



TRAFFIC MANAGEMENT & SAFETY CONSULTANTS

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SUPPLEMENTARY TRAFFIC REPORT

PROPOSED HAULAGE ROAD

STOCKTON BIGHT, WILLIAMTOWN

February 2013

Le Mottee
(For The Applicant)

Port Stephens Shire Council Local Government Area

Prepared by
Terry Keating
Director
TPK & Associates Pty Ltd

PROPOSED HAULAGE ROAD STOCKTON BIGHT

SUPPLEMENTARY TRAFFIC REPORT

INTRODUCTION

TPK & Associates Pty Ltd (TPK) was invited by the Le Mottee Group to join their project team to provide traffic reporting services for the proposed haulage road located on:

Lot 218 DP1044608, Williamtown

TPK prepared a Traffic Assessment Report in 2012 to support the Development Application. As part of DA assessment process there has been comment made over the potential impact of the haul road traffic of the intersection of Nelson Bay & Richardson Road roundabout.

Mr. Terry Keating, Director TPK, undertook the original evaluation and preparation of the 2012 Traffic Assessment Report and has prepared this additional analysis and Supplementary Traffic Report. He has over 40 years experience in the road safety and traffic management profession, including the assessment of traffic generating developments, road safety audits (Lead Auditor) and practical deliberations for Land and Environment court matters.

The analysis undertaken for this report has been:

- Peak Hour Traffic Survey at the intersection of concern.
- SIDRA modelling of those peak hour flows plus the inclusion if the additional truck trips associated with the proposed haulage road to provide capacity outcomes
- Examination of the NSW Transport Centre for Road Safety Accident Data for the period July 2007 to Dec 2012 to overview road safety.

TPK utilise the intersection-modelling program SIDRA to review intersection performance. The outcomes of the model include:

- Level of Service.
- Average Delay.
- 95% back of queue length.

The term Level of Service (LoS) is one output parameter of the SIDRA model; it provides an insight into “operating conditions” of the intersection and each approach. The output range is indicated in the range LoS A to LoS F where A indicates good operating conditions reducing to F where other forms of control may need to be considered.

INTERSECTION CAPACITY

Traffic counts have been undertaken at the intersection in February 2013; the data is provided in Appendix A.

The peak hour expectation is that the site will generate 8 outward and 8 inward truck movements; the outward movements will all distribute to the south or west and the return trips are expected to be 2 approaching the subject roundabout on Richardson Road and turning right to the site with the other 6 trips being U-Turns north to south on Nelson Bay Road back to the site.

The geometric layout from the SIDRA model is provided as Figure 1

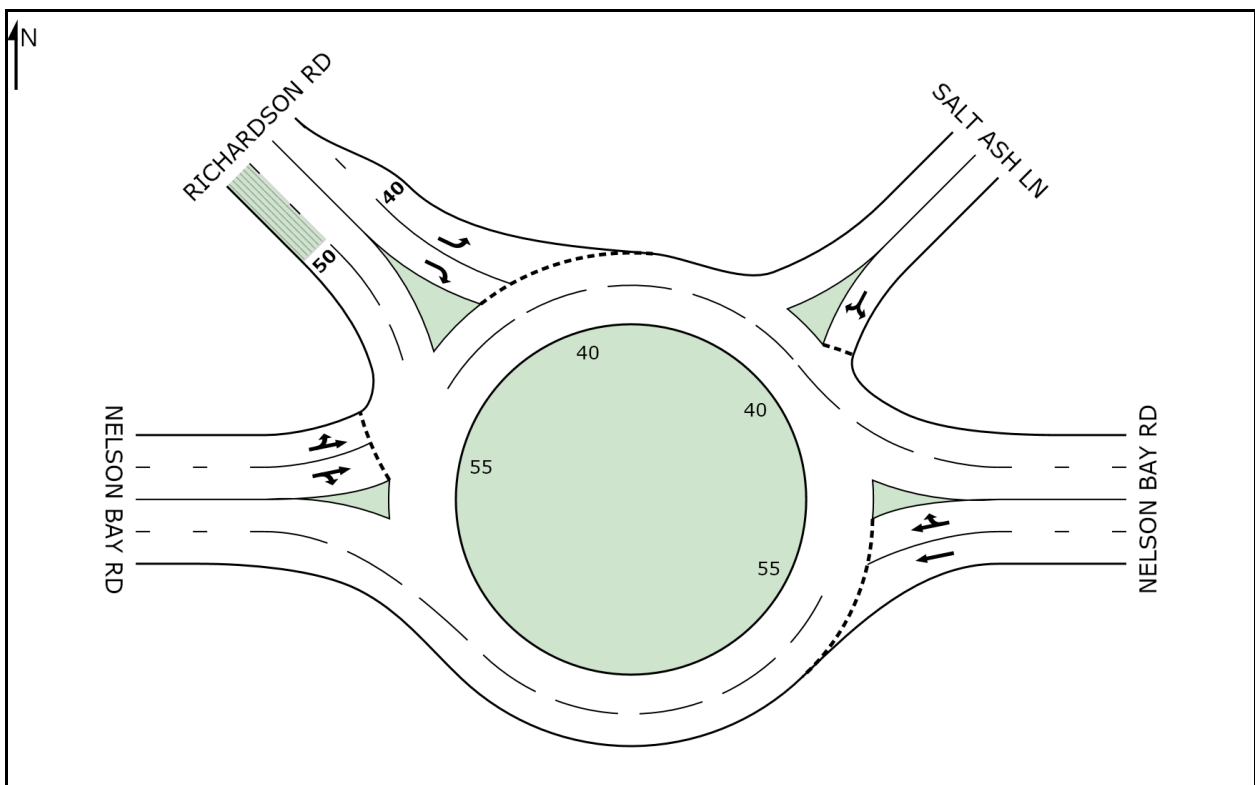


FIGURE 1 – SIDRA GEOMETRIC LAYOUT

An outcome of the SIDRA model is Movement Summary; this summary provides a comprehensive overview of intersection performance.

Movement Summaries M1 to M4 are provided for the following:

- Existing AM Peak 2013.
- Existing AM Peak 2013 with 8 additional Turn movements.
- Existing PM Peak 2013.
- Existing PM Peak 2013 with 8 additional Turn movements.

MOVEMENT SUMMARY

Site: **NELSON BAY &
RICHARDSON RDS AM**

NELSON BAY & RICHARDSON RDS, SALT ASH
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%	v/c	sec		Vehicles	Distance		per veh	km/h
							veh	m			
East: NELSON BAY RD											
5	T	882	3.9	0.406	2.8	LOS A	2.7	19.2	0.22	0.27	53.8
6	R	533	5.3	0.406	10.5	LOS B	2.6	19.2	0.25	0.63	47.1
Approach		1415	4.5	0.406	5.7	LOS A	2.7	19.2	0.23	0.40	50.9
North East: SALT ASH LN											
24	L	37	11.4	0.082	7.4	LOS A	0.3	2.3	0.46	0.62	48.9
26	R	42	5.0	0.082	12.3	LOS B	0.3	2.3	0.46	0.74	45.7
Approach		79	8.0	0.082	10.0	LOS B	0.3	2.3	0.46	0.68	47.0
North West: RICHARDSON RD											
27	L	254	9.5	0.205	4.5	LOS A	0.9	6.7	0.42	0.41	51.1
29	R	26	12.0	0.034	15.0	LOS B	0.1	0.9	0.42	0.71	44.2
Approach		280	9.8	0.205	5.5	LOS A	0.9	6.7	0.42	0.44	50.3
West: NELSON BAY RD											
10	L	25	8.3	0.135	4.7	LOS A	0.8	6.4	0.56	0.45	50.3
11	T	308	10.9	0.135	5.1	LOS A	0.8	6.4	0.57	0.48	50.3
12	R	1	0.0	0.135	16.2	LOS B	0.7	5.7	0.58	0.97	45.1
Approach		335	10.7	0.135	5.1	LOS A	0.8	6.4	0.57	0.48	50.2
All Vehicles		2108	6.3	0.406	5.7	LOS A	2.7	19.2	0.32	0.43	50.6

MOVEMENT SUMMARY

Site: **NELSON BAY &
RICHARDSON RDS AM**

NELSON BAY & RICHARDSON RDS, SALT ASH
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue	Prop. Queued	Effective Stop Rate	Average Speed	
		veh/h	%	v/c	sec		Vehicles	Distance		per veh	km/h
							veh	m			
East: NELSON BAY RD											
5	T	882	3.9	0.409	2.8	LOS A	2.6	19.2	0.24	0.27	53.6
6	R	533	5.3	0.409	10.6	LOS B	2.6	19.1	0.27	0.63	47.0
Approach		1415	4.5	0.409	5.7	LOS A	2.6	19.2	0.25	0.41	50.8
North East: SALT ASH LN											
24	L	37	11.4	0.083	7.5	LOS A	0.3	2.3	0.46	0.62	48.8
26	R	42	5.0	0.083	12.3	LOS B	0.3	2.3	0.46	0.74	45.7
Approach		79	8.0	0.083	10.1	LOS B	0.3	2.3	0.46	0.69	47.0
North West: RICHARDSON RD											
27	L	254	9.5	0.207	4.5	LOS A	0.9	6.7	0.43	0.42	51.1
29	R	28	18.5	0.040	15.3	LOS B	0.1	1.1	0.43	0.72	44.1
Approach		282	10.4	0.207	5.6	LOS A	0.9	6.7	0.43	0.45	50.1
West: NELSON BAY RD											
10	L	25	8.3	0.141	4.7	LOS A	0.9	6.8	0.57	0.45	50.3
11	T	308	10.9	0.141	5.2	LOS A	0.9	6.8	0.58	0.49	50.2
12	R	7	85.7	0.141	18.3	LOS B	0.8	6.1	0.59	1.01	44.9
Approach		341	12.3	0.141	5.4	LOS A	0.9	6.8	0.58	0.50	50.0
All Vehicles		2117	6.7	0.409	5.8	LOS A	2.6	19.2	0.34	0.44	50.4

MOVEMENT SUMMARY

Site: NELSON BAY &
RICHARDSON RDS PM - Copy

NELSON BAY & RICHARDSON RDS, SALT ASH
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: NELSON BAY RD											
5	T	361	8.2	0.191	2.7	LOS A	1.1	8.0	0.17	0.26	54.5
6	R	292	7.2	0.191	10.6	LOS B	1.0	7.7	0.18	0.59	47.1
Approach		653	7.7	0.191	6.2	LOS A	1.1	8.0	0.18	0.41	50.7
North East: SALT ASH LN											
24	L	86	11.0	0.215	12.4	LOS B	1.0	8.0	0.77	0.88	45.0
26	R	35	9.1	0.215	17.5	LOS B	1.0	8.0	0.77	0.93	42.4
Approach		121	10.4	0.215	13.8	LOS B	1.0	8.0	0.77	0.89	44.2
North West: RICHARDSON RD											
27	L	595	1.4	0.572	7.0	LOS A	3.8	27.1	0.75	0.73	48.5
29	R	19	5.6	0.027	15.7	LOS B	0.1	0.7	0.58	0.79	43.6
Approach		614	1.5	0.572	7.2	LOS A	3.8	27.1	0.74	0.73	48.3
West: NELSON BAY RD											
10	L	81	2.6	0.341	3.9	LOS A	2.2	15.4	0.45	0.38	51.3
11	T	963	3.1	0.341	4.1	LOS A	2.2	15.4	0.47	0.40	51.2
12	R	1	0.0	0.341	15.2	LOS B	2.0	14.5	0.48	1.00	45.7
Approach		1045	3.0	0.341	4.1	LOS A	2.2	15.4	0.46	0.40	51.2
All Vehicles		2433	4.3	0.572	6.0	LOS A	3.8	27.1	0.47	0.51	49.9

MOVEMENT SUMMARY

Site: NELSON BAY &
RICHARDSON RDS PM - Copy

NELSON BAY & RICHARDSON RDS, SALT ASH
Roundabout

Movement Performance - Vehicles											
Mov ID	Turn	Demand Flow	HV	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	v/c	sec		veh	m		per veh	km/h
East: NELSON BAY RD											
5	T	361	8.2	0.192	2.8	LOS A	1.0	7.8	0.19	0.26	54.3
6	R	292	7.2	0.193	10.7	LOS B	1.0	7.6	0.21	0.59	46.9
Approach		653	7.7	0.193	6.3	LOS A	1.0	7.8	0.20	0.41	50.5
North East: SALT ASH LN											
24	L	86	11.0	0.216	12.4	LOS B	1.1	8.0	0.77	0.88	44.9
26	R	35	9.1	0.216	17.5	LOS B	1.1	8.0	0.77	0.93	42.4
Approach		121	10.4	0.216	13.9	LOS B	1.1	8.0	0.77	0.89	44.1
North West: RICHARDSON RD											
27	L	595	1.4	0.576	7.0	LOS A	3.9	27.5	0.75	0.74	48.5
29	R	21	15.0	0.035	16.4	LOS B	0.1	1.0	0.59	0.81	43.6
Approach		616	1.9	0.576	7.4	LOS A	3.9	27.5	0.75	0.74	48.2
West: NELSON BAY RD											
10	L	81	2.6	0.346	3.9	LOS A	2.2	15.9	0.45	0.38	51.3
11	T	963	3.1	0.346	4.2	LOS A	2.2	15.9	0.47	0.40	51.1
12	R	7	85.7	0.346	17.1	LOS B	2.1	14.9	0.49	1.02	45.7
Approach		1052	3.6	0.346	4.2	LOS A	2.2	15.9	0.47	0.40	51.1
All Vehicles		2441	4.6	0.576	6.1	LOS A	3.9	27.5	0.48	0.51	49.8

The Movement Summaries disclose that acceptable operation in terms of capacity is indicated for the existing peaks and that the additional traffic from the subject development when added to the model has no impact on capacity.

ROAD SAFETY

The accident data provided by the Centre for Road Safety is the official records from reported accidents; Figure 2 summaries the accidents reported at the intersection.

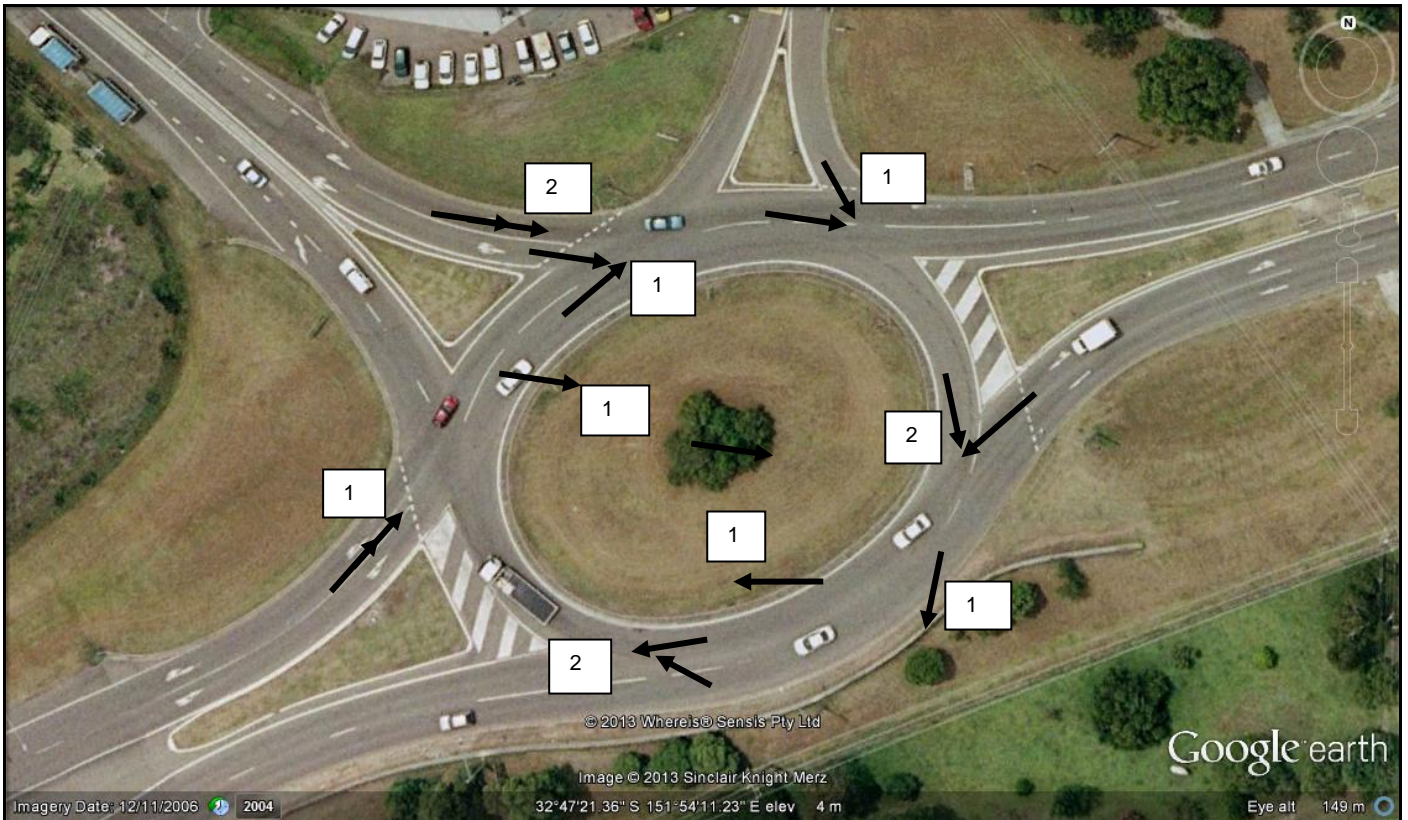


FIGURE 2 – ACCIDENT SUMMARY FOR PERIOD JULY 2007 TO DECEMBER 2012

Review of the records disclosed:

- There were 12 reported accidents over the 5.5 years; 7 persons injured in 6 injury accidents.
- The maximum number of reported accidents in any one year was 3 in 2010.
- The highest number of accidents reports on any one day was 4 accidents on a Thursday over the 5.5 years.
- 6 of the 12 reported accidents over the 5.5 years occurred between the period 1000 and 1600.

The small yearly accident rate does not suggest that the intersection is unsafe; records do not disclose any specific cluster period in respect to time of day or in relation to specific movements.

Given the intersections vehicle usage TPK submits the intersection manages traffic in an acceptable manner when considering road safety.

SUMMATION

The additional analysis by TPK has disclosed that:

1. SIDRA modelling has indicated that intersection performance at the Nelson Bay & Richardson Roads roundabout will not be impacted on by the development in terms of capacity. The model outcomes support this view where as an example:
 - The intersection is performing at Level of Service A (best performance level) and the additional traffic did not change that level.
 - The intersection Average Delay only increased by 0.1 of a second with the additional traffic added to the model.
 - The intersection Average Queue length increased by only 0.1m and 0.4m in the am & pm peaks respectively.

2. Accident data for the last 5.5 years when balanced against intersection volume usage did not indicate the intersection was performing poorly in terms of road safety.

This analysis reaffirms TPK's recommendation in the Traffic Report supporting the development.

Prepared by

T Keating

Mr. T Keating
Director, TPK & Associates

APPENDIX A
INTERSECTION COUNTS

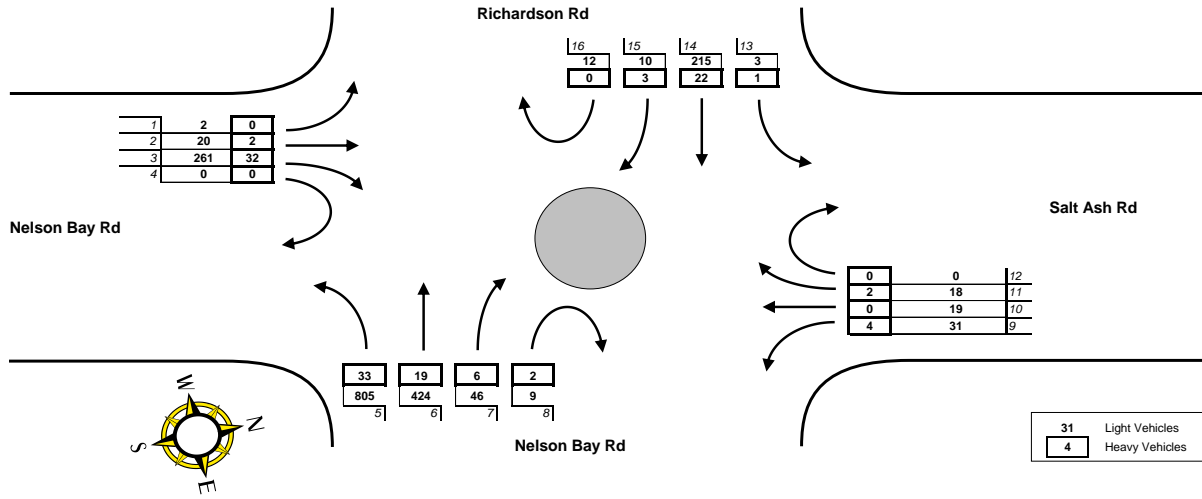


12/2/2013 - Nelson Bay Rd / Richardson Rd, Salt Ash

8:15 <<< HOUR ENDING

Tuesday

Summary:	
Nelson Bay Rd / Richardson Rd	
1875	Total Light Vehicles
126	Total Heavy Vehicles



12/2/2013 - Nelson Bay Rd / Richardson Rd, Salt Ash

Light Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Vehicles 15 MIN HOUR
07:15	1	4	48	0	193	115	2	2	0	7	2	0	0	29	2	4	409
07:30	1	2	76	0	234	118	6	3	7	5	4	0	1	52	2	1	512
07:45	0	8	59	0	204	115	14	4	7	6	3	0	0	63	0	5	488
08:00	0	4	59	0	191 <	94 <	18	1 <	7	5 <	5	0	0	44	5	2 <	435 1844
08:15	1	6	67 <	0	176	97	8	1	10	3	6	0	2	56	3 <	4 <	440 1875 <
08:30	1	4 <	60	0	160	100	6	4 <	7	1	6	0	0	65	2 <	1 <	417 1780
08:45	3	4	53	0	123	95	28	2	15	9	3	0	3	60	0 <	1	399 1691
09:00	1 <	7	51	0	101	85	35 <	2	20 <	8	8 <	0	2 <	53 <	4	5	382 1638

Heavy Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Vehicles 15 MIN HOUR
07:15	0	0	7	0	8	3	0	1	3	1	2	0	0	6	0	0	31
07:30	0	0	6	0	7	3	1	0	1	0	0	0	0	9	1	0	28
07:45	0	1	5	0	12	1	0	0	0	0	0	0	0	2	0	0	21
08:00	0	1 <	10	0	10	5	5	0	2 <	0 <	0	0	1 <	5 <	0	0	59 119
08:15	0	0 <	11	0	4	10	0	2 <	1	0	2	0	0	6 <	2 <	0	38 126
08:30	0	0 <	8	0	13 <	1	3	0 <	1	1 <	1 <	0	0	4	0	0	32 130
08:45	0	0	10	0	0	6 <	4 <	0 <	1	0 <	0 <	0	0 <	5	0	0	26 135 <
09:00	0	1	12 <	0	7	3	2	0 <	0	0 <	0 <	0	0	1	1 <	0	27 123

All Vehicles

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total Vehicles 15 MIN HOUR
07:15	1	4	55	0	201	118	2	3	3	8	4	0	0	35	2	4	440
07:30	1	2	82	0	241	121	7	3	8	5	4	0	1	61	3	1	540
07:45	0	9	64	0	216	116	14	4	7	6	3	0	0	65	0	5	509
08:00	0	5	69	0	201 <	99 <	23	1	9	5 <	5	0	1	49	5	2 <	474 1963
08:15	1	6	78 <	0	180	107	8	3	11	3	8	0	2	62	5 <	4 <	478 2001 <
08:30	1	4 <	68	0	173	101	9	4 <	8	2	7	0	0	69	2	1 <	449 1910
08:45	3	4	63	0	123	101	32	2	16	9	3	0	3	65	0	1	425 1826
09:00	1 <	8	63	0	108	88	37 <	2	20 <	8	8 <	0	2 <	54 <	5	5	409 1761

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.

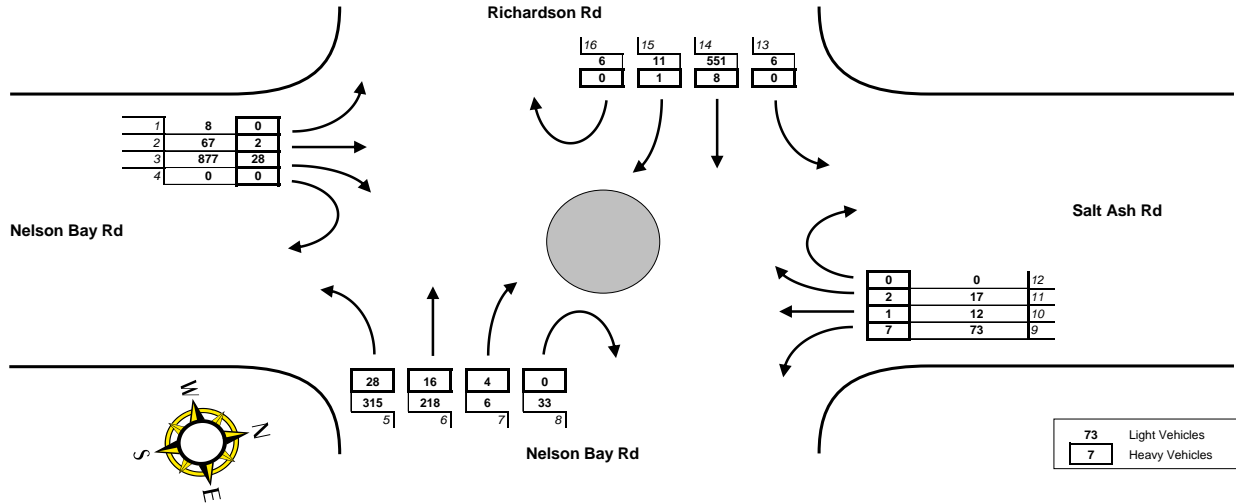


11/2/2013 - Nelson Bay Rd / Richardson Rd, Salt Ash

17:00 <<< HOUR ENDING

Monday

Summary:	
Nelson Bay Rd / Richardson Rd	
2200	Total Light Vehicles
97	Total Heavy Vehicles



11/2/2013 - Nelson Bay Rd / Richardson Rd, Salt Ash

Light Vehicles																Total Vehicles	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	15 MIN HOUR	
15:15	2	9	140	0	92	55	5	1	12	4	8	0	0	76	0	0	404
15:30	2	9	175	0	88	67	9	2	8	4	3	0	1	90	1	0	459
15:45	0	13	150	0	65	61	8	0	12	0	1	0	2	118	3	2	435
16:00	4	15	174	0	63	48 <	6 <	4	12	5	4	0	0	111	6	0	452 1750
16:15	0	14	252	0	95	41	3	7	22	5 <	7	0	2	167	1	2	618 1964
16:30	2	23	230	0	86	61	0	8	17	0	2	0	1	123	1	1	555 2060
16:45	1	14	205	0	60	50	1	11	15	4 <	4 <	0	1	144	5	1	516 2141
17:00	5	16 <	190 <	0	74 <	66	2	7 <	19 <	3	4 <	0	2 <	117 <	4	2 <	511 2200 <
17:15	1	13	218	0	64	48	3	4	19	1	2	0	0	118	1	0	492 2074
17:30	6	15	216	0	68	51	6	5	14	0	2	0	2	116	4 <	1	506 2025
17:45	4 <	9	215	0	61	46	3	8	14	2	4	0	0	105	1	0	472 1981
18:00	0	16	138	0	56	45	2	6	10	0	2	0	1	82	0	0	358 1828

Heavy Vehicles																Total Vehicles
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	15 MIN HOUR
15:15	0	1	5	0	7	8	2	0	0	0	0	1	5	0	1	30
15:30	0	0	4	0	9	6	0	0	1	0	0	0	3	0	0	23
15:45	0	0	8	0	4	5	0	0	1	0	1	0	5	0	0	24
16:00	0	0	5	0	12	7 <	0	1 <	0	0	0	0	1 <	0	0 <	26 103
16:15	0	0	16	0	5	4	1	0 <	2	0	2 <	0	2	0	0	32 105
16:30	0	1	5 <	0	8	6	0	0 <	2	0	0 <	0	2	0	0	24 106 <
16:45	0	0	3	0	9 <	4	2	0 <	0	0	0	0	1	0	0	19 101
17:00	0	1 <	4	0	6	2	1 <	0	3 <	1	0	0	3	1 <	0	22 97
17:15	0	0 <	4	0	10	2	1 <	0	1	1 <	0	0	1 <	2	0 <	22 87
17:30	0	0	4	0	0	2	0 <	0	0	0 <	0	0	0 <	2	0 <	8 71
17:45	0	0	2	0	4	3	0	1 <	0	0 <	0	0	0 <	2	0 <	12 64
18:00	0	0	0	0	2	0	1	0 <	0	0	1	0	0 <	1	0	5 47

All Vehicles																Total Vehicles	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	15 MIN HOUR	
15:15	2	10	145	0	99	63	7	1	12	4	8	0	1	81	0	1	434
15:30	2	9	179	0	97	73	9	2	9	4	3	0	1	93	1	0	482
15:45	0	13	158	0	69	66	8	0	13	0	2	0	2	123	3	2	459
16:00	4	15	179	0	75	55 <	6 <	5	12	5	4	0	0	112	6	0	478 1853
16:15	0	14	268	0	100	45	4	7	24	5 <	9	0	2	169	1	2	650 2069
16:30	2	24	235	0	94	67	0	8	19	0	2	0	1	125	1	1	579 2166
16:45	1	14	208	0	69	54	3	11	15	4 <	4 <	0	1	145	5	1	535 2242
17:00	5	17 <	194 <	0	80 <	68	3	7 <	22 <	4	4 <	0	2 <	120 <	5	2 <	533 2297 <
17:15	1	13	222	0	74	50	4	4	20	2	2	0	1	120	1	0	514 2161
17:30	6	15	220	0	68	53	6	5	14	0	2	0	2 <	118	4 <	1	514 2096
17:45	4 <	9	217	0	65	49	3	9	14	2	4	0	0	107	1	0	484 2045
18:00	0	16	138	0	58	45	3	6	10	0	3	0	1	83	0	0	363 1875

Note : Arrows "<" indicate the end time for the peak hour for each turning movement.