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PROPOSED LANDFILL FACILITY

950 BALLARTO ROAD, CRANBOURNE SOUTH

TRAFFIC ENGINEERING ASSESSMENT

Prepared for

SBI CRANBOURNE QUARRIES

MAY 2013
OUR REFERENCE: 14720R#1

PROPOSED LANDFILL FACILITY

950 BALLARTO ROAD, CRANBOURNE SOUTH

TRAFFIC ENGINEERING ASSESSMENT

Study Team: Nathan Woolcock
B.E. (Civil), M.I.E. Aust, M.V.P.E.L.A.

Our Reference: 14720R#1

TABLE OF CONTENTS

1 INTRODUCTION

Traffix Group has been engaged by SBI Cranbourne Quarries to undertake a traffic engineering assessment and to prepare a report for the proposed landfill facility at 950 Ballarto Road in Cranbourne South.

In particular, this report provides information and comparison of the existing and projected traffic activity associated with the existing and proposed uses on the site.

Traffix Group also prepared a report for the site in September 2005 (Our Reference No. 6975R2386) which investigated and demonstrated the traffic benefits of providing a new landfill facility on the site in a regional sense.

2 EXISTING CONDITIONS

2.1 Site Locality

The subject site is located on the south side of Ballarto Road, immediately west of the Cranbourne Royal Botanic Gardens in Cranbourne South, as presented in the locality plan at Figure 1 below.

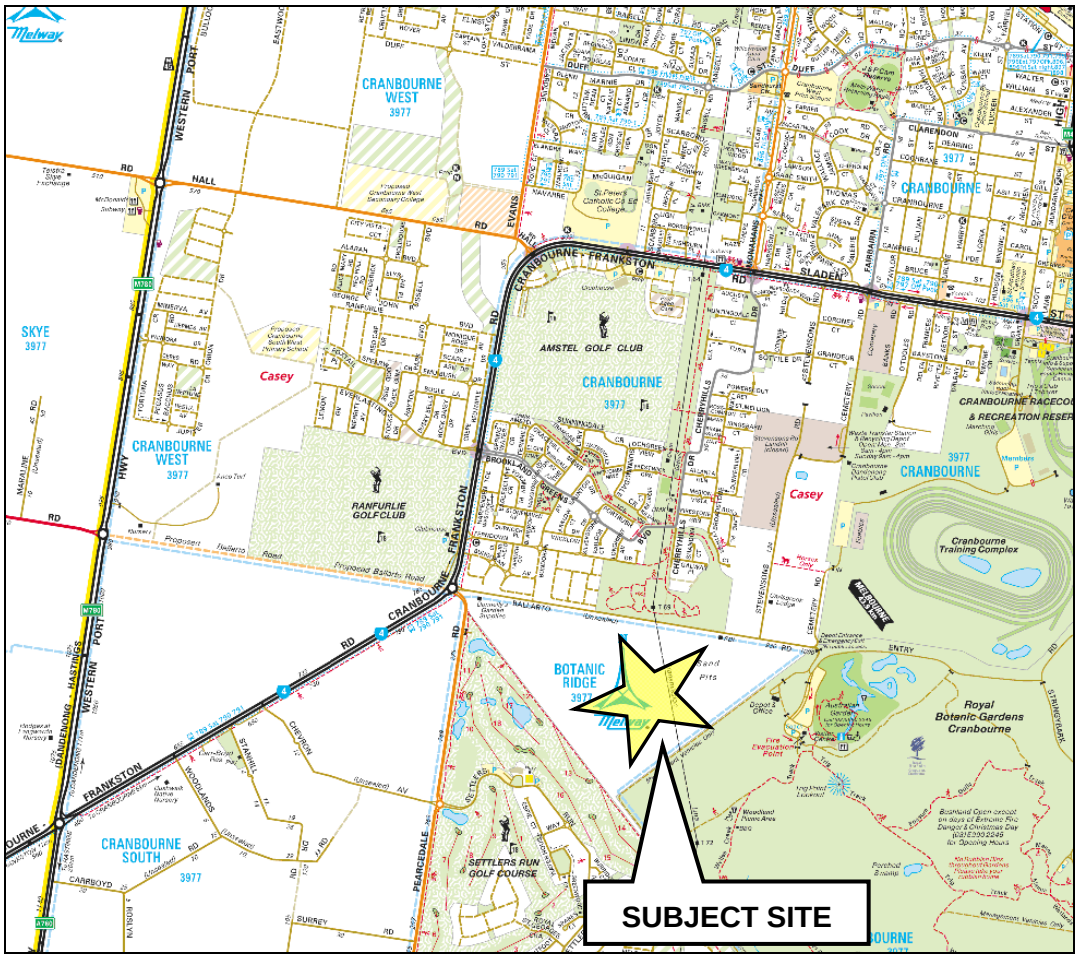

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Figure 1: Locality Plan

2.2 Land Use

The site is located within the City of Casey, and currently operates as a Drill and Blast Rock Quarry.

The site is zoned Farming Zone – Schedule 2 (FZ2) as indicated in Figure 2 below. Surrounding land uses include the following:-

- Cranbourne Royal Botanic Gardens to the east,
- Cranbourne Racecourse and Recreational Reserve to the north-east,
- Low density and residential land to the north,
- Residential zoned land to the south, and
- Urban Growth, Farming and Green Wedge zoned land to the west.

The site is located just within the urban growth boundary, with land to the south having fairly recently been rezoned Residential 1 (R1Z) to facilitate the development of approximately 1,400 residential lots.

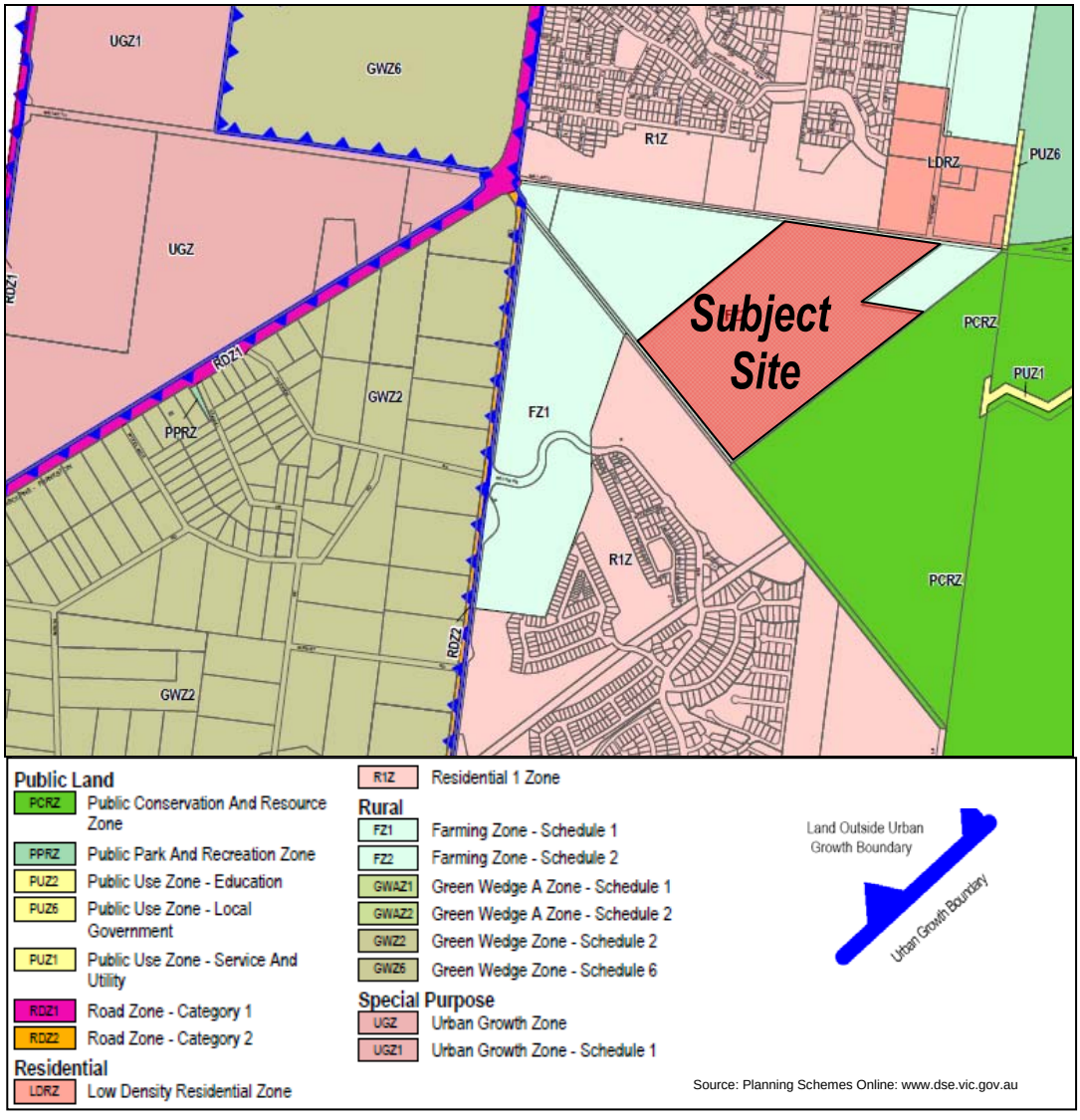

Figure 2: Land Use Zoning

2.3 Road Network

Cranbourne-Frankston Road

Cranbourne-Frankston Road is a primary arterial road that was duplicated in the vicinity of the site in mid-2010 to accommodate two through traffic lanes in each direction. Part of this duplication work included the construction of a roundabout at its intersection with Pearcedale Road and Ballarto Road.

Cranbourne-Frankston Road has an 80kph speed limit in the vicinity of the site.

Pearcedale Road

Pearcedale Road is a secondary arterial road which generally operates in a north-south direction to the west of the site. Pearcedale Road generally has one lane of through traffic in each direction, although two approach lanes exist at its intersection with Cranbourne-Frankston Road.

Ballarto Road

On the western side of the Cranbourne Botanical Gardens, i.e. the section the runs past the subject site, the Ballarto Road road reserve generally contains an unsealed dead-end local access street which provides a connection between the Botanic Gardens and Cranbourne-Frankston Road.

The Ballarto Road road reserve continues to the east of the Botanical Gardens where it becomes an arterial road extending to Koo Wee Rup. To our knowledge, there are no plans to construct Ballarto Road through the Botanical Gardens.

While a reservation exists, Ballarto Road is not constructed to the west of Cranbourne-Frankston Road to Western Port Highway. However, Ballarto Road (primary arterial) is constructed to the west of Western Port Highway to Frankston-Dandenong Road.

2.4 Existing Site Operations

Traffix Survey conducted a seven day traffic count commencing 12th September 2012 in order to determine the activity that is currently generated by the site's existing use as a quarry. In particular, a 'tube' count was undertaken across the site's existing vehicle access connection with Ballarto Road as presented in Figure 3.

Full details of this count are presented at Appendix A, with a summary as follows:-

- The daily average weekday traffic volume was found to be 447 vehicle movements (in and out combined),
- Friday was found to be the busiest day when 542 daily vehicle movements (in and out combined) were recorded, and
- The peak AM and PM hours were found to be between 9-10am and noon-1pm respectively.

Of note is that the above results are generally consistent with site operation records which suggest that up to 600 in and out daily vehicle movements are

generated by the existing quarry use, with the majority of these generated by trucks.

It is further noted that the site could continue to be used as a quarry for in the order of 20 years based on information provided by its operator.

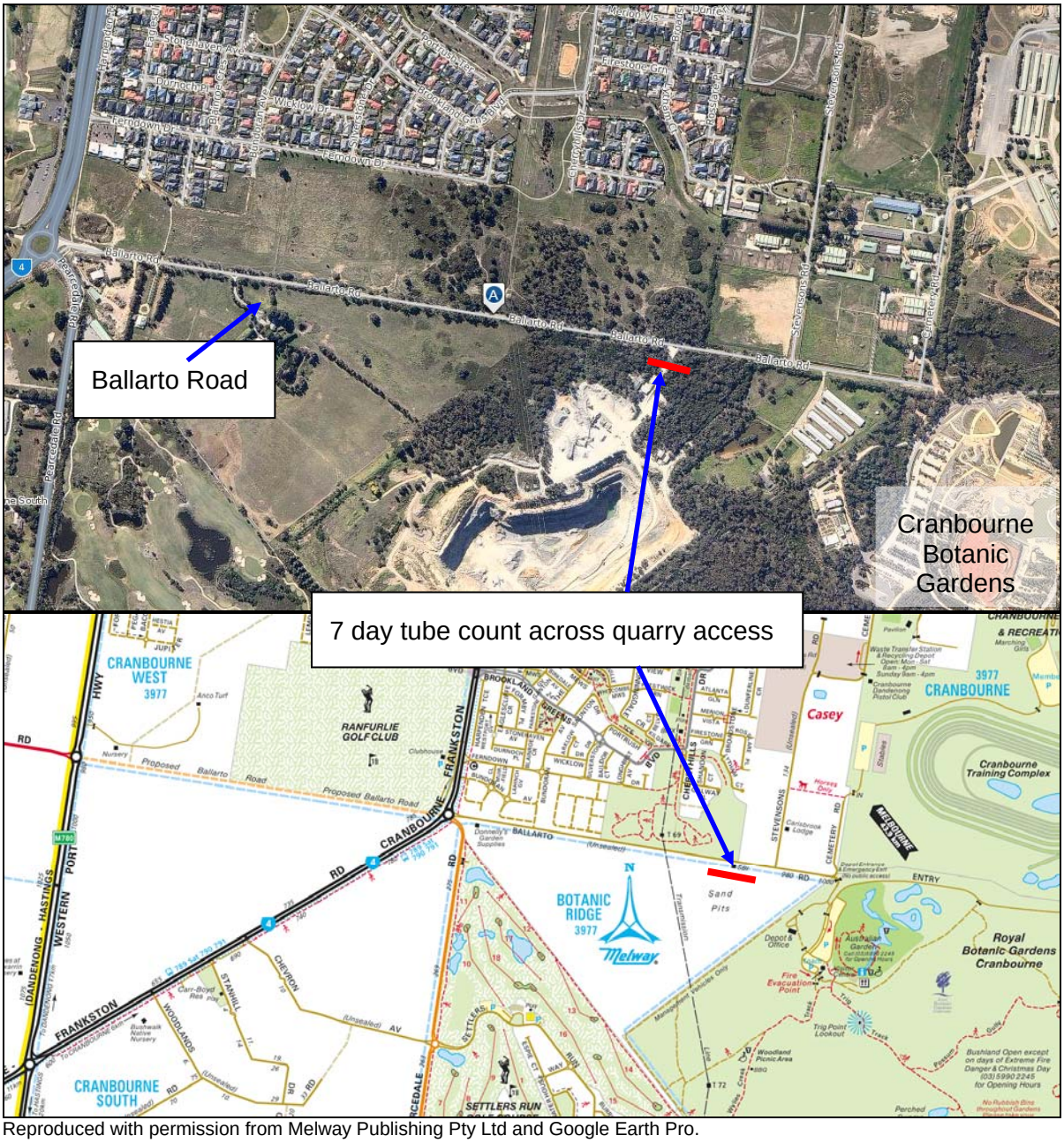

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Figure 3: Location of Traffic Count

3 THE PROPOSAL

The proposed landfill facility will accommodate Solid Inert Waste, which can be defined as follows:

Solid Inert Waste *Hard, dry waste materials which are unreactive such as demolition material, concrete, bricks, plastic, glass, metals and shredded tyres*

Solid inert waste is made up of three types of waste as follows:

- Municipal Solid Waste (MSW)
- Commercial and Industrial Waste (C & I)
- Construction and Demolition (C & D)

While solid inert waste is made up of three categories, industrial solid waste (C & I and C & D) makes up the majority, being approximately 92% of the total solid inert waste generation within the Eastern Division.

Vehicle access to and from the site is to be via Ballarto Road generally consistent with the current operations.

We have been informed that the total volume of the landfill to the top of the cap would be 2.8 million tonnes and that its operations would be completed within approximately 7.5 years following commencement of the proposed operation.

This means that in the order of an average of 881.1 tonnes of landfill will be deposited within the proposed facility each day it is open as presented in Table 1.

Table 1: Proposed Landfill Facility Operations

Total volume to top of cap	2,800,000
Allowance for cap and liner	280,000
Landfill volume	2,520,000
Airspace consumption factor	0.75
Landfill tonnes	1,890,000
Years of operation	7.5
Tonnes per year	252,000
Number of open days per year	286
Tonnes per open day	**881.1**

4 TRAFFIC ENGINEERING ASSESSMENTS

Calculations have been undertaken to determine the number of trucks that would potentially be generated by the proposed facility. These calculations have been undertaken based on the average daily predicted landfill of approximately 881.2 tonnes per day as presented in Table 1, and the typical breakdown of various vehicle types that are anticipated to this facility based on information and experience from other similar facilities.

This information is presented in Table 2, which shows an average of 62 trucks predicted to be generated by the proposed facility during each day of operation.

Table 2: Predicted Daily Truck Activity

Vehicle Type	Payload	Vehicle/Day	Tonnes/Day
Walking Floor Trailer	23	14	322
Semi tipper	18	14	252
30 metre skip tandem	16	8	128
30 metre truck	8	8	64
12 metre truck	4.8	4	19.2
Compactor	9	10	90
Small truck	1.5	4	6
Total		**62**	**881.2**

It is clear from our investigations that the operation of the proposed landfill facility on the subject site is likely to generate significantly fewer daily vehicle movements than the site's existing quarry operations. In particular, in the order of only 28% of the site's existing vehicle activity is predicted to be generated by the proposed landfill facility on a daily basis.

Accordingly, there is expected to be an improvement to the operation of the surrounding road network and intersections as a result of the proposal to change the site's existing quarry function to that of a solid inert waste landfill facility. This reduction in traffic is both on a daily basis and on medium to long term basis given that the landfill operations are predicted to be completed within approximately 7.5 years following commencement, i.e. approximately a third of the anticipated 20 year life if the site were to continue to operate as a quarry.

Therefore, no resultant road or intersection upgrades are considered to be necessary as a result of this proposal.

In summary, this site is considered to be a logical and appropriate location for a landfill facility in terms of traffic engineering considerations including:-

- the significant reduction to the number of daily vehicle movements (including trucks) that are currently generated by the site,
- the significant reduction to the lifespan of the site in the medium to long term when compared with the potential continued use of the site as a quarry, and
- the significant overall community benefits determined from our previous assessment in 2005 such as reduced emissions and traffic congestion on the wider road network.

5 CONCLUSION

Having visited the site, perused relevant documents, and undertaken various traffic engineering assessments, we are of the opinion that:-

(a) the proposed Cranbourne South inert solid waste landfill facility will generate significantly fewer daily vehicle trips (including those of trucks) to that of the site's existing use as a quarry,

(b) there is no need to upgrade the nearby road network and intersections as a result of the proposed landfill facility,

(c) the proposal will significantly reduce the lifespan of the site and the associated traffic movements and related impacts,

(d) the proposed facility will provide a significant travel time saving to the Cardinia, Casey and Frankston municipalities, and will also be beneficial to solid industrial waste generators in the southern portion of Greater Dandenong (Dandenong South and Lyndhurst), and

(e) the proposed landfill facility will provide significant community benefits including reduced emissions and traffic congestion.

APPENDIX A

TRAFFIC COUNT OF EXISTING SITE OPERATIONS

Traffic Data Collection Services

Traffix Survey Pty Ltd
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SBI Quarry Entrance, Cranbourne

Between

Ballarto Road & Quarry

Prepared for

Traffix Group Pty Ltd

September 2012

Reference: 36640321

TRAFFIC COUNT SUMMARY

TraffixSurvey
Traffic Data Collection Services

SBI Quarry Entrance, Cranbourne

At:

Between

Ballarto Road & Quarry

CUSTOMER:	Traffix Group Pty Ltd	**MAP REF:**	133 E9
TYPE COUNT:	7 days	**ACTUAL DURATION:**	9 days
DATE START:	12/09/12	**DATE FINISH:**	18/09/12
TIME START:	0000	**TIME FINISH:**	2300
DIRECTION-1:	Southbound	**DIRECTION-2:**	Northbound
COUNTER NO:		**SPEED LIMIT:**	40
CLASSES:	1 - 12	**SPEEDS:**	All

ALL VEHICLES	Southbound	Northbound	COMBINED
24 Hour Week Day Average	247	200	447
24 Hour 7 Day Average	201	163	363
A.M. Peak Hour Volume	40	31	64
A.M. Peak Hour	0900-0959	1000-1059	0900-0959
P.M. Peak Hour Volume	42	30	70
P.M. Hour	1200-1259	1300-1359	1200-1259

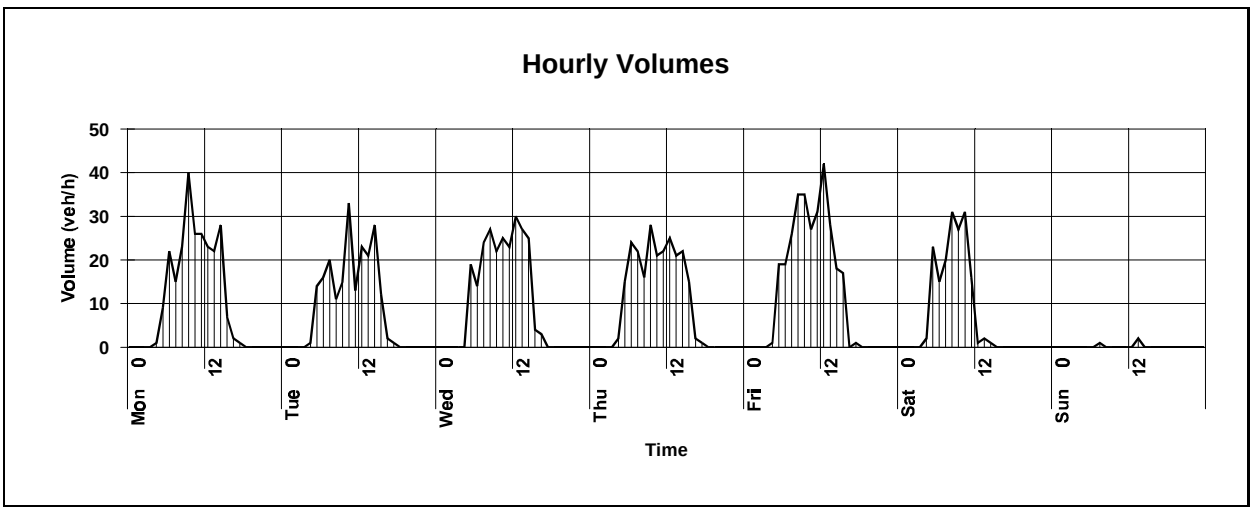
Traffix Survey Traffic Count

Traffic Volume Analysis

TraffixSurvey
Traffic Data Collection Services

Site No: 3664032
Site location: SBI Quarry Entrance, Cranbourne
Between : Ballarto Road & Quarry
Direction : Southbound
Time range: 0000 12/09/12 to 2300 18/09/12
Filters: Class: 1-12, Speeds: All

Date	17/09/12	18/09/12	12/09/12	13/09/12	14/09/12	15/09/12	16/09/12	AVERAGES	
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	WEEKDAY	ALL DAYS
Period									
0000-0059	0	0	0	0	0	0	0	0	0
0100-0159	0	0	0	0	0	0	0	0	0
0200-0259	0	0	0	0	0	0	0	0	0
0300-0359	0	0	0	0	0	0	0	0	0
0400-0459	1	1	0	2	1	2	0	1	1
0500-0559	9	14	19	15	19	23	0	15	14
0600-0659	22	16	14	24	19	15	0	19	16
0700-0759	15	20	24	22	26	20	***1***	21	18
0800-0859	23	11	***27***	16	***35***	***31***	0	22	20
0900-0959	***40***	15	22	***28***	35	27	0	28	24
1000-1059	26	***33***	25	21	27	31	0	26	23
1100-1159	26	13	23	22	31	16	0	23	19
1200-1259	23	23	***30***	***25***	***42***	1	0	29	21
1300-1359	22	21	27	21	28	***2***	***2***	24	18
1400-1459	***28***	***28***	25	22	18	1	0	24	17
1500-1559	7	12	4	15	17	0	0	11	8
1600-1659	2	2	3	2	0	0	0	2	1
1700-1759	1	1	0	1	1	0	0	1	1
1800-1859	0	0	0	0	0	0	0	0	0
1900-1959	0	0	0	0	0	0	0	0	0
2000-2059	0	0	0	0	0	0	0	0	0
2100-2159	0	0	0	0	0	0	0	0	0
2200-2259	0	0	0	0	0	0	0	0	0
2300-2359	0	0	0	0	0	0	0	0	0
TOTALS									
12Hr 7-19	213	179	210	195	***260***	129	3	211	170
24Hr 0-24	245	210	243	236	***299***	169	3	247	201
24/12 Fact	1.15	1.17	1.16	1.21	1.15	1.31	1.00	1.17	1.18
AM HR	***0900-0959***	1000-1059	0800-0859	0900-0959	0800-0859	0800-0859	0700-0759		
PEAK	***40***	33	27	28	35	31	1		
PM HR	1400-1459	1400-1459	1200-1259	1200-1259	***1200-1259***	1300-1359	1300-1359		
PEAK	28	28	30	25	***42***	2	2		



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Traffic Volume Analysis

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Traffic Data Collection Services

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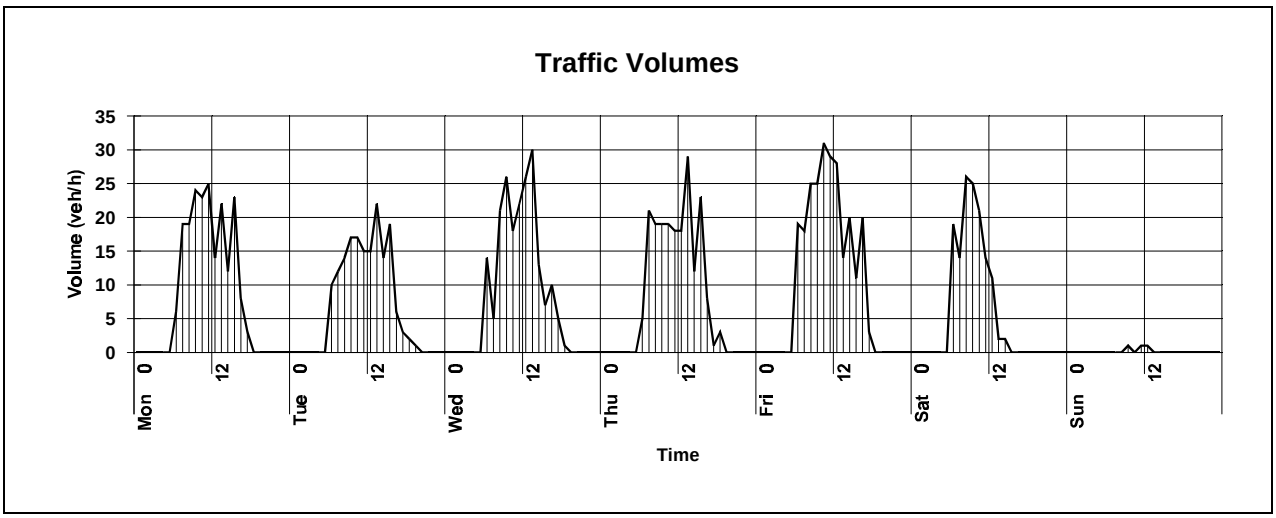
Site location: SBI Quarry Entrance, Cranbourne
Between : Ballarto Road & Quarry
Direction : Northbound
Time range: 0000 12/09/12 to 2300 18/09/12
Filters: Class: 1-12, Speeds: All

Date	17/09/12	18/09/12	12/09/12	13/09/12	14/09/12	15/09/12	16/09/12	AVERAGES	
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	WEEKDAY	ALL DAYS
Period									
0000-0059	0	0	0	0	0	0	0	0	0
0100-0159	0	0	0	0	0	0	0	0	0
0200-0259	0	0	0	0	0	0	0	0	0
0300-0359	0	0	0	0	0	0	0	0	0
0400-0459	0	0	0	0	0	0	0	0	0
0500-0559	0	0	0	0	0	0	0	0	0
0600-0659	6	10	14	5	19	19	0	11	10
0700-0759	19	12	5	***21***	18	14	0	15	13
0800-0859	19	14	21	19	25	***26***	0	20	18
0900-0959	24	***17***	***26***	19	25	25	***1***	22	20
1000-1059	23	17	18	19	***31***	21	0	22	18
1100-1159	***25***	15	22	18	29	14	1	22	18
1200-1259	14	15	26	18	***28***	***11***	***1***	20	16
1300-1359	22	***22***	***30***	***29***	14	2	0	23	17
1400-1459	12	14	13	12	20	2	0	14	10
1500-1559	***23***	19	7	23	11	0	0	17	12
1600-1659	8	6	10	8	20	0	0	10	7
1700-1759	3	3	5	1	3	0	0	3	2
1800-1859	0	2	1	3	0	0	0	1	1
1900-1959	0	1	0	0	0	0	0	0	0
2000-2059	0	0	0	0	0	0	0	0	0
2100-2159	0	0	0	0	0	0	0	0	0
2200-2259	0	0	0	0	0	0	0	0	0
2300-2359	0	0	0	0	0	0	0	0	0
TOTALS									
12Hr 7-19	192	156	184	190	***224***	115	3	189	152
24Hr 0-24	198	167	198	195	***243***	134	3	200	163
24/12 Fact	1.03	1.07	1.08	1.03	1.08	1.17	1.00	1.06	1.07
AM HR	1100-1159	0900-0959	0900-0959	0700-0759	***1000-1059***	0800-0859	0900-0959		
PEAK	25	17	26	21	***31***	26	1		
PM HR	1500-1559	1300-1359	***1300-1359***	1300-1359	1200-1259	1200-1259	1200-1259		
PEAK	23	22	***30***	29	28	11	1		



Traffix Survey Traffic Count

Traffic Volume Analysis

TraffixSurvey
Traffic Data Collection Services

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Between : Ballarto Road & Quarry
Direction : Southbound & Northbound
Time range: 0000 12/09/12 to 2300 18/09/12
Filters: Class: 1-12, Speeds: All

Date	17/09/12	18/09/12	12/09/12	13/09/12	14/09/12	15/09/12	16/09/12	AVERAGES	
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	WEEKDAY	ALL DAYS
Period									
0000-0059	0	0	0	0	0	0	0	0	0
0100-0159	0	0	0	0	0	0	0	0	0
0200-0259	0	0	0	0	0	0	0	0	0
0300-0359	0	0	0	0	0	0	0	0	0
0400-0459	1	1	0	2	1	2	0	1	1
0500-0559	9	14	19	15	19	23	0	15	14
0600-0659	28	26	28	29	38	34	0	30	26
0700-0759	34	32	29	43	44	34	***1***	36	31
0800-0859	42	25	***48***	35	***60***	***57***	0	42	38
0900-0959	***64***	32	48	***47***	60	52	1	50	43
1000-1059	49	***50***	43	40	58	52	0	48	42
1100-1159	51	28	45	40	60	30	1	45	36
1200-1259	37	38	56	43	***70***	***12***	1	49	37
1300-1359	***44***	***43***	***57***	***50***	42	4	***2***	47	35
1400-1459	40	42	38	34	38	3	0	38	28
1500-1559	30	31	11	38	28	0	0	28	20
1600-1659	10	8	13	10	20	0	0	12	9
1700-1759	4	4	5	2	4	0	0	4	3
1800-1859	0	2	1	3	0	0	0	1	1
1900-1959	0	1	0	0	0	0	0	0	0
2000-2059	0	0	0	0	0	0	0	0	0
2100-2159	0	0	0	0	0	0	0	0	0
2200-2259	0	0	0	0	0	0	0	0	0
2300-2359	0	0	0	0	0	0	0	0	0
TOTALS									
12Hr 7-19	405	335	394	385	***484***	244	6	401	322
24Hr 0-24	443	377	441	431	***542***	303	6	447	363
24/12 Fact	1.09	1.13	1.12	1.12	1.12	1.24	1.00	1.12	1.13
AM HR	***0900-0959***	1000-1059	0800-0859	0900-0959	0800-0859	0800-0859	0700-0759		
PEAK	***64***	50	48	47	60	57	1		
PM HR	1300-1359	1300-1359	1300-1359	1300-1359	***1200-1259***	1200-1259	1300-1359		
PEAK	44	43	57	50	***70***	12	2