
All Pedestrians		9	18.3	LOS B			0.66	0.66	

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

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

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

PHASING SUMMARY



Site: 1 [Beauchamp Rd, Perry St & Veolia Access Rd- PM & Veolia]

2016 PM with Veolia

Signals - Fixed Time Isolated Cycle Time = 72 seconds (User-Given Cycle Time)

Phase times determined by the program

Sequence: Two-Phase

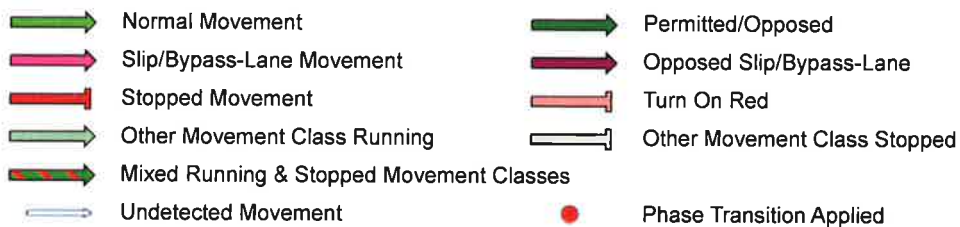
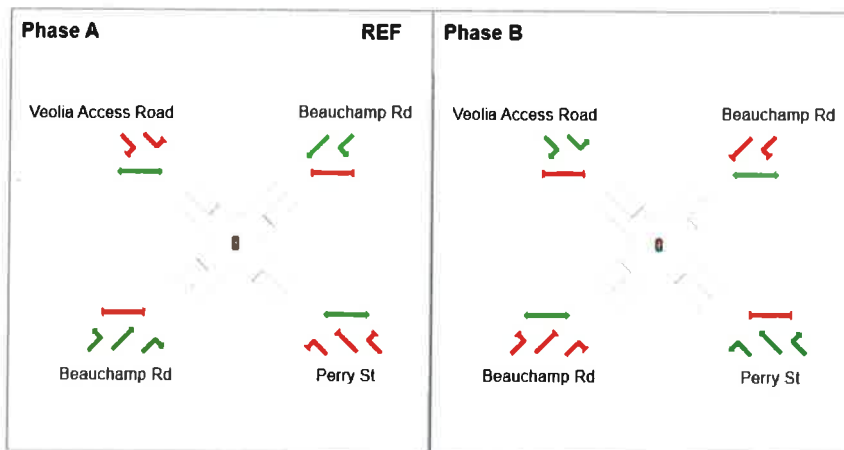
Movement Class: All Movement Classes

Input Sequence: A, B

Output Sequence: A, B

Phase Timing Results

Phase	A	B
Reference Phase	Yes	No
Phase Change Time (sec)	0	55
Green Time (sec)	49	11
Yellow Time (sec)	4	4
All-Red Time (sec)	2	2
Phase Time (sec)	55	17
Phase Split	76%	24%



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