Metromix Pty Ltd
ABN: 39 002 886 839

Teralba Quarry Extensions

Traffic Assessment

Prepared by

Halcrow Pacific

June 2011

Specialist Consultant Studies Compendium
Volume 1, Part 1

This page has intentionally been left blank

Metromix Pty Ltd
ABN: 39 002 886 839

Traffic Assessment

Prepared for:

R.W. Corkery & Co. Pty Limited
1st Floor, 12 Dangar Road
PO Box 239
BROOKLYN NSW 2083

Tel: (02) 9985 8511
Fax: (02) 9985 8208
Email: brooklyn@rwcorkery.com

On behalf of:

Metromix Pty Ltd
Level 4, 107 Phillip Street
PARRAMATTA NSW 2150

Tel: (02) 9849 7400
Fax: (02) 9635 4816
Email: BillS@metromix.com.au

Prepared by:

Halcrow Pacific
Suite 20
809 Pacific Highway
CHATSWOOD NSW 2067

Tel: (02) 9410 4100
Fax: (02) 9410 4199
Email: hollyoakKJ@halcrow.com

June 2011

Rev	Description	Date	Prepared by	Approved by
0	Draft for external review	30/03/11	KY	KJH
1	Final Draft	05/04/11	KY	KJH
2	Final	07/06/11	KY	KJH

CONTENTS

Page

CONTENTS

Page

APPENDICES

FIGURES

TABLES

EXECUTIVE SUMMARY

The Project will involve an extension by Metromix Pty Ltd ("Metromix") to the operational life of the Teralba Quarry by extending the two existing approved extraction areas within the existing quarry. It is proposed that current production levels would continue for the additional life of the quarry, i.e. for a period of up to approximately 30 years.

An assessment of the traffic impacts relating to the project has been made in line with the Director-General's Requirements and requirements nominated by Lake Macquarie City Council and the RTA. The key points of the assessment are that:-

- The traffic generated by the extension of the quarry's existing operation has been estimated;
- Extensive traffic counts have been undertaken at intersections and along road links at key points around the surrounding road network;
- Traffic modelling has shown that the intersections on the surrounding road network will continue to operate satisfactorily with the quarry traffic in current conditions and in 2022 (10 years after the receipt of project approval, should it be granted);
- In order to ensure that the roads managed by Lake Macquarie City Council continue to operate at adequate levels in terms of structural integrity etc., Metromix has agreed to pay a contribution to Council based upon the tonnage leaving the quarry, however, the quantum of the contribution will need to be discussed in detail with Council;
- A code of conduct for drivers travelling to and from the quarry will be put in place to ensure that unacceptable driver behaviour is minimised; and
- No quarry trucks have been involved in the crashes identified on the surrounding road network and as the quarry will not be increasing production at the quarry over existing levels, there is no reason to believe that this will result in adverse safety conditions.

This page has intentionally been left blank

1. INTRODUCTION

This report has been prepared for R. W. Corkery & Co on behalf of Metromix Pty Ltd (Metromix) to address the traffic and transport issues relating to the Company's application to the Department of Planning for the proposed extensions at Teralba Quarry.

The Director-General's Requirements issued on the 29th November 2010 for the proposed project and the requirements provided by the Roads and Traffic Authority and Lake Macquarie City Council required a number of traffic and transport issues to be addressed in the traffic and transport assessment.

This report therefore provides detailed information on the trip generation and distribution characteristics including the routes used by heavy vehicles to access the quarry, which have been used to predict the future impacts of the extended quarry operations on the surrounding road network.

The project will involve an extension to the operational life of the Teralba Quarry by extending the two existing approved extraction areas within the existing quarry. It is proposed that current production levels would continue for the additional life of the quarry, i.e. for a period of up to approximately 30 years.

The Director-General's Requirements and the issues raised by the Roads and Traffic Authority and Lake Macquarie City Council, have been addressed in the sections of the report as listed in **Table 1.1**.

The remainder of the report is set out as follows:

- Chapter 2 discusses the existing traffic conditions on the surrounding road network;
- Chapter 3 describes the existing Teralba Quarry traffic operations;
- Chapter 4 describes the proposed extensions;
- Chapter 5 examines the impacts of the proposed extensions;
- Chapter 6 examines the existing road conditions;
- Chapter 7 proposes what road improvements will be made / how impacts will be minimised; and
- Chapter 8 presents the conclusions of the investigation.

Table 1.1
Coverage of Government Agency Requirements relating to Traffic & Transport

Key Issues	**Addressed In**
NSW Department of Planning	
Accurate predictions of the project's road traffic generation and a detailed assessment of the potential impacts of project-related traffic on the safety and efficiency of road network.	Section 3.2 & 5.5
A detailed description of the measures that would be implemented to upgrade and/or maintain these networks over the life of the project.	Section 7.1
Roads and Traffic Authority	
Assessment of all relevant vehicular traffic routes and intersections for access to/from the subject area during the construction and operational phases.	Section 5.5
Current traffic counts for all of the traffic routes and intersections.	Section 2.3
The anticipated additional vehicular traffic generated from the proposed development and associated trip distribution on the road network during both the construction and operational phases.	Section 5.4 & 5.6
Consideration of the traffic impacts on existing and proposed intersections and the capacity of the local and classified road network to safely and efficiently cater for the additional vehicular traffic generated by the proposed development. This shall include the cumulative traffic impact of any other proposed developments in the area.	Section 5.2 & 5.7
Identify any necessary road network infrastructure upgrades that are required to maintain existing levels of service on both the local and classified road network. In this regard, concept drawings shall be submitted with the EA for any identified road infrastructure upgrades. However, it should be noted that any identified road infrastructure upgrades will need to be to the satisfaction of Council/RTA.	Section 7.1
Intersection analysis (such as SIDRA) shall be submitted to determine the need for intersection and road capacity upgrades. The intersection analysis shall include (but not be limited to) the following: - Current traffic counts and 10 year traffic growth projections - With and without development scenarios - 95th percentile back of queue lengths - Delays and level of service on all legs for the relevant intersections - Electronic SIDRA files for RTA review.	Section 5.5 & Appendix B
Consideration of the impact of construction traffic on the road network in the vicinity of the development and measures to minimise any identified impacts.	Section 5.6
Lake Macquarie City Council	
Traffic impacts and transportation management should be addressed, including impact on local roads and infrastructure and methods of mitigating such impacts including monetary contributions, levies or like works to be undertaken by the developer.	Section 7.1 & 7.2

2. EXISTING CONDITIONS

2.1 SITE LOCATION

The locality plan of the Project Site is shown in **Figure 1**. It shows the existing approved extraction areas and the proposed extensions, referred to throughout this document as the "southern extension" and "northern extension".

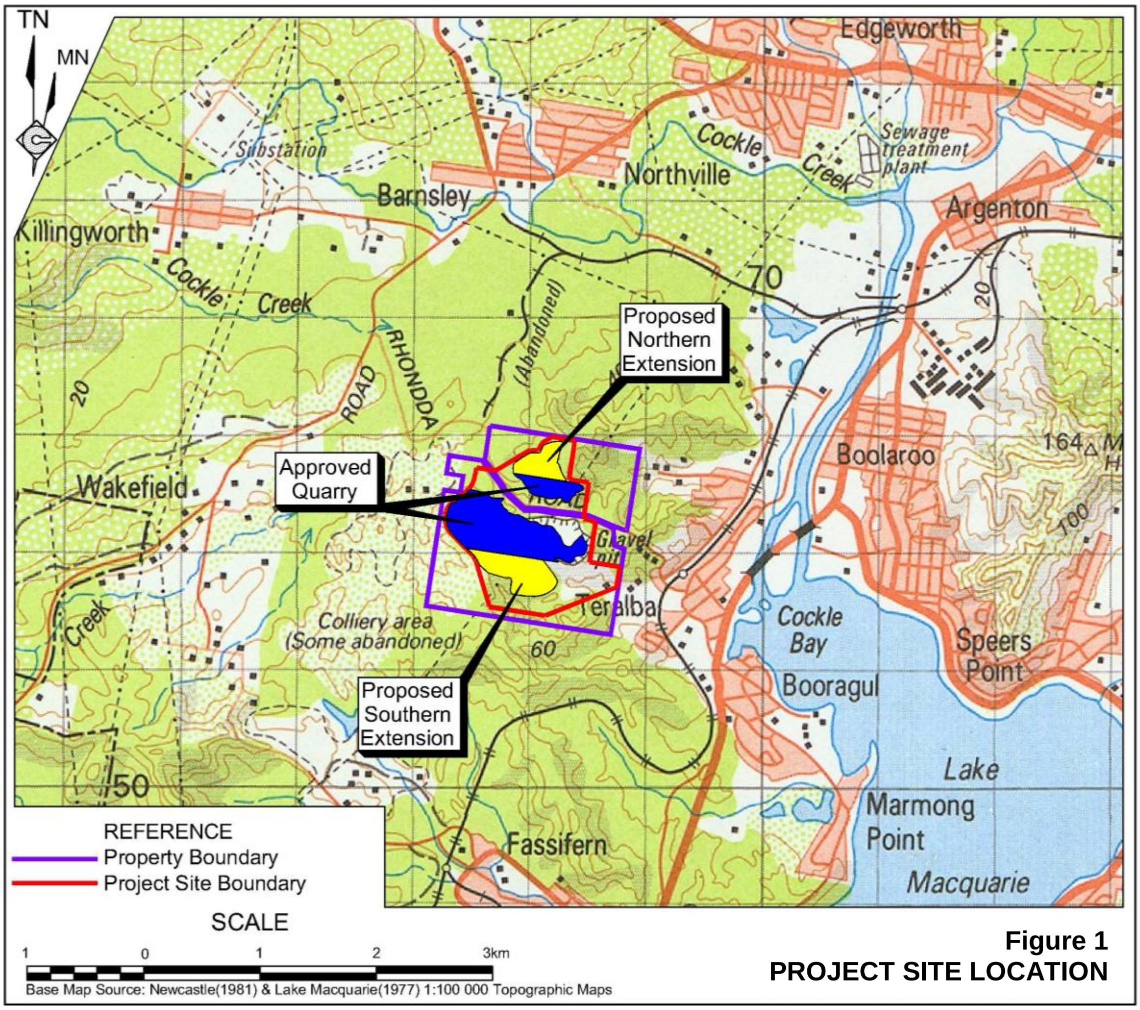


Figure 1
PROJECT SITE LOCATION

2.2 ROAD NETWORK

Direct access to the Teralba Quarry is via Rhondda Road from either Wakefield Road in the west or Railway Street, Teralba in the east. A total of seven routes were identified for trucks travelling to and from the Teralba Quarry. All routes commence either at the entrance to the quarry from Rhondda Road (the "top gate") or the entrance to the quarry from a private road at the eastern boundary of the Project Site (the "bottom gate").

Routes 1 to 7 relate to trips away from the quarry. The corresponding routes to the quarry have been labelled as Routes 11 to 17. Each of these routes is displayed on **Figure 2**.

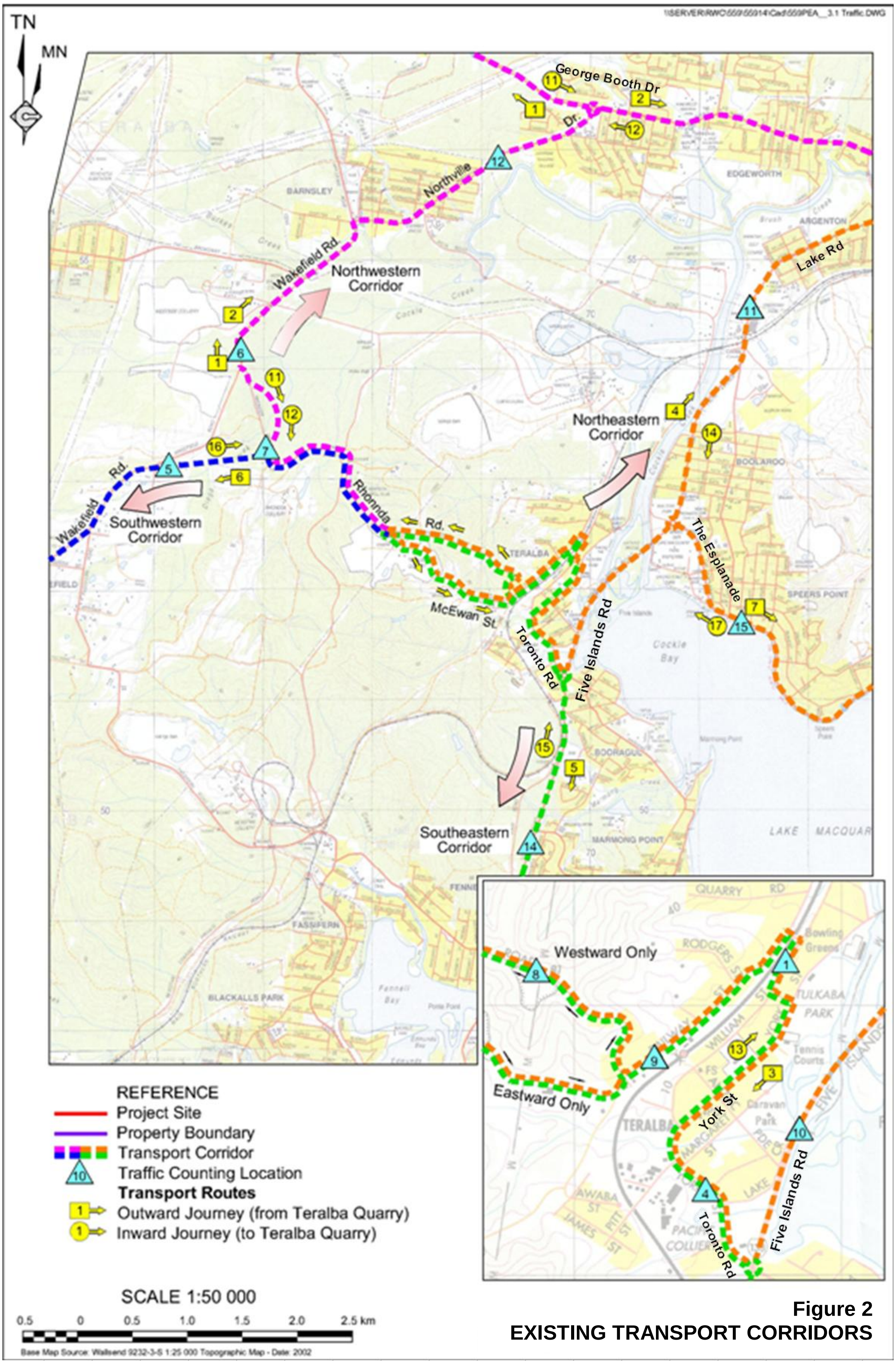


Figure 2
EXISTING TRANSPORT CORRIDORS

It is noted that loaded trucks exiting the quarry and heading in an easterly direction toward Teralba do not use Rhondda Road. Instead, they use an internal road and a section of road, leased from Teralba Engineering and enter the public road network at the intersection of Railway Street and Rhondda Road.

The transport routes used by heavy vehicles transporting materials to and from Teralba Quarry can be broken down into four major route corridors as detailed below.

Northeastern Corridor

The northeastern corridor commences at the bottom gate and runs through Teralba then northwards via Main Road 217 (Five Islands Road). The following specific routes lie within this route corridor.

- Routes 4/14 to and from Glendale via Five Islands Road/Lake Road.
- Routes 7/17 to and from Speers Point via The Esplanade.

Southeastern Corridor

The southeastern corridor commences at the bottom gate and runs through Teralba then southwards via Main Road 217 (Toronto Road). The following specific routes lie within this route corridor.

- Routes 3/13 to and from Teralba via York Street
- Routes 5/15 to and from Fennel Bay via Toronto Road

Northwestern Corridor

The northwestern corridor commences at the top gate and runs westwards along Rhondda Road to Wakefield Road then northwards through Barnsley. The following specific routes lie within this route corridor.

- Routes 1/11 to and from West Wallsend via George Booth Drive
- Routes 2/12 to and from Edgeworth via George Booth Drive

Southwestern Corridor

The southwestern corridor commences at the top gate and runs westwards along Rhondda Road to Wakefield Road then southwards via Wakefield Road to Palmers Road. The following specific route lies within this route corridor.

- Route 6/16 to and from the F3 Freeway via Wakefield Road

In addition to the above corridors, a private route which runs southwards from near Teralba Quarry along the existing private coal haul road to the Eraring Power Station was also considered in detail by Metromix. However, due to access issues, land ownership and security constraints, it is not considered a feasible option.

2.3 EXISTING TRAFFIC FLOWS

2.3.1 Automatic Traffic Count Surveys

In order to assess the impact of the existing heavy vehicle traffic travelling to and from Teralba Quarry along these route corridors, a total of 14 traffic counting locations were identified to record the traffic levels on the existing road network.

These counting locations are listed in below and are also displayed on **Figure 3**:

1. William Street, north of Short Street;
2. York Street, south of Short Street;
3. Railway Street, north of Railway Overbridge;
4. Toronto Road, south of Lake Crescent;
5. Wakefield Road, south of Rhondda Road;
6. Wakefield Road, north of Rhondda Road;
7. Rhondda Road, west of Metromix Access;
8. Rhondda Road, east of Metromix Access;
9. Railway Street, north of Rhondda Road;
10. MR217 (Five Islands Road), north of Anzac Parade;
11. MR217 (Five Islands Road/Lake Road), Waratah Golf Course (Cockle Creek);
12. Northville Road, east of Carinda Ave (Northville);
13. MR217 (Toronto Road), North of Enterprise Way (Woodrising); and
14. The Esplanade, Speers Point Park (Speers Point).

These traffic counting locations were chosen to provide traffic flows on representative sections of each of the seven existing transport routes.

Automatic vehicle counts were carried out by NTPE (Northern Transport Planning and Engineering Pty Limited) at each of these locations throughout June and July 2008. Data collected from these locations provided details of all heavy vehicle flows and vehicle classifications on these roads including trucks associated with Teralba Quarry.

During the same period as the automatic traffic count surveys, detailed records were compiled of each of the trucks travelling to and from Teralba Quarry. These records are discussed in detail in Section 3.

The results of average weekday daily traffic flows by direction for the selected automatic traffic count sites are shown in **Table 2.1**.

A detailed automatic traffic count survey data is included in **Appendix A**.

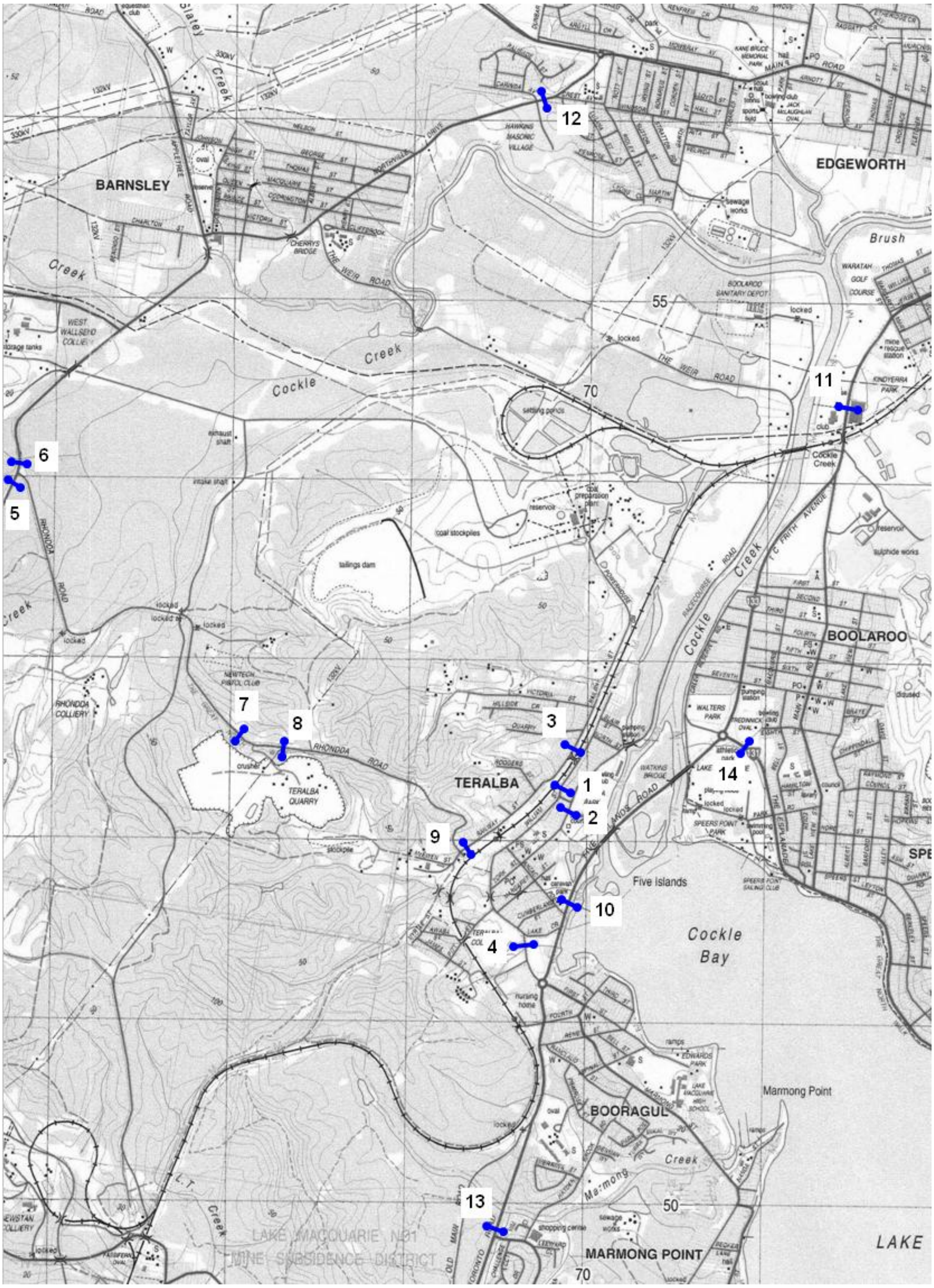


Figure 3
AUTOMATIC COUNT SURVEY LOCATIONS

Table 2.1
Average Weekday Daily Traffic Flows

	Northbound/Eastbound			**Southbound/Westbound**		
	Cars	**Trucks**	**Total**	**Cars**	**Trucks**	**Total**
William St, north of Short St	1,471	161	1,632	1,601	141	1,742
York St, south of Short St	1,854	265	2,119	2,200	278	2,477
Railway St, north Railway Overbridge	661	36	697	658	37	695
Toronto Rd, south of Lake Crescent	1,480	303	1,784	1,323	301	1,624
Wakefield Rd, south of Rhondda Rd	1,385	145	1,530	1,352	126	1,479
Wakefield Rd, north of Rhondda Rd	1,132	136	1,268	1,188	162	1,349
Rhondda Rd, west of Metromix Access	501	102	604	473	99	572
Rhondda Rd, east of Metromix Access	490	59	549	508	98	606
Railway St, north of Rhondda Rd	668	122	790	649	120	769
Five Islands Rd, north of Anzac Pde	16,752	734	17,486	16,445	939	17,384
Lake Rd, Waratah Golf Course	12,348	696	13,044	12,652	680	13,332
Northville Rd, east of Carinda Ave	3,943	231	4,175	3,889	230	4,119
Toronto Rd, north of Enterprise Way	12,821	619	13,440	13,148	839	13,987
The Esplanade, Speers Point Park	10,348	580	10,927	10,344	460	10,804

2.3.2 Intersection Count Surveys

Peak hour intersection turning movement flow surveys were conducted by NTPE at 11 key intersections within the surrounding road network. Most of the surveys were conducted on the 24th November 2010. York Street intersections with Anzac Parade and Pitt Street were surveyed on the 16th February 2011.

The surveyed intersections are listed below:

1. George Booth Drive - Northville Drive;
2. Wakefield Road - Northville Drive;
3. Wakefield Road - Rhondda Road;
4. Rhondda Road - Metromix Access;
5. Railway Street - Rhondda Road;
6. Railway Street - Railway Overbridge;
7. William Street - Short Street;
8. York Street - Short Street;
9. York Street - Anzac Parade;
10. York Street - Pitt Street; and
11. Toronto Road - Five Islands Road.

Each of these intersections is identified on **Figure 4**.

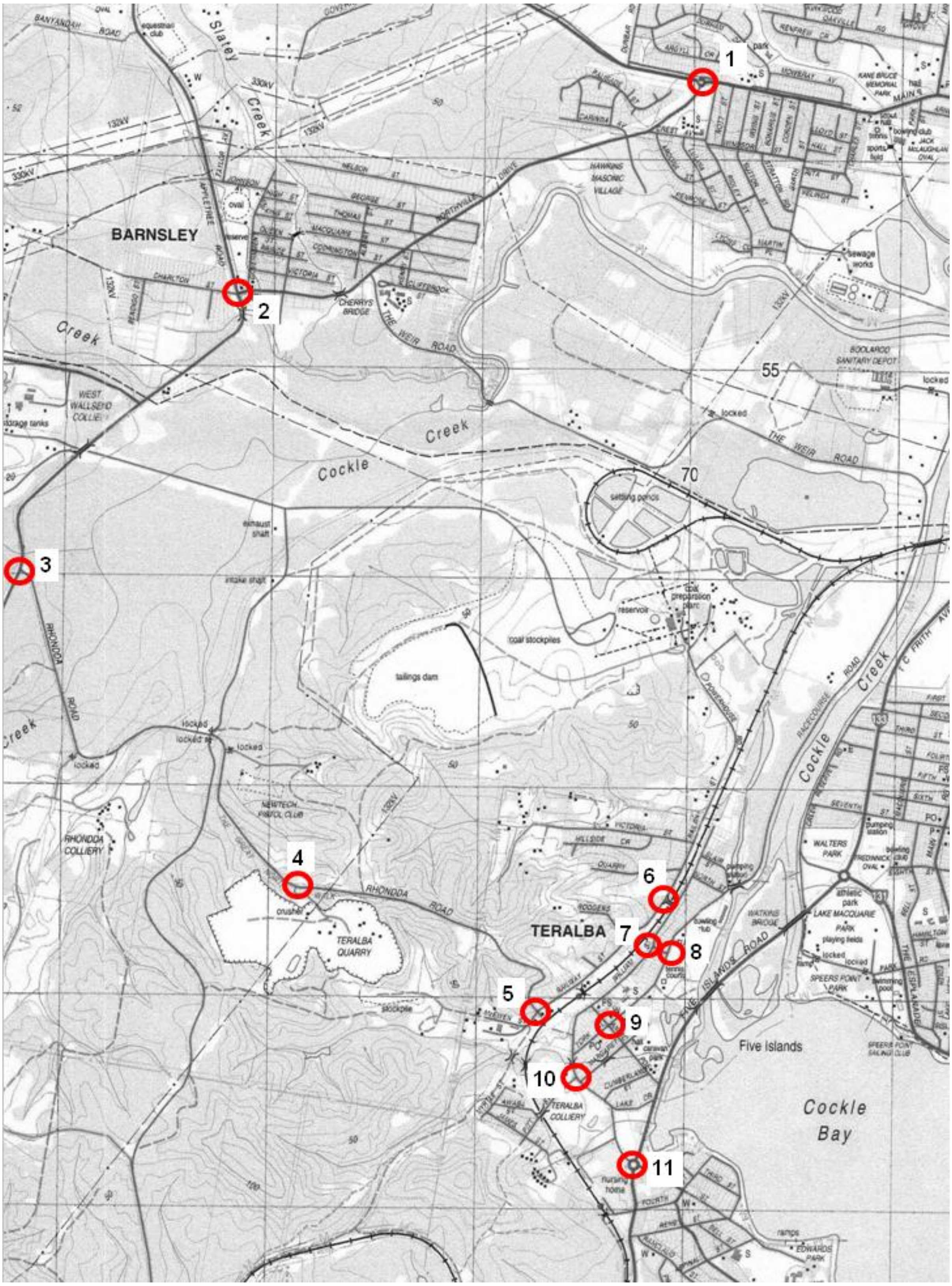


Figure 4
INTERSECTION COUNT SURVEY LOCATIONS

The surveys were conducted during a Wednesday between 7:00-11:00am and 2:30-6:30pm. The survey results indicated that the road network peak hours were generally 8:00-9:00am and 3:30-4:30pm.

The mid block two-way peak hour flows are summarised in **Table 2.2** and intersection turning movement flows are presented in **Figure 5** and **6** for morning and afternoon peak hours, respectively.

Table 2.2
2010/2011* Existing Two-way Peak Hour Flows

Locations	AM Peak Hour	PM Peak Hour
George Booth Dr, west of Northville Dr	1,390	1,425
Main Road, east of Northville Dr	1,844	1,973
Northville Dr, south of George Booth Dr	800	932
Northville Dr, east of Wakefield Rd	488	567
Appletree Road, north of Northville Dr	336	384
Wakefield Rd, south of Northville Dr	412	513
Wakefield Rd, north of Rhondda Rd	290	311
Wakefield Rd, south of Rhondda Rd	329	342
Rhondda Rd, east of Wakefield Rd	141	145
Rhondda Rd, east of Railway St	136	152
Railway St, south of Rhondda Rd	31	43
Railway St, north of Rhondda Rd	159	155
Railway St, south of William St	195	207
Railway St, north of Railway Overbridge	134	142
Railway Overbridge, east of Railway St	319	331
William St, south of Short St	121	124
Short St, east of William St	245	230
York St, north of Short St	274	351
York St, north of Anzac Pde	472	490
York St, south of Anzac Pde	235	265
Anzac Pde, east of York St	351	439
Anzac Pde, west of York St	82	92
York St, west of Pitt St	315	304
Pitt St, south of York St	85	75
Toronto Rd, west of Five Islands Rd	332	391
First St, east of Five Islands Rd	624	601
Toronto Rd, south of First St	2,509	2,583
Five Islands Rd, north of First St	2,903	2,847
NOTE: * - All of the surveys were conducted on the 24th November 2010, except for York Street intersections with Anzac Parade and Pitt Street, which were surveyed on the 16th February 2011.		

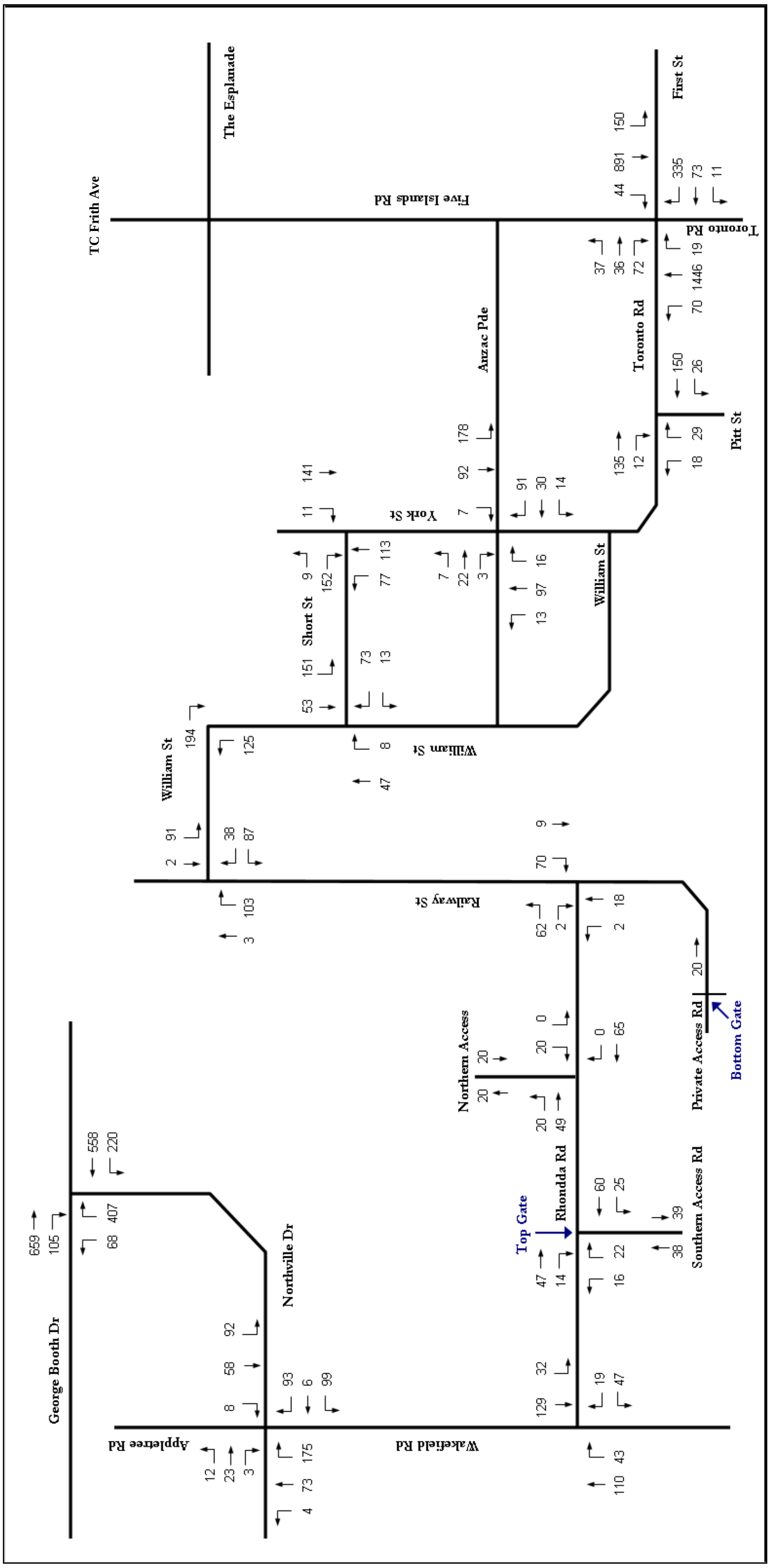


Figure 5
Existing Morning Peak Hour Intersection Flows Including All Light and Heavy Vehicles
(Data collected by Northern Transport Planning and Engineering)

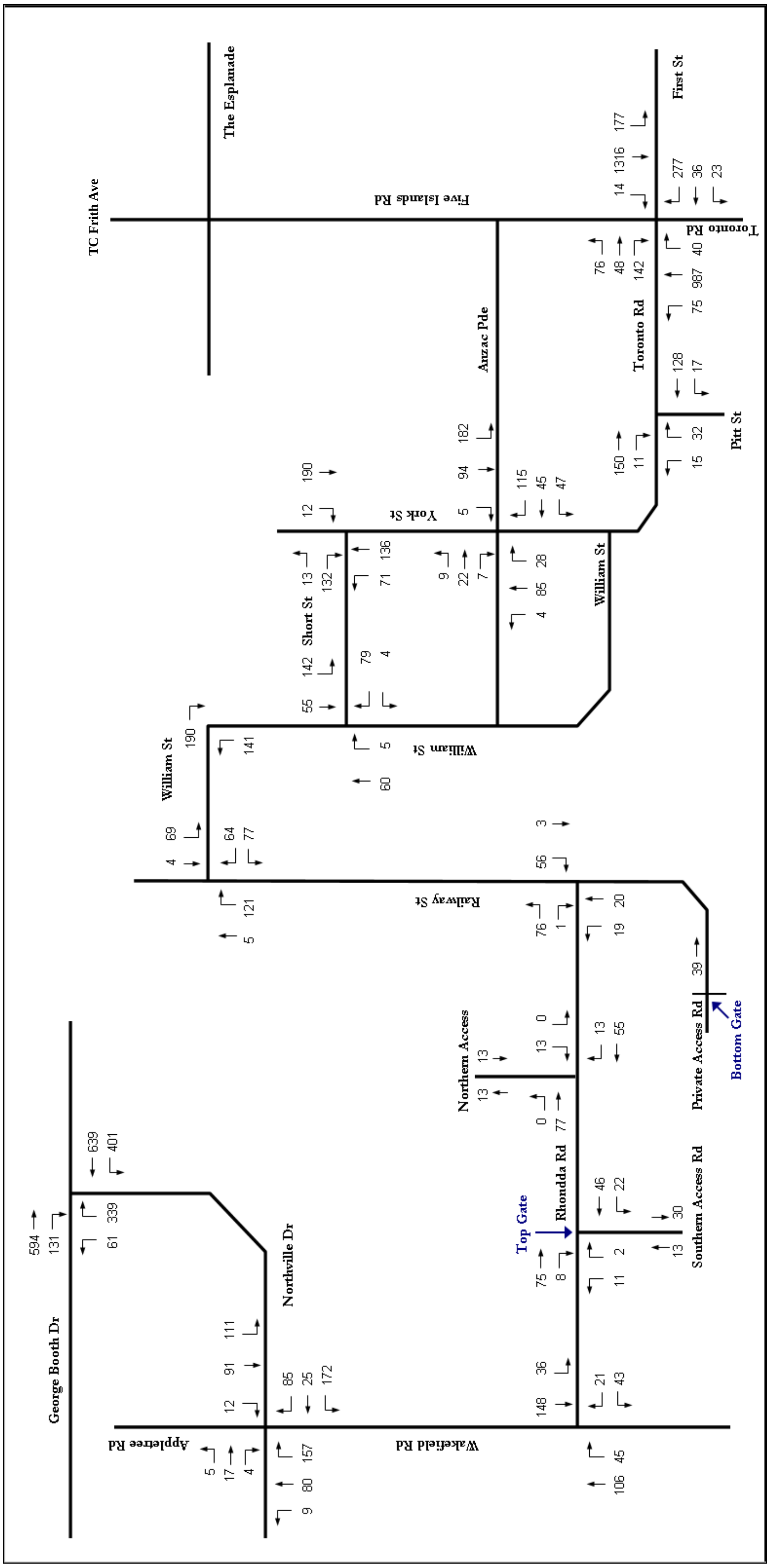


Figure 6
Existing Afternoon Peak Hour Intersection Flows Including All Light and Heavy Vehicles
(Data collected by Northern Transport Planning and Engineering)

2.4 EXISTING INTERSECTION OPERATION

Using the intersection turning flows shown in **Figure 5** and **6**, the existing operations of the surveyed intersections were analysed using the SIDRA intersection analysis programme.

SIDRA determines the average delay that vehicles encounter, the degree of saturation of the intersection, and the level of service. For roundabouts and sign-posted intersections, the intersection delay is the delay for the worst movement at the intersection.

SIDRA provides analysis of the operating conditions which can be compared to the performance criteria set out in **Table 2.3**.

Table 2.3
Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Signals & Roundabouts	Give Way & Stop Signs
A	less than 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	Extra capacity required	Extreme delay, traffic signals or other major treatment required
Adapted from RTA Guide to Traffic Generating Developments, 2002.			

The results of the existing intersection performances are presented in **Table 2.4**.

The results shown in **Table 2.4** indicate that all of the existing intersections along the four transport corridors currently operate at a good Level of Service (LoS) B, or better during both the morning and afternoon peak periods with acceptable delays.

A detailed SIDRA results are included in **Appendix B**.

Table 2.4
Existing (2010/2011) Intersection Operating Conditions

Intersections	Control Type	AM Peak Hour		PM Peak Hour	
		LoS*	Ave Delay (sec)	LoS*	Ave Delay (sec)
George Booth Dr-Northville Dr	Roundabout	A	14	A	14
Wakefield Rd-Northville Dr	Roundabout	A	14	A	14
Wakefield Rd-Rhondda Rd	Giveway	A	13	A	11
Rhondda Rd-Metromix Access	Giveway	B	15	A	14
Railway St-Rhondda Rd	Giveway	A	9	A	9
Railway St-Railway Overbridge	Giveway	A	9	A	8
William St-Short St	Giveway	A	7	A	7
York St-Short St	Giveway	A	9	A	9
York St-Anzac Pde	Stop	B	16	A	13
York St-Pitt St	Giveway	A	9	A	8
Toronto Rd-Five Islands Rd	Roundabout	B	20	B	16
NOTE: * - Level of Service					

3. EXISTING TERALBA QUARRY TRAFFIC OPERATION

3.1 HEAVY VEHICLE ROUTES

During the same period as the automatic traffic count surveys, detailed records were compiled by staff at Teralba Quarry to document the routes taken by each of the trucks travelling to and from the quarry over an 8 week period. Wet weather during the first 4 weeks of this survey period resulted in lower production rates. Accordingly, data collected during the second half of this survey period has been used to establish the proportion of Teralba Quarry trucks, (hereafter referred to as Metromix trucks/traffic) travelling to and from the quarry on each of the transport routes.

The surrounding representative road sections traversed by vehicles travelling to and from Teralba Quarry along the seven identified routes are shown in **Figure 2**. The ultimate destination / origin for trucks using these routes are detailed in **Table 3.1**.

Table 3.1
Routes Destination / Origin

Route	Destination / Origin	
1 / 11	George Booth Drive	West Newcastle
2 / 12	George Booth Drive	East of Edgeworth
3 / 13	Teralba	Off York Street
4 / 14	Five Islands Road/Lake Road	North of Boolaroo
5 / 15	Toronto Road	South of Booragul
6 / 16	Wakefield Road	South beyond Wakefield
7 / 17	The Esplanade	East beyond Speers Point

3.2 HEAVY VEHICLE MOVEMENTS

During the period from 2008 to 2011, the product sales varied between 700 000 tpa to approximately 1 million tpa. This sub-section reviews the heavy vehicle movements for both operational levels of 700 000 tpa and 1 million tpa. It is noted that throughout each year, there have been some months when sales approached and occasionally exceed 83 000 tonnes which is equivalent to the annualised sales of 1 million tpa.

3.2.1 Equivalent Annual Sales – 700 000tpa

Detailed records were collected of loaded product truck movements from the Teralba Quarry from the 2nd June 2008 to 27th July 2008. All truck movements relating to the supply and delivery of products produced at Teralba Quarry were recorded according to the class of vehicle, time of day and the route used travel to the customer/consumer.

Sales during the last four weeks of this period ranged from 11 300 tonnes to 15 300 tonnes per week. These sales levels relate to annual sales of between 542 400 tonnes and 734 400 tonnes based on 48 weeks of product despatch per year. It is therefore considered that the heavy vehicle movements recorded during the surveyed period are representative when sales for the quarry are in the order of 700 000 tonnes per annum (tpa).

The comprehensive record of truck movements, gathered by Metromix, along the routes displayed on **Figure 2**, has enabled the compilation of detailed Trip Distribution Characteristics for the Teralba Quarry when operating at an annualised rate of 700 000 tpa as shown in **Table 3.2**.

Table 3.2
Metromix Heavy Vehicle Movements – 700 000 tpa

	Eastwards*	Westwards	Total
Average Daily Movements	81	107	188
85th Percentile Daily Movements	127	156	283
Average Peak Hour Movements	10	13	23
85th Percentile Peak Hour Movements	15	17	32
NOTE: * Heavy Vehicle Movements through Teralba			

The trip distribution percentages of truck movements on the surrounding road network are displayed graphically on **Figure 7**.

Using the 85th percentile daily and peak hour traffic generation indicated in **Table 3.2**, the site generated trips have been distributed on the road network using the percentages as shown in **Figure 7**.

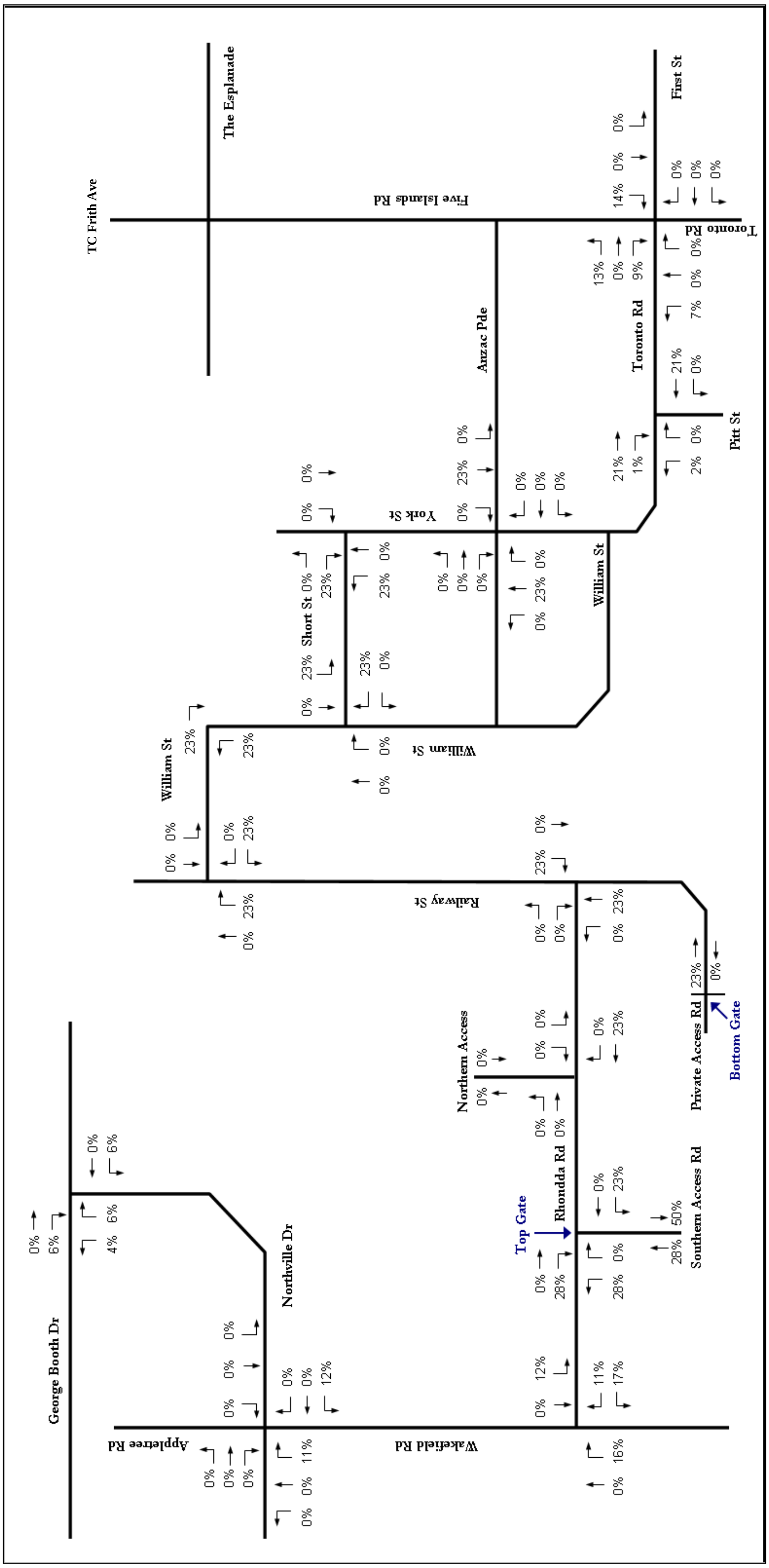
The 85th percentile daily and peak hour trips for 700 000 tpa production are shown in **Figures 8** and **9**, respectively.

The distribution of heavy vehicle movements displayed on **Figure 8** shows that on an 85th percentile day during the survey period, approximately 127 heavy vehicles movements generated by Teralba Quarry travelled through the suburb of Teralba. This represents 45% of the heavy vehicle movements generated by Teralba Quarry. The remaining 55% of heavy vehicle movements travel to and from the west via Rhondda Road to Wakefield Road.

It is noted that loaded trucks exiting the quarry and heading in an easterly direction toward Teralba do not use Rhondda Road but use a private road which enters the public road network at the intersection of Railway Street and Rhondda Road.

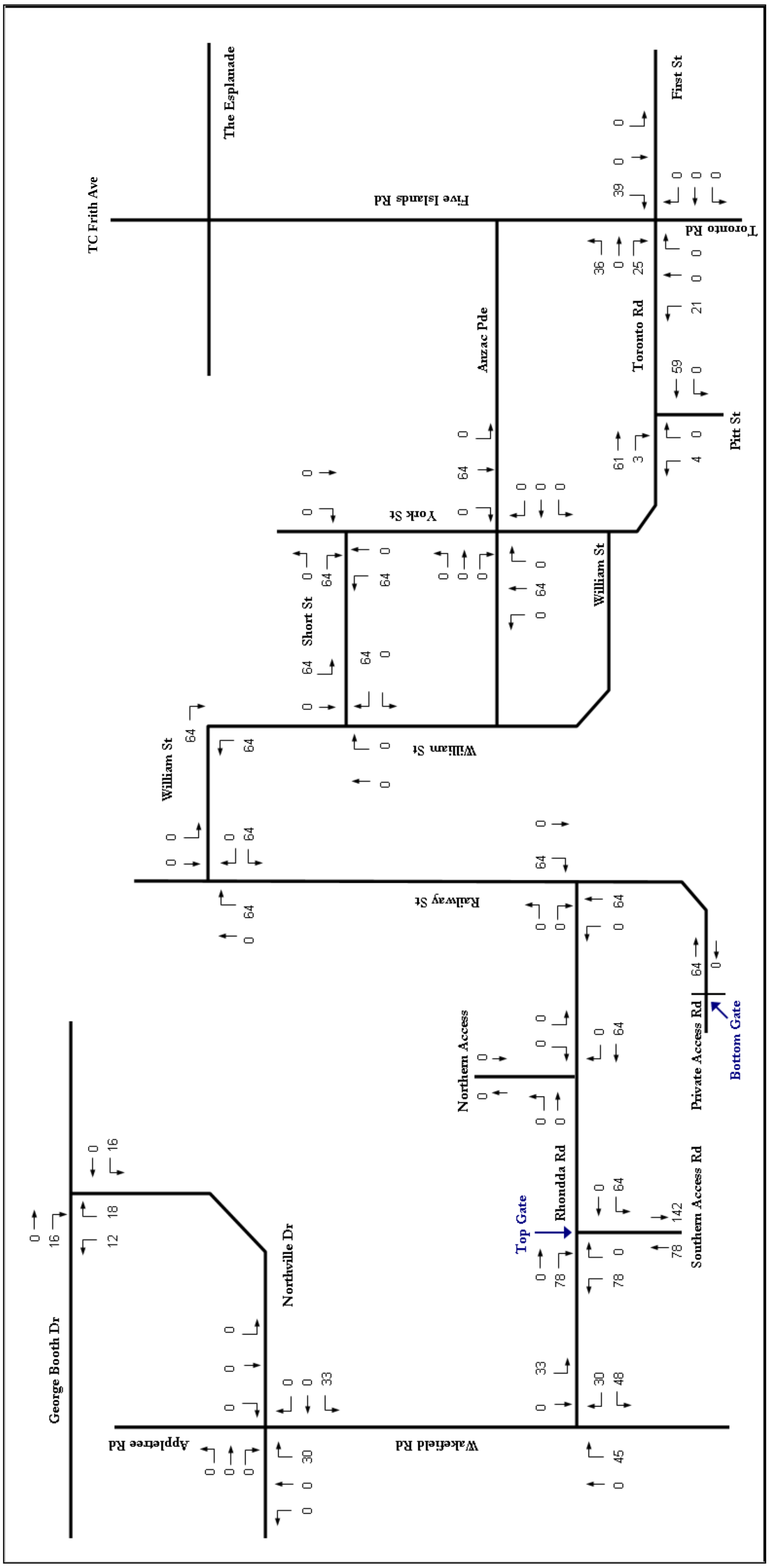
The heavy vehicle movements listed in **Table 3.2** as travelling through Teralba do not include the heavy vehicle movements generated by the Civilake Pugmill operated by Lake Macquarie City Council and other local industrial facilities such as Downer EDI and Teralba Engineering.

Additional diagrams showing the percentage of Metromix trucks compared to all heavy vehicles using the surrounding road network are also shown in **Appendix C**.



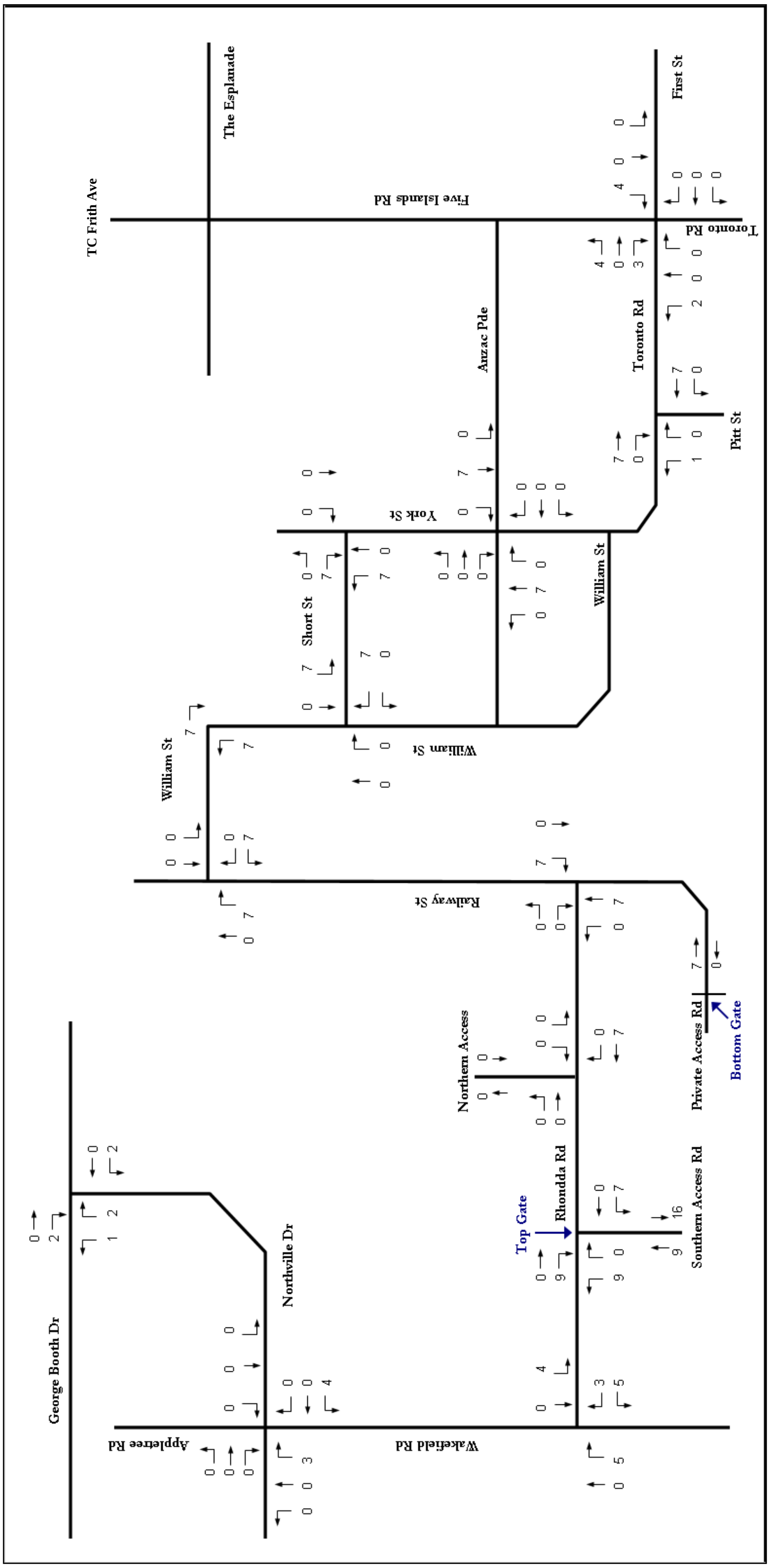
NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 7
Trip Distribution Percentage for 700 000 tpa Sales



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 8
85th Percentile Daily Trip Distribution of Metromix Trucks for 700 000 tpa Sales



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 9
85th Percentile Peak Hour Trip Distribution of Metromix Trucks for 700 000 tpa

3.2.2 Equivalent Annual Sales – 1 million tpa

The traffic flows recorded in June/July 2008 for equivalent annual production level of 700 000 tonnes have been extrapolated to derive the traffic flows for annualised sales of 1 million tonnes.

However, it is recognised that Metromix places a limit of the number of truck movements travelling to and from Teralba Quarry through the suburb of Teralba. This limit has been set with reference to the number of trucks generated by the 700 000 tpa operation described above. As described above, the number of trucks generated by the 85th percentile operation is 127 trucks.

The small number of very busy days (compared with the 85th%ile day) of the 700 000 tpa operation generated around 170 truck movements per day. Hence, Metromix has chosen this as the benchmark traffic level through Teralba – that is, the company would ensure that no more than 170 truck movements would pass through Teralba per day, even when the annual production approaches 1 million tpa. The additional truck movements when operating of that level would be directed westwards along Rhondda Road towards Wakefield Road.

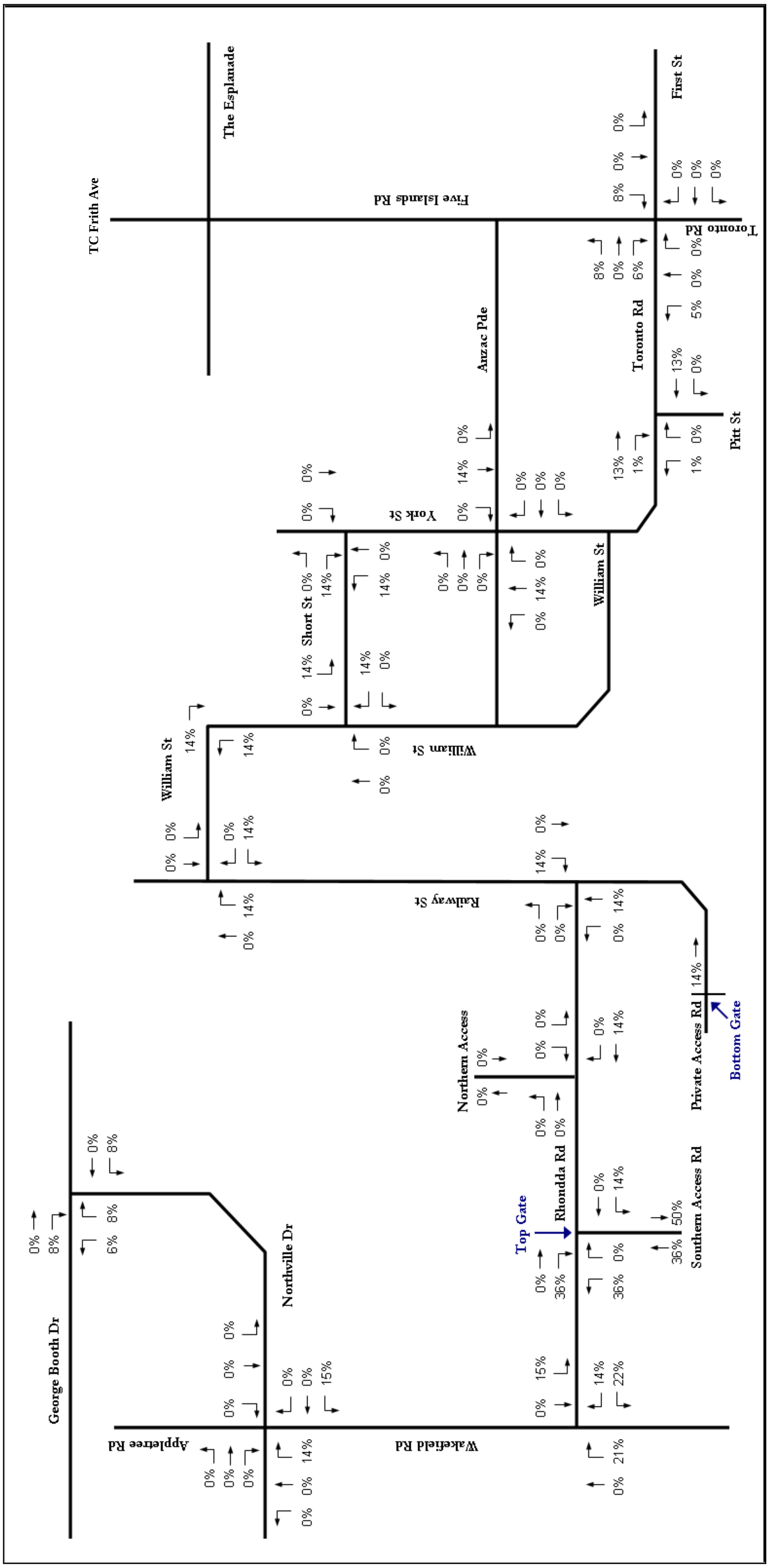
Table 3.3 lists the estimated distribution of Metromix's heavy vehicle movements when despatching products at an annual production rate of 1 million tpa.

Table 3.3
Metromix Heavy Vehicle Movements – 1 million tpa

	Eastwards*	**Westwards**	**Total**
Average Daily Movements	81	222	303
85th Percentile Daily Movements	127	325	452
Average Peak Hour Movements	10	26	37
85th Percentile Peak Hour Movements	15	35	50
NOTE: * Heavy Vehicle Movements through Teralba			

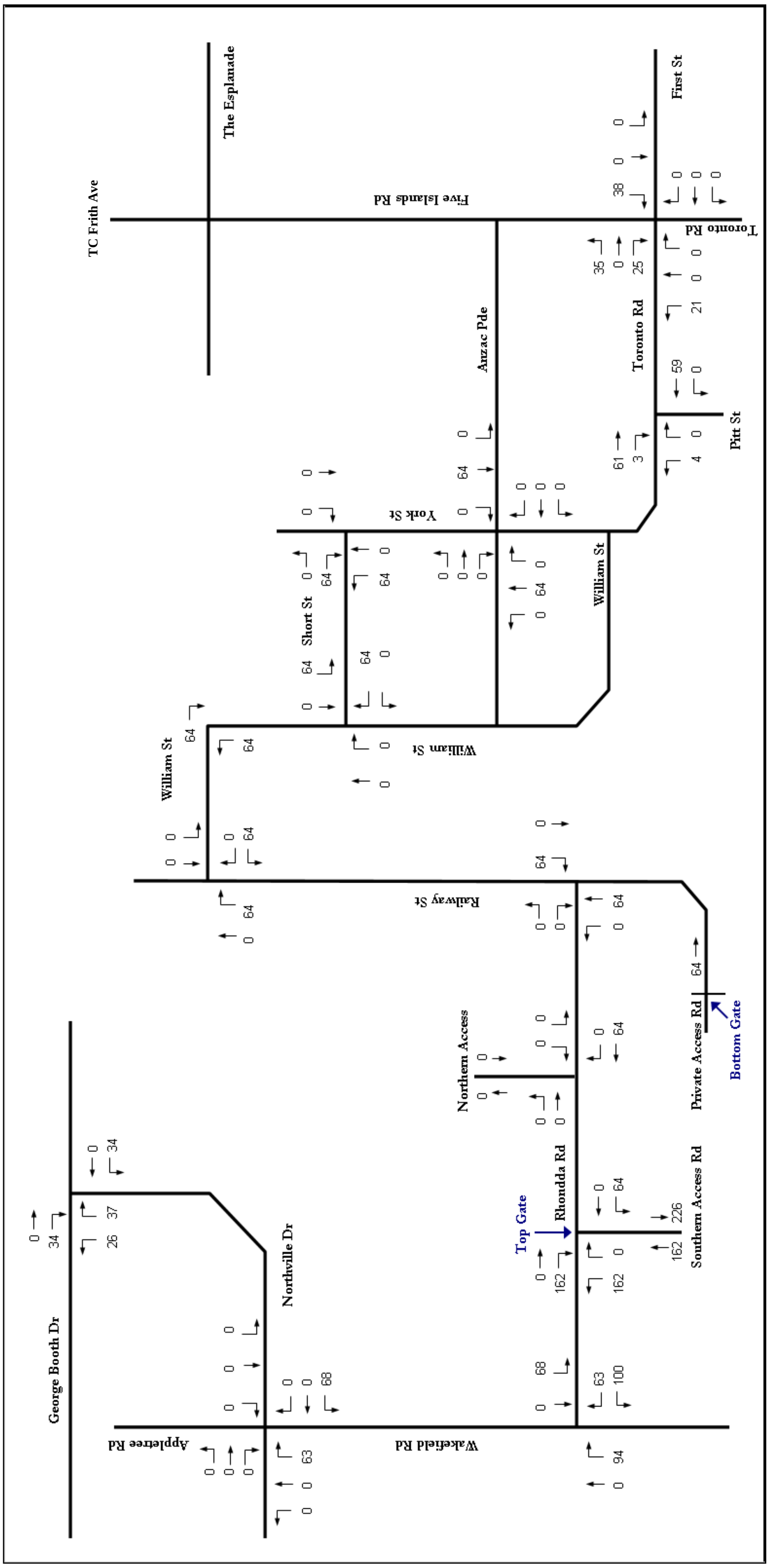
Using the 85th percentile daily and peak hour traffic generation indicated in **Table 3.3**, the site generated trips have been distributed on the road network using the percentages as shown in **Figure 10**.

Figures 11 and **12** similarly displays the trip distribution of these truck movements on the surrounding road network for the 85th percentile daily and peak hour, respectively.



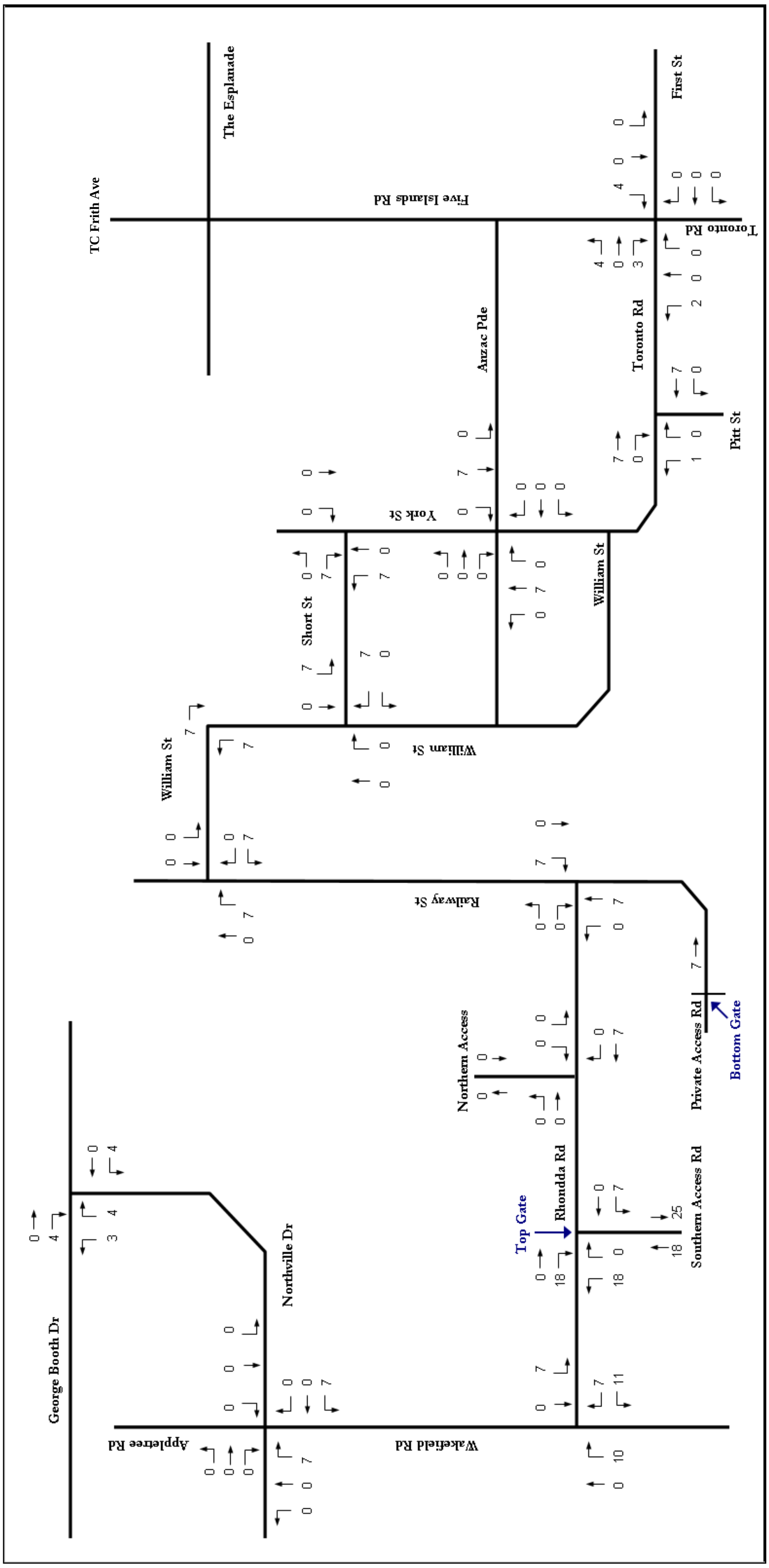
NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 10
Trip Distribution Percentage for 1 million tpa Sales



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 11
85th Percentile Daily Trip Distribution of Metromix Trucks for 1 million tpa Sales



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 12
85th Percentile Peak Hour Trip Distribution of Metromix Trucks for 1 million tpa

4. OVERVIEW OF THE PROPOSED EXTENSIONS

Metromix proposes to extend the operational life of the Teralba Quarry by extending the two existing approved extraction areas within the existing quarry. It is proposed that current production levels would continue for the additional life of the quarry, i.e. for a period of approximately 30 years.

As shown in Section 2.1, **Figure 1** displays the existing approved extraction areas and the proposed "southern" and "northern" extensions.

Annual production rates from the existing approved extraction areas currently equate to 1 million tonnes.

During June/July 2008 period, when the traffic surveys were carried out, the production rate was equivalent to an annual production rate of approximately 700 000 tonnes. Heavy vehicle movements generated to and from Teralba Quarry during that period therefore represented approximately 70% of the peak production rate.

Apart from the proposed extensions to the existing approved extraction areas, the Project would involve:

- some modifications to the processing operations;
- further importation of Virgin Excavated Natural Material and Excavated Natural Material, largely as backloads in Metromix trucks;
- the installation of a conveyor to transport primary-crushed rock from north of Rhondda Road to south of Rhondda Road (when the northern extension is operational);
- ongoing distribution of quarry products; and
- progressive rehabilitation of disturbed areas once activities cease in those areas.

Metromix proposes to maintain the current levels of heavy vehicle movements to and from the Teralba Quarry. Emphasis would be placed upon limiting heavy vehicle traffic levels though the suburb of Teralba at the level equivalent to a maximum of 170 truck movements per day.

This limit to heavy vehicle movements through Teralba will be carefully monitored by Metromix staff. Any additional heavy vehicle movements generated by the Teralba Quarry for production levels up to 1 million tpa will be directed towards the west via Rhondda Road and Wakefield Road (north or south). This will require ongoing strict monitoring of the truck movements from the Despatch Office to ensure that truck drivers are instructed to travel to or from the west via Rhondda Road when these maximum flow levels through Teralba are approached.

Metromix proposes to continue to retain its operation to despatch its products 24 hours per day, 4am Monday to 8pm Saturday. Metromix anticipates the night-time traffic levels would focus on deliveries to the Sydney metropolitan area (to avoid peak periods) and to specific infrastructure projects (requiring night-time deliveries). **Table 4.1** shows the truck movements over a typical 24 hour period, which have been provided by Metromix. It is noted that product truck movements through Teralba are confined to the period 6:00am to 6:00pm, Monday to Saturday.

Table 4.1
Proposed Truck Movements over a Typical 24 Hour Period

Proposed Traffic Movements	
Daily Routine	**Truck Loads**
4:00am – 6:00am	Up to 12 pre-loaded trucks leave site *1 *2
6:00am – 7:00am	Up to 28 trucks loaded and despatched (56 truck movements)
7:00am – 6:00pm	Up to 20 trucks loaded and despatched per hour (40 truck movements)
6:00pm – 10:00pm	Up to 6 trucks loaded per hour *1 *2 (12 truck movements)
10:00pm – midnight	Trucks returning and loading of empty trucks
Midnight – 4:00am	Occasional trucks (gates may be closed) and loading of empty trucks *1 *2
*1 – Only Metromix owned trucks	*2 – Not through Teralba

5. IMPACTS OF THE PROPOSED EXTENSIONS

5.1 BACKGROUND TRAFFIC GROWTH

Whilst traffic growth in recent years has been relatively high, the Roads and Traffic Authority (RTA) has confirmed its views about general traffic growth in the area in two studies recently undertaken by Halcrow / MWT.

In the MR217 (Toronto Road) Fennell Bay to Booragul Duplication and the Hunter Regional Road Safety and Traffic Management (RSTM) projects, RTA confirmed that traffic growth between 2008 and 2032 was anticipated to be around 1.5 % compound per annum. The traffic growth rate was derived from a combination of the forecast growth rates from the RTA Lower Hunter model and historical growth rates in the study area.

Hence, the traffic growth rate of 1.5% (compound) per annum has been adopted for the purpose of this assessment.

The anticipated opening year of the extended quarry is 2012. As requested by the RTA, the future year 2022, i.e.10 years after the opening year would be assessed. Using the compound rate of 1.5% per annum, this is equivalent to the increase factor of about 1.2, which would be applied to the 2010 surveyed intersection flows.

The peak hour intersection flows for the 2022 future base without the Metromix trucks are included in **Appendix D**.

5.2 OTHER COMMITTED DEVELOPMENTS

It is conventional to consider other committed developments but an inspection of current development applications in Lake Macquarie area revealed that there are none which should significantly impact the intersections which are being assessed for this project (see **Figure 4**). An extract from Council's map of current development applications is shown in **Figure 13**. It is noteworthy that such applications also provide an indication of the areas where products from Teralba Quarry are located given it is the closest source of quarry products to these committed developments.

5.3 FUTURE HEAVY VEHICLE ROUTES

Metromix does not intend to add to or modify the existing transport routes for the despatch of products from the Teralba Quarry. Hence, the future heavy vehicle routes would retain the same as existing as described in Section 3.1 of this report.

5.4 FUTURE TRAFFIC FLOWS

It is proposed that product sales of extended Teralba Quarry would remain similar to the current production level, between 700 000 tpa and 1 million tpa. It is likely throughout the ongoing life of the quarry that the average production level will be in the order of 900 000 tpa. However, as a conservative approach, the production level of 1 million tpa would be adopted for the purposes of traffic assessment.

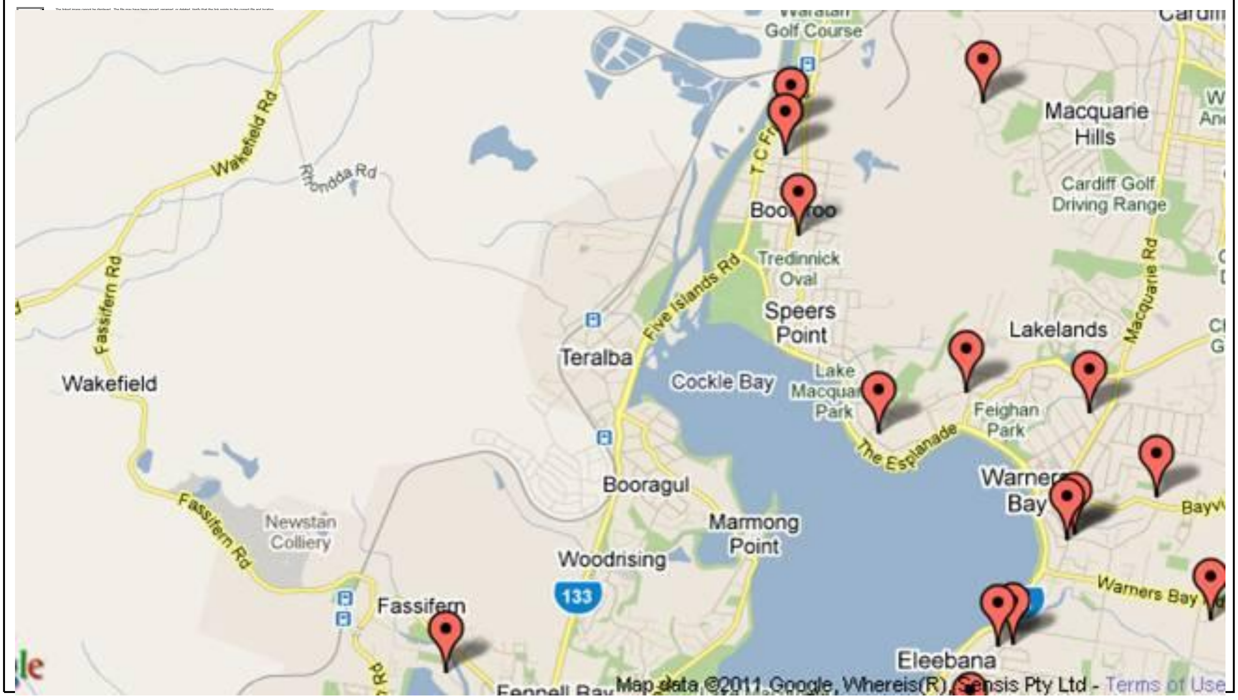


Figure 13
Location of Lake Macquarie Council's Current Development Applications

As described earlier, it is proposed that the truck movements generated by the Teralba Quarry through Teralba would be limited to 170 truck movements per day and trucks generated by annual sales exceeding 700 000 tpa would be directed to the north western and south western corridors via Rhondda Road once this limit is reached.

The 85th percentile peak hour traffic generation for Metromix with 1 million tpa sales (as shown in **Figure 12** is superimposed on the 2022 future base traffic flows (as included in **Appendix D**).

The mid block two-way peak hour flows for existing and future scenarios are summarised in **Table 5.1**.

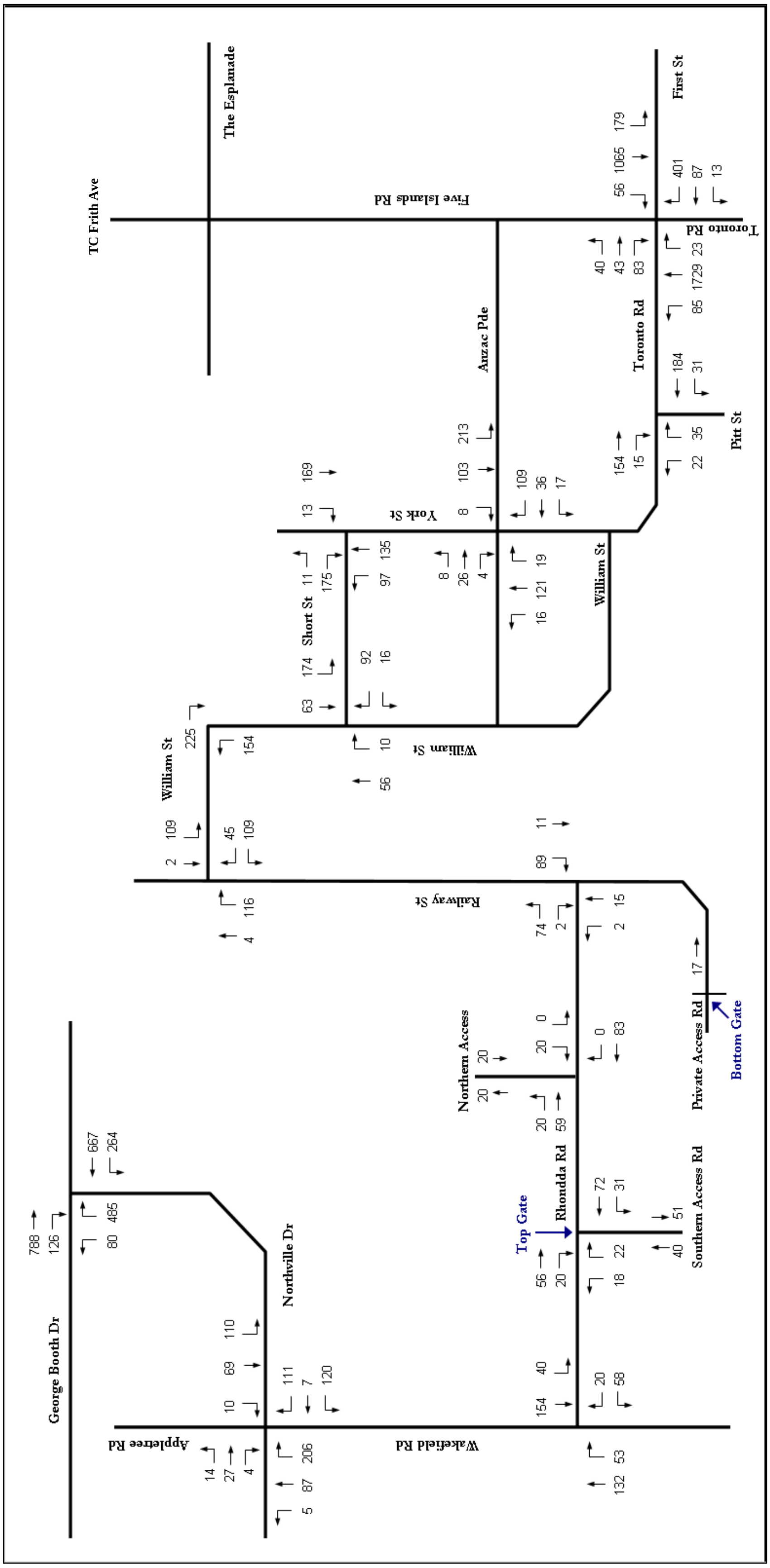
The peak hour intersection flows for 2022 are presented in **Figures 14** and **15** for the morning and afternoon peak hours, respectively.

5.5 INTERSECTION OPERATION WITHIN THE PROPOSED EXTENSIONS

Using the intersection turning movement flows shown in **Figures 14** and **15**, the results of the future intersection performances are presented in **Table 5.2**.

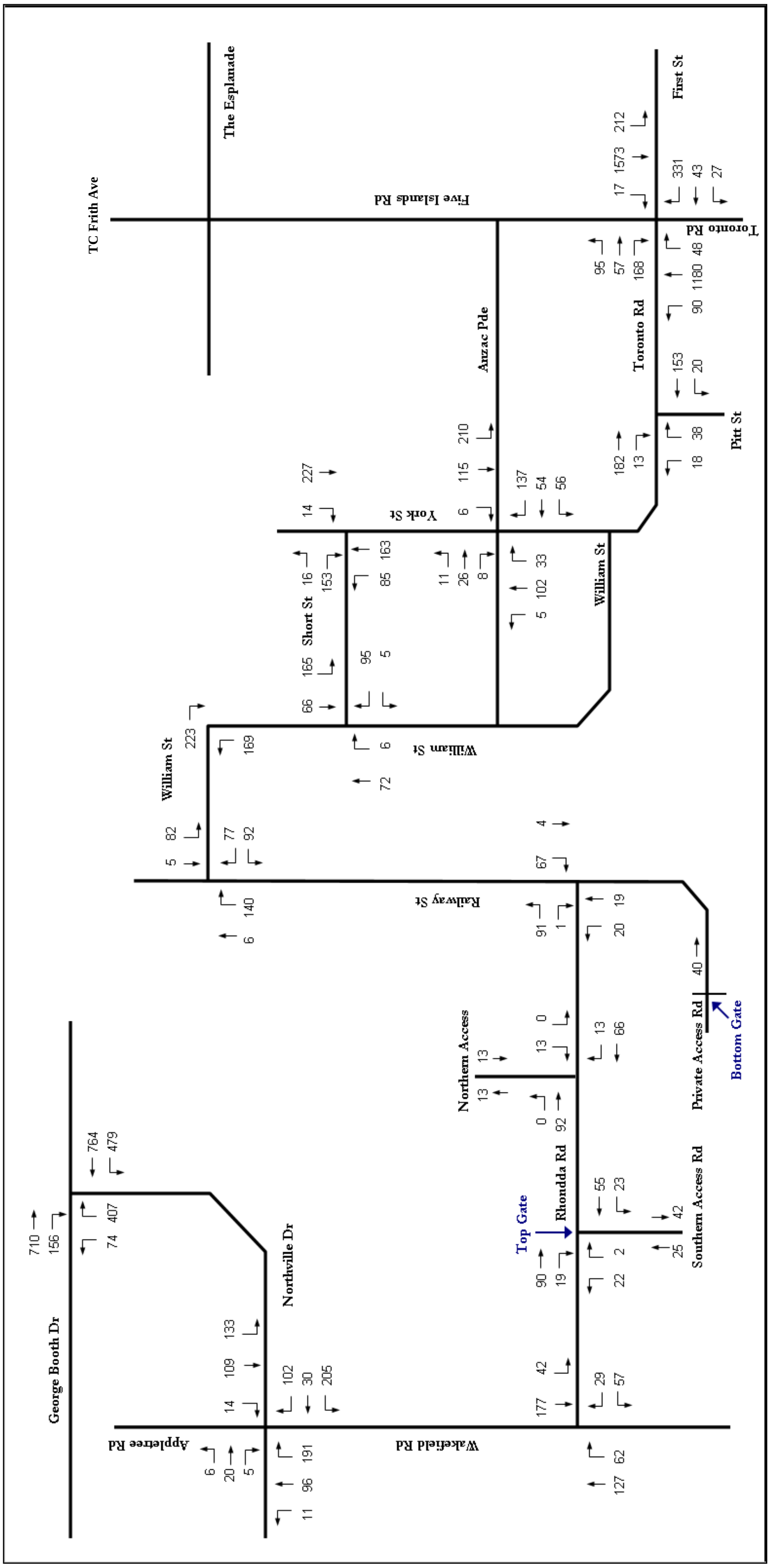
Table 5.1
Existing and Future Two-way Peak Hour Flows

Locations	**Existing**		**Future 2022#**	
	AM	**PM**	**AM**	**PM**
George Booth Dr, west of Northville Dr	1,390	1,425	1,661	1,705
Main Road, east of Northville Dr	1,844	1,973	2,204	2,361
Northville Dr, south of George Booth Dr	800	932	955	1,117
Northville Dr, east of Wakefield Rd	488	567	582	681
Appletree Road, north of Northville Dr	336	384	402	459
Wakefield Rd, south of Northville Dr	412	513	491	616
Wakefield Rd, north of Rhondda Rd	290	311	345	374
Wakefield Rd, south of Rhondda Rd	329	342	397	422
Rhondda Rd, east of Wakefield Rd	141	145	170	189
Rhondda Rd, east of Railway St	136	152	168	179
Railway St, south of Rhondda Rd	31	43	31	44
Railway St, north of Rhondda Rd	159	155	188	181
Railway St, south of William St	195	207	231	243
Railway St, north of Railway Overbridge	134	142	160	170
Railway Overbridge, east of Railway St	319	331	379	391
William St, south of Short St	121	124	145	148
Short St, east of William St	245	230	291	271
York St, north of Short St	274	351	328	420
York St, north of Anzac Pde	472	490	562	582
York St, south of Anzac Pde	235	265	279	320
Anzac Pde, east of York St	351	439	420	518
Anzac Pde, west of York St	82	92	98	110
York St, west of Pitt St	315	304	375	366
Pitt St, south of York St	85	75	102	91
Toronto Rd, west of Five Islands Rd	332	391	394	469
First St, east of Five Islands Rd	624	601	746	719
Toronto Rd, south of First St	2,509	2,583	2,998	3,086
Five Islands Rd, north of First St	2,903	2,847	3,470	3,408
NOTE: # - Future 2022 flows include the 85th percentile peak hour traffic generation for Metromix with 1 million tpa sales plus 2022 future base traffic flows, which adopted compound growth factor of 1.5% per annum from the 2010 surveyed intersection flows.				



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 14
Future (2022) Morning Peak Hour Intersection Flows Including All Light and Heavy Vehicles with Metromix 1 million tpa Sales



NOTE: Numbers are either rounded up or down to the nearest percentage. Consequently, where two numbers are added together, the subsequent total might appear to be "one" more or less than the constituent figures.

Figure 15
Future (2022) Afternoon Peak Hour Intersection Flows Including All Light and Heavy Vehicles with Metromix 1 million tpa Sales

Table 5.2
Future (2022) Intersection Operating Conditions

Intersections	Control Type	AM Peak Hour		PM Peak Hour	
		LoS	Ave Delay (sec)	LoS	Ave Delay (sec)
George Booth Dr-Northville Dr	Roundabout	A	14	B	16
Wakefield Rd-Northville Dr	Roundabout	A	14	A	14
Wakefield Rd-Rhondda Rd	Giveway	A	13	A	12
Rhondda Rd-Metromix Access	Giveway	B	16	A	15
Railway St-Rhondda Rd	Giveway	A	9	A	9
Railway St-Railway Overbridge	Giveway	A	9	A	8
William St-Short St	Giveway	A	8	A	7
York St-Short St	Giveway	A	9	A	9
York St-Anzac Pde	Stop	B	18	B	15
York St-Pitt St	Giveway	A	9	A	9
Toronto Rd-Five Islands Rd	Roundabout	C	35	B	20

Table 5.2 indicates that all intersections analysed would operate satisfactorily with Level of Service C or better for both the morning and afternoon peak periods.

A detailed SIDRA results are included in **Appendix B**.

5.6 INTERSECTION OPERATION DURING CONSTRUCTION

The proposed Teralba Quarry extensions would not require construction of any new buildings or infrastructure works that would add substantial amount of traffic to exiting traffic levels. Hence, there would be minimal impact on the surrounding road network due to construction activities.

5.7 ASSESSMENT OF ENVIRONMENTAL CAPACITY

The following roads will therefore continue to be used for transporting material to the wider road networks.

5.7.1 To the West of Teralba Quarry

- Rhondda Road to Wakefield Road;
- Wakefield Road;
- Northville Road; and
- George Booth Drive.

Rhondda Road, Wakefield Road and Northville Drive are sub arterial roads, which are funded by Lake Macquarie City Council. Sub arterial roads have an environmental capacity of around 1,200 vehicles per hour (Ref - RTA Guide to Traffic Generating Developments 2002).

George Booth Drive is a state road, which is funded by RTA, whose function is to deliver traffic from sub arterial collector roads to freeways. Such roads are generally not residential roads and do not have an environmental capacity attributed to them but can generally carry in excess of 1,500 vehicles of well over 3,000 vehicles per hour.

Table 5.3
Existing and Future Two-way Peak Hour Flows (To West of Site)

Locations	Existing		Future 2022	
	AM	PM	AM	PM
George Booth Dr, west of Northville Dr	1,390	1,425	1,661	1,705
Main Road, east of Northville Dr	1,844	1,973	2,204	2,361
Northville Dr, south of George Booth Dr	800	932	955	1,117
Northville Dr, east of Wakefield Rd	488	567	582	681
Wakefield Rd, south of Northville Dr	412	513	491	616
Wakefield Rd, north of Rhondda Rd	290	311	345	374
Wakefield Rd, south of Rhondda Rd	329	342	397	422
Rhondda Rd, east of Wakefield Rd	141	145	170	189

It is clear therefore that all of the above roads will continue to operate below their environmental capacity.

5.7.2 To the East of Teralba Quarry

- Railway Street;
- Railway Bridge;
- William Street;
- Short Street;
- York Street; and
- Toronto Road.

The roads between Railway Street and the Toronto Road/Five Islands Road roundabout on which the quarry trucks travel can generally be classified as collector or local roads, which have an Environmental Capacity of around 500 vehicles during the peak hour. These roads are funded by Lake Macquarie City Council.

It is clear therefore that all of the above roads, except for York Street, north of Anzac Parade, will continue to operate below their environmental capacity. York Street, north of Anzac Parade currently accommodates flows of around 490 vehicles per hour in the afternoon. Allowing for 1.5% compound growth over the period to 2022, this section of York Street can expect flows of above 500 vehicles per hour. The fact that the flow will in the future grow to levels of above 500 vehicles per hour is due to general traffic growth and not Teralba Quarry.

Table 5.4
Existing and Future Two-way Peak Hour Flows (To East of Site)

Locations	Existing		Future 2022	
	AM	PM	AM	PM
Railway St, south of Rhondda Rd	31	43	31	44
Railway St, north of Rhondda Rd	159	155	188	181
Railway St, south of William St	195	207	231	243
Railway St, north of William St	134	142	160	170
Railway Bridge, east of Railway St	319	331	379	391
William St, south of Short St	121	124	145	148
Short St, east of William St	245	230	291	271
York St, north of Short St	274	351	328	420
York St, north of Anzac Pde	472	490	562	582
York St, south of Anzac Pde	235	265	279	320
York St, west of Pitt St	315	304	375	366
Toronto Rd, west of Five Islands Rd	332	391	394	469

6. ASSESSMENT OF EXISTING ROAD CONDITIONS

6.1 INTRODUCTION

The existing road network has been reviewed in a number of ways:

- A review of crash data up until the end of 2009 has been undertaken to establish whether there are any existing crash trends; and
- A general review of the condition of the roads that Metromix trucks will continue to use has been undertaken.

6.2 CRASH HISTORY

A study of crashes between January 2005 and December 2009 was undertaken. Crash data from 2010 / 2011 data was not available at the time of the analysis.

There is no obvious indication that the crashes were attributable to any specific deficiencies but improvements to road markings and signage would be beneficial.

Metromix understands that none of the crashes involving heavy vehicles during the 5 year period involved trucks travelling to or from Teralba Quarry.

6.3 EXAMINATION OF CRASH HISTORY

Prior to this assessment, it should be noted that:

- Metromix does not intend to add to or modify the existing transport routes for the despatch of products from the Teralba Quarry; and
- Metromix intend to limit the volume of trucks passing through Teralba to the 2008 levels.

Of the roads to the **west** of Teralba Quarry, Rhondda Road to Wakefield Road, Northville Road and George Booth Drive, the section from Rhondda Road to Wakefield Road has recently been upgraded although there are a couple of areas where patches of poor surfacing are prevalent. However, the road itself has a number of deficiencies which are typical of a road of this type:

- Broken edges;
- Lack of guardrail protection drainage structures, embankments and other roadside furniture within the clear zone;
- Poor signage and delineation; and
- Heavy patching at previously damaged pavement.

Table 6.1
Summary of Crash Data

Northville Drive - between Wakefield Road and George Booth Drive
A total of 10 crashes occurred on Northville Drive during the 5 years from January 2005 to December 2009. One of these crashes resulted in a fatality with the driver being killed when their vehicle left the road and hit a power pole. A further five crashes resulted in injuries.
The crashes involving heavy vehicles represented 30% of all crashes on Northville Drive; i.e. three out of the 10 crashes.
There is a minor cluster of 4 crashes near the intersection of Northville Drive and Carinda Avenue including the fatality crash 150 m south of Carinda Avenue. The area is close to a school with appropriate school zone speed control signage in place. There is also a pedestrian refuge available to assist pedestrians crossing Northville Drive. However, a closer review of these accidents fails to provide any consistent factor relating to these crashes.
The fatality crash occurred at 8:25 on a Wednesday morning; a pedestrian injury crash occurred at 23:45 on a Saturday evening; a right turn / through crash occurred at 21:50 on a Friday evening and a left turn side swipe crash occurred at 14:20 on a Wednesday afternoon.
There is also a minor cluster of crashes involving heavy vehicles at the intersection of Highcross Street and Northville Drive. These crashes both involved a crash between a car turning right into Highcross Street and a truck travelling east on Northville Drive (based on a likely translation of the data recorded in the police report). Both of these crashes occurred at around 4:00 pm on a weekday. However, there are no other significant factors relating to these crashes.
Wakefield Road - Between Palmers Road and Northville Drive
A total of 12 crashes occurred on Wakefield Road during the 5 years from January 2005 to December 2009. There were no fatality crashes during this period. However, all 12 crashes were recorded as injury crashes.
The crashes involving heavy vehicles represent 42% of all crashes on Wakefield Road, i.e. five of the 12 crashes.
There is a cluster of nine crashes through the village of Wakefield between Rosina Road and School Road. Of these nine crashes four involved a vehicle leaving the road and colliding with a roadside object. Another three crashes involved a motorcycle that either left the road or lost control. The remaining two crashes were rear-end crashes with a vehicle either stationary or turning left.
A site inspection of this section of road indicates that there is a need to improve delineation and line marking through the village of Wakefield.
A review of crashes along the length of Wakefield Road indicates that many crashes involve vehicles leaving the road and colliding with a roadside object.
York Street - Between Short Street and Five Islands Road
A total of 12 crashes occurred on York Street during the 5 years from January 2005 to December 2009. There were no fatality crashes during this period. However, there were five injury crashes.
The crashes involving heavy vehicles represent 50% of all crashes on York Street, i.e. six of the 12 crashes.
There is a cluster of six crashes at or near the intersection of York St and Anzac Parade. Of these six crashes four involved a vehicle travelling north in Anzac Parade colliding with a vehicle travelling west in York Street. This would suggest that the vehicles travelling north in Anzac Parade are failing to acknowledge the priority given to traffic in York Street.
Rhondda Road -Between Railway Road and Wakefield Road
A total of eight crashes occurred on Rhondda Road during the five years from January 2005 to December 2009. There were no fatality crashes during this period. However, there were four injury crashes.
The crashes involving heavy vehicles represent 13% of all crashes on Rhondda Road i.e. one of the 8 crashes.
There are no specific clusters of crashes along the length of Rhondda Road. However, all of these eight crashes involved a single vehicle. One vehicle collided with a kangaroo, while the other seven crashes involved a single vehicle leaving the carriageway and colliding with a roadside object.
Railway Street - Between Rhondda Road and Railway Overbridge
A total of two crashes occurred on Railway Street during the five years from January 2005 to December 2009. Both of these crashes involved injuries.
There were no heavy vehicle crashes in Railway Street.
One of these crashes involved a car and a cyclist, while the other was a single vehicle crash.

It is noted that, these are existing deficiencies in the road system which the proposed extension of the existing quarry will not have a significant adverse effect upon.

Of the roads to the **east** of Teralba Quarry, the roads passing between the site and the Toronto Road roundabout include Railway Street plus the Railway Bridge, William Street, Short Street, York Street and Toronto Road. Trucks are limited to these streets by the imposition of 5 tonne vehicle limits on other roads in Teralba centre.

A site inspection of this route has revealed that there are a number of problems with the existing road network to the east of the Teralba Quarry:

- Pedestrians travelling from the Railway Street on the north to William Street on the south experience significant problems crossing the road especially if they have prams/pushchairs and they have to cross to the north east of the bridge to cross where visibility of approaching vehicles is limited by vegetation and the bridge itself;
- The fence adjacent to the railway line on the William Street side would be inadequate to stop an errant eastbound truck from falling onto the railway line; and
- Trucks turning from William Street onto the Railway overbridge cannot do so without crossing the centre line.

However, Metromix does not intend to increase the truck traffic through Teralba above the existing levels of 170 truck movements per day so the proposed extension of the existing quarry will not have a significant adverse effect upon these roads.

7. PROPOSED IMPROVEMENTS/MITIGATION MEASURES

7.1 ROAD IMPROVEMENTS

As demonstrated in the traffic analysis section of this report, none of the intersections or links will need to be upgraded to improve the traffic capacity of the routes. However, it is accepted that the quarry trucks will continue to have an impact on the life of the existing pavement.

Consequently, Metromix proposes to provide a quarterly contribution to Lake Macquarie City Council based on a rate per tonne transported from the quarry to assist Council fund road maintenance and improvements on these roads.

Many councils in New South Wales have a specific Section 94 Development Control Plan to raise revenue on local roads maintained by Council to ensure that any damage done to such roads by quarry trucks is compensated for. This is usually in the form of a contribution which is payable per tonne transferred on these regional roads.

Lake Macquarie City Council does not currently have a Section 94 plan to impose such contributions, nor is it their intention to introduce such a requirement.

Consequently, Metromix intends to hold discussions with the Council in relation to the calculation of a contribution in relation to the above site. The contribution will be based upon such issues as current condition, projected maintenance costs, the extent of affected roads (i.e. those not already partially funded by RTA), pavement design etc.

Such a contribution would cover all types of road maintenance especially those specifically referred to in the Road Block agreement which is submitted by councils to the RTA to obtain funding for regional roads as set out below.

Such a contribution would cover all types of road maintenance especially those specifically referred to in the RTA Road Block Agreement Application/Forms which are submitted by councils to the RTA to obtain funding for regional roads as set out below.

Consequently, many of the deficiencies highlighted earlier in this chapter could be addressed by such maintenance works.

It is believed therefore that the proposed contribution would address all of the impacts which would result from the trucks associated with the ongoing operation of the quarry.

Such a contribution would be offered towards improvements on regional roads but such contributions cannot be imposed upon state roads or local roads. If the road is state funded, such contributions cannot be imposed as this would be seen as “double dipping”. Local road improvements are generally funded by rates.

7.2 PROPOSED MITIGATION MEASURES

It is proposed that in order to mitigate the impacts on local residents a "Truck Code of Conduct' is adopted by all drivers travelling to and from Teralba Quarry. The requirements contained within such a code of conduct could include the following:-

- Defining times of truck operation, especially through Teralba;
- Set truck speed limits;
- Propose duty of care to other drivers and especially pedestrians; and
- Set up a complaints procedure.

This truck code of conduct would be signed by all drivers and, if complaints are received, could ultimately lead to disciplinary action for non complying drivers.

8. CONCLUSIONS

An assessment of the traffic impacts relating to the project has been made in line with the Director-General's Requirements and requirements provided by the Roads and Traffic Authority and Lake Macquarie City Council.

- The traffic generated by the extension of the quarry's existing operation has been estimated.
- An assessment of the crash history has concluded that no quarry trucks have been involved in the crashes identified on the surrounding road network. As Metromix will not be increasing production at the quarry over existing levels, there is no reason to believe that this will result in adverse safety conditions.
- Traffic counts have been undertaken at intersections and along road links at key points around the local road network.
- Traffic modelling has shown that the intersections on the road network will continue to operate successfully with the quarry traffic in current conditions and in 2022 (10 years after an approval is granted for the quarry extensions).
- In order to ensure that the roads continue to operate at adequate levels in terms of structural integrity, etc. the quarry has committed to payment of a contribution to Council based upon the tonnage leaving the site but the level of such a contribution will need to be discussed in detail with the Council.
- A code of conduct for drivers at the quarry will be put in place to ensure that unacceptable driver behaviour is minimised.

In summary, it is believed that the proposed road network around the Teralba Quarry is able to accommodate the trucks from the continued operation of quarry at existing levels. Metromix however intends to contribute funds to help address future maintenance of Council funded road to acceptable levels, relative to the damage caused by the trucks travelling to and from Teralba Quarry.

9. REFERENCES

RTA Guide to Traffic Generating Developments (RTA 2002).

Traffic Volume Data for Hunter and Northern Regions (RTA 2004)

MR217 (Toronto Road) Fennell Bay to Booragul Duplication Traffic Report (Mason Wilson Twiney 2008)

Intersection and Network Modelling for the Hunter Regional Road Safety and Traffic Management Project (Halcrow 2010)

Appendices

(No. of pages excluding this page = 52)

This page has intentionally been left blank

Appendix A
Automatic Traffic Count Data

(No. of pages including blank pages = 18)

This page has intentionally been left blank

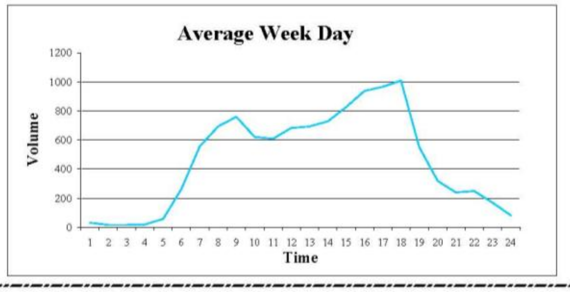
Automatic Vehicle Counts

	Site	Location	
1	William St	North of Short St	Teralba
2	York St	South of Short St	Teralba
3	Railway St	North of Railway Overbridge	Teralba
4	Toronto Rd	South of Lake Crescent	Teralba
5	Wakefield Rd	South of Rhondda Rd	Teralba
6	Wakefield Rd	North of Rhondda Rd	Teralba
7	Rhondda Rd	West of Metromix Access	Teralba
8	Rhondda Rd	East of Metromix Access	Teralba
9	Railway St	North of Rhondda Rd	Teralba
10	MR217 (Five Islands Rd)	North of Anzac Parade	Teralba
11	MR217 (Lake Rd)	Waratah Golf Course	Cockle Creek
12	Northville Rd	East of Carinda Ave	Northville
13	MR217 (Toronto Rd)	North of Enterprise Way	Woodrising
14	The Esplanade	Speers Point Park	Speers Point

All Vehicles

The Esplanade - Speers Point Park **Westbound**

Day	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*	*Sun*	*W/Day*	*W/End*	*7 Day*
Time	14-Jul-08	15-Jul-08	16-Jul-08	17-Jul-08	18-Jul-08	19-Jul-08	20-Jul-08	*Ave.*	*Ave.*	*Ave*
0:00	26	24	26	31	47	79	103	31	91	48
1:00	12	10	15	24	19	54	51	16	53	26
2:00	19	15	15	17	14	33	34	16	34	21
3:00	19	20	20	23	14	28	36	19	32	23
4:00	63	61	57	50	52	35	32	57	34	50
5:00	259	260	260	264	267	128	81	262	105	217
6:00	527	594	589	553	515	190	127	556	159	442
7:00	677	710	709	700	675	241	164	694	203	554
8:00	681	731	770	797	821	491	280	760	386	653
9:00	609	622	633	655	585	620	459	621	540	598
10:00	542	606	589	681	621	757	615	608	686	630
11:00	604	722	691	752	646	843	671	683	757	704
12:00	680	694	668	721	705	919	711	694	815	728
13:00	720	714	813	657	742	856	688	729	772	741
14:00	782	870	873	749	861	848	703	827	776	812
15:00	840	1008	992	922	924	790	705	937	748	883
16:00	948	1016	999	924	945	734	726	966	730	899
17:00	956	1079	1018	985	1003	592	482	1008	537	874
18:00	471	547	558	593	579	356	272	550	314	482
19:00	285	294	306	413	293	216	186	318	201	285
20:00	170	237	278	309	203	194	171	239	183	223
21:00	204	236	259	342	206	184	149	249	167	226
22:00	155	136	185	164	205	201	96	169	149	163
23:00	60	63	65	72	148	153	54	82	104	88
Total	**10309**	**11269**	**11388**	**11398**	**11090**	**9542**	**7596**	**11091**	**8569**	**10370**



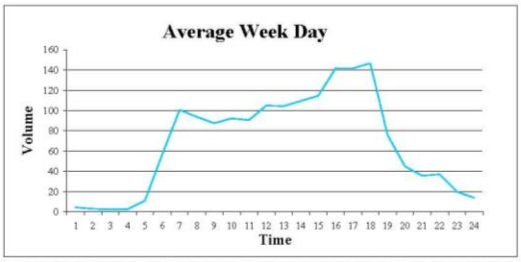
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	**821**
PM Peak	5:00 PM	6:00 PM	**1079**
		Week Day Average	**11091**
		Weekend Day Average	**8569**
		7 Day Average	**10370**

All Vehicles

William St - North of Short St **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	4	4	3	4	7	9	12	4	11	6
1:00	3	2	3	1	5	10	10	3	10	5
2:00	2	2	1	3	3	1	8	2	5	3
3:00	4	3	1	3	1	4	1	2	3	2
4:00	10	8	8	13	16	6	2	11	4	9
5:00	61	55	55	54	58	32	18	57	25	48
6:00	94	107	111	105	86	28	12	101	20	78
7:00	88	109	101	85	85	42	23	94	33	76
8:00	89	84	105	84	75	67	44	87	56	78
9:00	82	94	108	88	89	76	81	92	79	88
10:00	76	89	88	118	81	88	76	90	82	88
11:00	104	104	118	96	102	129	78	105	104	104
12:00	113	103	91	115	99	141	92	104	117	108
13:00	103	126	114	100	104	113	81	109	97	106
14:00	127	103	100	126	117	97	89	115	93	108
15:00	122	147	155	140	144	92	97	142	95	128
16:00	137	135	160	133	142	91	95	141	93	128
17:00	147	156	150	140	140	97	86	147	92	131
18:00	72	63	70	92	81	57	46	76	52	69
19:00	35	32	47	58	52	31	29	45	30	41
20:00	21	45	38	47	27	33	27	36	30	34
21:00	33	47	32	45	28	22	25	37	24	33
22:00	19	16	16	24	24	25	17	20	21	20
23:00	10	17	14	11	17	14	13	14	14	14
Total	**1556**	**1651**	**1689**	**1685**	**1583**	**1305**	**1062**	**1633**	**1184**	**1504**



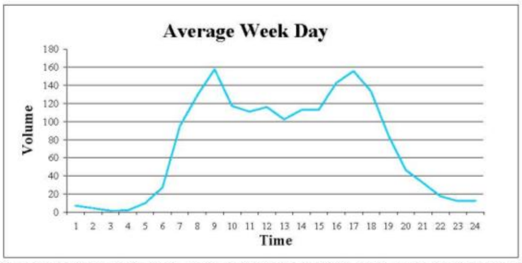
Summary

	from	to	
AM Peak	10:00 AM	11:00 AM	**118**
PM Peak	4:00 PM	5:00 PM	**160**
Week Day Average			**1633**
Weekend Day Average			**1184**
7 Day Average			**1504**

All Vehicles

William St - North of Short St **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	3	9	8	8	7	10	4	7	7	7
1:00	2	3	6	3	7	4	5	4	5	4
2:00	2	1	1	1	2	3	4	1	4	2
3:00	1	2	1	3	2	2	1	2	2	2
4:00	10	7	9	11	12	11	4	10	8	9
5:00	23	29	30	23	30	19	11	27	15	24
6:00	105	91	95	99	86	33	22	95	28	76
7:00	124	144	139	127	111	48	17	129	33	101
8:00	137	147	172	176	157	98	60	158	79	135
9:00	105	134	116	121	110	108	82	117	95	111
10:00	96	110	126	115	108	127	112	111	120	113
11:00	97	114	122	122	125	111	81	116	96	110
12:00	102	118	93	99	100	146	104	102	125	109
13:00	116	138	101	110	99	114	97	113	106	111
14:00	116	119	117	108	105	112	82	113	97	108
15:00	118	138	167	152	138	113	114	143	114	134
16:00	156	156	157	151	160	83	105	156	94	138
17:00	106	132	133	146	150	119	114	133	117	129
18:00	71	103	72	85	94	80	59	85	70	81
19:00	47	44	56	49	36	39	33	46	36	43
20:00	24	23	41	41	32	29	27	32	28	31
21:00	14	15	16	18	24	19	16	17	18	17
22:00	13	8	7	13	19	11	5	12	8	11
23:00	10	14	12	12	14	6	5	12	6	10
Total	**1598**	**1799**	**1797**	**1793**	**1728**	**1445**	**1164**	**1743**	**1305**	**1618**



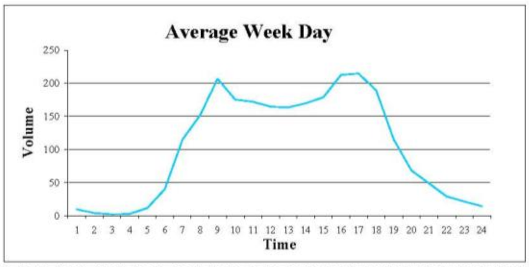
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	**176**
PM Peak	3:00 PM	4:00 PM	**167**
Week Day Average			**1743**
Weekend Day Average			**1305**
7 Day Average			**1618**

All Vehicles

York St - South of Short St — **Eastbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	2	2	3	5	5	13	18	3	16	7
1:00	3	4	3	1	4	10	8	3	9	5
2:00	2	4	0	3	2	3	0	2	2	2
3:00	5	2	2	6	2	5	5	3	5	4
4:00	11	17	13	12	10	11	2	13	7	11
5:00	52	54	48	55	50	20	12	52	16	42
6:00	103	113	114	112	98	31	9	108	20	83
7:00	118	117	125	110	109	59	39	116	49	97
8:00	116	109	140	119	131	101	57	123	79	110
9:00	126	140	161	153	130	143	103	142	123	137
10:00	129	113	151	137	130	169	110	132	140	134
11:00	136	139	150	164	163	215	128	150	172	156
12:00	145	128	132	156	133	201	111	139	156	144
13:00	135	168	151	156	174	182	126	157	154	156
14:00	175	149	158	185	180	158	132	169	145	162
15:00	162	207	217	205	179	157	111	194	134	177
16:00	154	174	192	183	203	124	105	181	115	162
17:00	163	185	156	194	155	123	120	171	122	157
18:00	80	86	94	106	89	69	58	91	64	83
19:00	40	70	55	70	55	44	37	58	41	53
20:00	35	50	42	41	35	31	38	41	35	39
21:00	28	38	25	46	46	34	24	37	29	34
22:00	19	20	25	23	32	36	13	24	25	24
23:00	9	12	11	12	15	17	12	12	15	13
Total	**1948**	**2101**	**2168**	**2254**	**2130**	**1956**	**1378**	**2120**	**1667**	**1991**



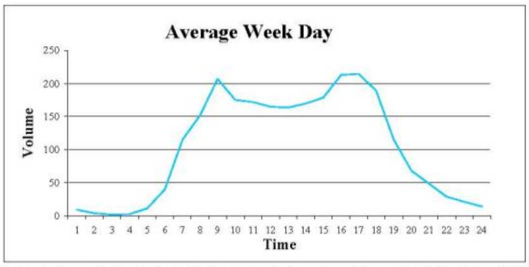
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	**164**
PM Peak	3:00 PM	4:00 PM	**217**
Week Day Average			**2120**
Weekend Day Average			**1667**
7 Day Average			**1991**

All Vehicles

York St - South of Short St — **Westbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	6	10	8	12	10	13	17	9	15	11
1:00	3	3	4	2	7	4	8	4	6	4
2:00	1	2	2	2	3	6	1	2	4	2
3:00	3	3	2	4	1	3	4	3	4	3
4:00	8	9	13	13	14	15	5	11	10	11
5:00	39	43	39	39	39	26	11	40	19	34
6:00	129	105	119	116	106	40	27	115	34	92
7:00	144	165	159	155	137	77	31	152	54	124
8:00	179	187	231	217	221	119	73	207	96	175
9:00	176	159	168	188	185	167	123	175	145	167
10:00	159	147	167	192	195	187	145	172	166	170
11:00	160	144	174	175	171	210	139	165	175	168
12:00	149	166	163	169	170	212	143	163	178	167
13:00	157	186	166	180	160	171	129	170	150	164
14:00	161	184	187	165	197	176	116	179	146	169
15:00	185	216	214	235	213	158	135	213	147	194
16:00	198	226	196	236	218	205	136	215	171	202
17:00	152	189	202	205	199	169	130	189	150	178
18:00	95	129	113	114	124	109	58	115	84	106
19:00	71	65	73	76	56	43	41	68	42	61
20:00	39	42	49	60	55	31	35	49	33	44
21:00	20	31	34	32	27	30	24	29	27	28
22:00	16	29	13	21	27	25	16	21	21	21
23:00	10	18	17	15	11	19	4	14	12	13
Total	**2260**	**2458**	**2513**	**2623**	**2546**	**2215**	**1551**	**2480**	**1883**	**2309**



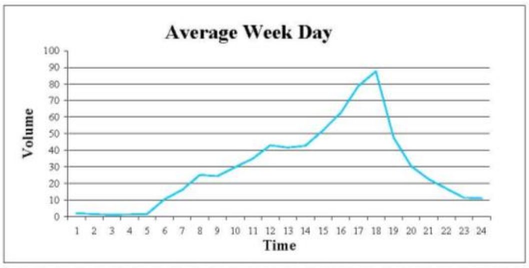
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	**231**
PM Peak	4:00 PM	5:00 PM	**236**
Week Day Average			**2480**
Weekend Day Average			**1883**
7 Day Average			**2309**

All Vehicles

Railway St - North of Railway Overbridge **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	2	2	3	1	2	5	7	2	6	3
1:00	2	1	2	1	2	6	3	2	5	2
2:00	2	0	1	1	2	1	4	1	3	2
3:00	1	2	0	3	1	4	1	1	3	2
4:00	0	1	1	1	5	1	2	2	2	2
5:00	9	10	15	12	7	7	3	11	5	9
6:00	16	16	18	16	15	4	5	16	5	13
7:00	26	24	29	23	24	14	12	25	13	22
8:00	25	22	23	23	29	26	24	24	25	25
9:00	25	30	27	33	34	34	27	30	31	30
10:00	26	31	30	43	45	30	38	35	34	35
11:00	41	39	43	41	51	69	46	43	58	47
12:00	50	36	34	42	46	79	55	42	67	49
13:00	38	50	43	39	44	71	51	43	61	48
14:00	55	53	46	47	59	60	66	52	63	55
15:00	54	65	66	61	67	55	63	63	59	62
16:00	71	78	91	69	84	52	56	79	54	72
17:00	91	88	88	93	78	50	39	88	45	75
18:00	50	38	47	55	49	38	30	48	34	44
19:00	25	22	33	39	33	16	21	30	19	27
20:00	17	26	24	32	14	22	18	23	20	22
21:00	12	18	13	22	20	16	11	17	14	16
22:00	11	7	7	17	15	13	7	11	10	11
23:00	8	13	10	10	14	9	9	11	9	10
Total	**657**	**672**	**694**	**724**	**740**	**682**	**598**	**697**	**640**	**681**



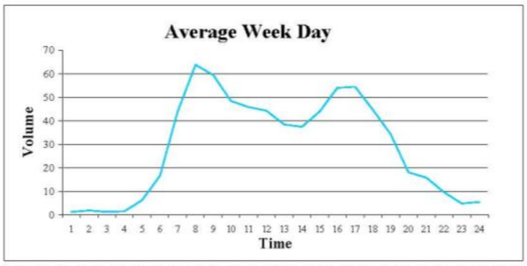
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	51
PM Peak	5:00 PM	6:00 PM	93
Week Day Average			697
Weekend Day Average			640
7 Day Average			681

All Vehicles

Railway St - North of Railway Overbridge **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	1	1	3	0	1	6	2	1	4	2
1:00	2	2	2	1	2	4	1	2	3	2
2:00	2	0	2	1	1	2	3	1	3	2
3:00	1	2	0	4	0	3	2	1	3	2
4:00	6	4	6	6	9	7	2	6	5	6
5:00	17	17	16	14	19	8	7	17	8	14
6:00	41	46	44	49	40	13	16	44	15	36
7:00	62	68	71	59	59	23	11	64	17	50
8:00	55	49	64	70	59	54	32	59	43	55
9:00	42	49	43	48	60	55	45	48	50	49
10:00	39	46	45	44	55	58	59	46	59	49
11:00	38	41	43	42	57	43	45	44	44	44
12:00	32	39	34	44	43	60	48	38	54	43
13:00	51	36	24	39	37	57	45	37	51	41
14:00	44	47	45	36	48	55	44	44	50	46
15:00	43	51	62	56	58	49	59	54	54	54
16:00	54	62	52	50	54	37	48	54	43	51
17:00	32	33	47	53	58	50	47	45	49	46
18:00	31	33	30	45	32	49	24	34	37	35
19:00	17	18	18	18	19	16	17	18	17	18
20:00	15	10	16	23	15	10	13	16	12	15
21:00	11	5	7	13	12	8	4	10	6	9
22:00	5	4	0	5	10	4	1	5	3	4
23:00	5	5	7	6	4	4	2	5	3	5
Total	**646**	**668**	**681**	**726**	**752**	**675**	**577**	**695**	**626**	**675**



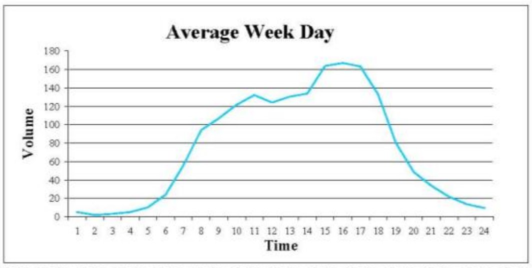
Summary

	from	to	
AM Peak	7:00 AM	8:00 AM	71
PM Peak	3:00 PM	4:00 PM	62
Week Day Average			695
Weekend Day Average			626
7 Day Average			675

All Vehicles

Toronto Rd - South of Lake Crescent — **Eastbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	5	7	5	5	4	9	3	5	6	5
1:00	3	0	0	2	4	3	5	2	4	2
2:00	0	2	4	5	5	6	2	3	4	3
3:00	5	3	5	7	5	4	2	5	3	4
4:00	14	10	10	10	7	8	1	10	5	9
5:00	22	24	24	22	29	14	9	24	12	21
6:00	51	50	64	56	59	28	21	56	25	47
7:00	95	104	95	97	80	39	29	94	34	77
8:00	103	83	128	113	108	82	66	107	74	98
9:00	127	101	129	118	133	111	77	122	94	114
10:00	130	123	122	147	139	123	85	132	104	124
11:00	111	109	141	130	130	126	84	124	105	119
12:00	126	131	122	132	141	136	94	130	115	126
13:00	132	139	129	144	125	126	88	134	107	126
14:00	156	187	152	166	158	135	104	164	120	151
15:00	142	178	181	167	167	119	90	167	105	149
16:00	142	166	174	181	154	136	101	163	119	151
17:00	126	134	128	126	151	117	79	133	98	123
18:00	70	81	76	79	95	67	44	80	56	73
19:00	38	45	62	59	39	29	42	49	36	45
20:00	38	26	30	32	43	30	18	34	24	31
21:00	23	18	21	35	12	19	21	22	20	21
22:00	9	16	12	9	22	22	6	14	14	14
23:00	3	10	12	13	10	17	7	10	12	10
Total	1671	1747	1826	1855	1820	1506	1078	1784	1292	1643



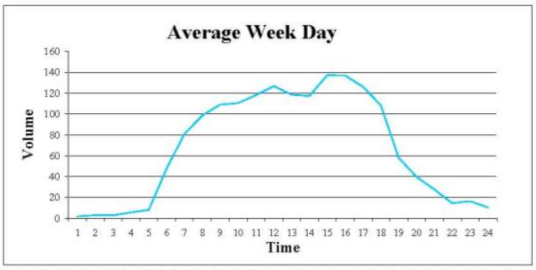
Summary

	from	to	
AM Peak	10:00 AM	11:00 AM	147
PM Peak	2:00 PM	3:00 PM	187
Week Day Average			1784
Weekend Day Average			1292
7 Day Average			1643

All Vehicles

Toronto Rd - South of Lake Crescent — **Westbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	1	3	2	2	1	8	12	2	10	4
1:00	4	2	3	0	5	3	6	3	5	3
2:00	0	1	3	5	5	4	4	3	4	3
3:00	5	7	5	7	4	9	6	6	8	6
4:00	8	8	10	8	6	5	3	8	4	7
5:00	43	51	55	47	44	23	9	48	16	39
6:00	75	69	88	95	79	24	12	81	18	63
7:00	99	91	103	104	96	42	31	99	37	81
8:00	102	114	128	105	96	71	50	109	61	95
9:00	102	101	137	108	104	99	77	110	88	104
10:00	119	99	118	117	137	133	86	118	110	116
11:00	129	112	146	120	127	157	98	127	128	127
12:00	131	114	105	126	117	100	86	119	93	111
13:00	92	126	117	135	116	119	77	117	98	112
14:00	131	140	122	165	128	113	90	137	102	127
15:00	123	130	148	155	128	97	75	137	86	122
16:00	116	118	126	144	127	65	73	126	69	110
17:00	97	106	116	112	111	88	79	108	84	101
18:00	49	50	59	67	65	49	45	58	47	55
19:00	30	44	41	42	41	37	25	40	31	37
20:00	23	35	24	23	33	32	27	28	30	28
21:00	12	20	13	14	13	23	14	14	19	16
22:00	12	14	15	16	25	22	13	16	18	17
23:00	11	13	10	9	9	12	5	10	9	10
Total	1514	1568	1694	1726	1617	1335	1003	1624	1169	1494



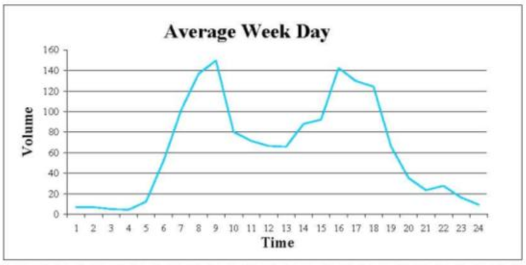
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	146
PM Peak	2:00 PM	3:00 PM	165
Week Day Average			1624
Weekend Day Average			1169
7 Day Average			1494

All Vehicles

Wakefield Rd - South of Rhondda Rd **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	3	8	8	9	6	8	10	7	9	7
1:00	2	6	8	7	11	8	8	7	8	7
2:00	1	6	6	7	5	7	5	5	6	5
3:00	6	3	6	4	3	5	3	4	4	4
4:00	14	13	9	14	11	11	4	12	8	11
5:00	53	53	58	43	52	22	14	52	18	42
6:00	100	104	97	103	102	36	14	101	25	79
7:00	141	134	141	143	125	30	24	137	27	105
8:00	135	142	150	163	158	67	47	150	57	123
9:00	79	76	81	88	77	76	74	80	75	79
10:00	79	68	79	70	61	85	75	71	80	74
11:00	67	72	62	63	68	96	77	66	87	72
12:00	66	58	59	66	79	107	87	66	97	75
13:00	102	78	98	76	85	87	82	88	85	87
14:00	102	77	92	92	98	77	80	92	79	88
15:00	133	147	142	141	149	77	97	142	87	127
16:00	125	134	138	138	113	84	101	130	93	119
17:00	125	121	123	127	125	86	79	124	83	112
18:00	62	55	73	68	71	55	47	66	51	62
19:00	27	31	39	36	43	30	25	35	28	33
20:00	16	17	26	30	28	21	24	23	23	23
21:00	22	31	26	30	29	21	11	28	16	24
22:00	12	24	14	14	17	13	9	16	11	15
23:00	7	6	7	10	16	10	4	9	7	9
Total	**1479**	**1464**	**1542**	**1542**	**1532**	**1119**	**1001**	**1512**	**1060**	**1383**



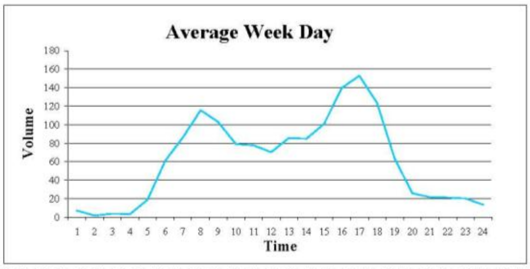
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	163
PM Peak	3:00 PM	4:00 PM	149
Week Day Average			1512
Weekend Day Average			1060
7 Day Average			1383

All Vehicles

Wakefield Rd - South of Rhondda Rd **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	1	8	9	9	8	8	10	7	9	8
1:00	2	0	2	2	2	6	9	2	8	3
2:00	5	4	4	2	4	2	3	4	3	3
3:00	2	2	1	4	7	8	5	3	7	4
4:00	21	18	17	22	16	9	7	19	8	16
5:00	66	66	57	58	58	29	15	61	22	50
6:00	85	91	79	94	82	28	22	86	25	69
7:00	112	115	122	128	101	39	26	116	33	92
8:00	104	107	108	101	94	73	64	103	69	93
9:00	76	83	85	75	76	86	92	79	89	82
10:00	74	73	84	79	78	103	79	78	91	81
11:00	61	81	70	65	74	88	96	70	92	76
12:00	64	88	81	87	107	99	87	85	93	88
13:00	75	85	88	77	99	95	94	85	95	88
14:00	78	83	130	100	113	70	89	101	80	95
15:00	134	144	143	141	136	95	66	140	81	123
16:00	146	178	177	134	130	104	116	153	110	141
17:00	108	122	134	127	126	72	63	123	68	107
18:00	47	64	61	70	73	44	40	63	42	57
19:00	22	21	26	30	29	28	14	26	21	24
20:00	23	21	15	28	21	17	24	22	21	21
21:00	19	22	21	24	19	21	17	21	19	20
22:00	18	21	19	18	25	20	12	20	16	19
23:00	13	14	15	12	13	10	11	13	11	13
Total	**1356**	**1511**	**1548**	**1487**	**1491**	**1154**	**1061**	**1479**	**1108**	**1373**



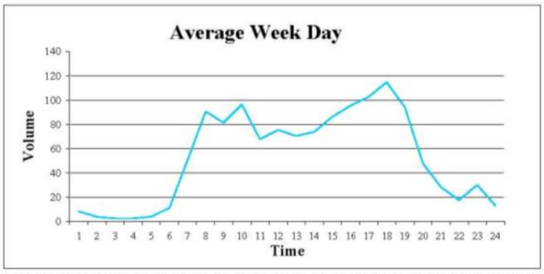
Summary

	from	to	
AM Peak	7:00 AM	8:00 AM	128
PM Peak	4:00 PM	5:00 PM	178
Week Day Average			1479
Weekend Day Average			1108
7 Day Average			1373

All Vehicles

Wakefield Rd - North of Rhondda Rd **Northbound**

Day / *Time*	*Mon* 14-Jul-08	*Tue* 15-Jul-08	*Wed* 16-Jul-08	*Thu* 17-Jul-08	*Fri* 18-Jul-08	*Sat* 19-Jul-08	*Sun* 20-Jul-08	*W/Day Ave.*	*W/End Ave.*	*7 Day Ave*
0:00	6	7	7	11	10	13	12	8	13	9
1:00	2	1	6	2	8	10	9	4	10	5
2:00	0	3	3	2	5	5	6	3	6	3
3:00	2	1	3	4	3	3	6	3	5	3
4:00	1	2	6	5	6	6	2	4	4	4
5:00	16	12	8	11	9	11	3	11	7	10
6:00	43	55	47	45	62	29	23	50	26	43
7:00	89	88	98	95	83	21	6	91	14	69
8:00	75	83	75	92	82	33	21	81	27	66
9:00	85	98	104	105	89	45	37	96	41	80
10:00	69	65	81	60	63	55	53	68	54	64
11:00	66	68	84	69	90	87	60	75	74	75
12:00	58	79	72	61	82	84	79	70	82	74
13:00	62	73	73	72	89	88	83	74	86	77
14:00	80	82	83	80	106	93	72	86	83	85
15:00	97	94	85	103	98	86	79	95	83	92
16:00	96	107	100	102	108	78	69	103	74	94
17:00	102	112	132	119	108	79	83	115	81	105
18:00	86	101	92	93	99	70	77	94	74	88
19:00	34	52	56	44	52	33	37	48	35	44
20:00	16	25	34	30	36	22	19	28	21	26
21:00	9	11	27	21	20	13	14	18	14	16
22:00	25	36	31	34	24	14	9	30	12	25
23:00	9	15	15	11	15	18	13	13	16	14
Total	**1128**	**1270**	**1322**	**1271**	**1347**	**996**	**872**	**1268**	**934**	**1172**



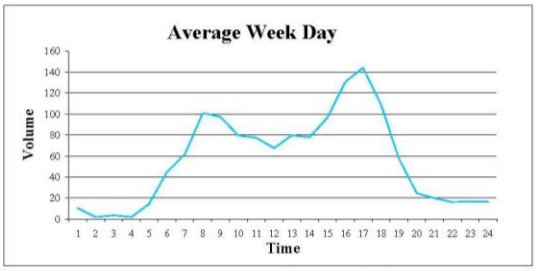
Summary

	from	to	
AM Peak	9:00 AM	10:00 AM	105
PM Peak	5:00 PM	6:00 PM	132
Week Day Average			1268
Weekend Day Average			934
7 Day Average			1172

All Vehicles

Wakefield Rd - North of Rhondda Rd **Southbound**

Day / *Time*	*Mon* 14-Jul-08	*Tue* 15-Jul-08	*Wed* 16-Jul-08	*Thu* 17-Jul-08	*Fri* 18-Jul-08	*Sat* 19-Jul-08	*Sun* 20-Jul-08	*W/Day Ave.*	*W/End Ave.*	*7 Day Ave*
0:00	1	14	14	12	10	9	11	10	10	10
1:00	1	1	2	3	2	6	6	2	6	3
2:00	5	3	3	2	5	3	3	4	3	3
3:00	0	1	1	2	5	7	6	2	7	3
4:00	15	15	12	17	12	9	6	14	8	12
5:00	46	49	45	44	40	31	12	45	22	38
6:00	69	62	53	69	55	25	20	62	23	50
7:00	90	94	110	110	100	42	24	101	33	81
8:00	92	99	100	98	98	68	64	97	66	88
9:00	72	85	97	73	70	82	63	79	73	77
10:00	72	71	86	78	80	104	69	77	87	80
11:00	57	73	69	67	72	83	79	68	81	71
12:00	62	85	66	82	103	99	86	80	93	83
13:00	70	79	74	81	85	82	86	78	84	80
14:00	74	77	111	104	118	67	94	97	81	92
15:00	127	135	132	137	123	85	63	131	74	115
16:00	140	177	171	117	116	77	82	144	80	126
17:00	91	104	119	121	111	77	68	109	73	99
18:00	43	60	55	56	74	41	43	58	42	53
19:00	24	21	26	27	25	25	11	25	18	23
20:00	22	20	12	23	22	14	17	20	16	19
21:00	14	15	17	19	15	20	17	16	19	17
22:00	16	15	16	14	22	17	7	17	12	15
23:00	15	19	16	17	14	9	10	16	10	14
Total	**1218**	**1374**	**1407**	**1373**	**1377**	**1082**	**947**	**1350**	**1015**	**1254**



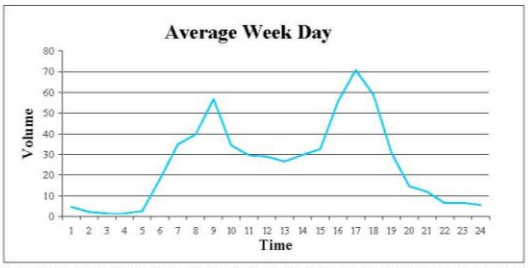
Summary

	from	to	
AM Peak	7:00 AM	8:00 AM	110
PM Peak	4:00 PM	5:00 PM	177
Week Day Average			1350
Weekend Day Average			1015
7 Day Average			1254

All Vehicles

Rhondda Rd - West of Metromix Access — **Eastbound**

Day	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*	*Sun*	*W/Day*	*W/End*	*7 Day*
Time	14-Jul-08	15-Jul-08	16-Jul-08	17-Jul-08	18-Jul-08	19-Jul-08	20-Jul-08	*Ave.*	*Ave.*	*Ave*
0:00	0	6	6	5	6	4	2	5	3	4
1:00	0	2	3	2	4	1	1	2	1	2
2:00	0	1	3	0	3	2	0	1	1	1
3:00	0	2	0	3	2	2	0	1	1	1
4:00	1	5	4	1	2	4	0	3	2	2
5:00	15	16	20	22	18	11	2	18	7	15
6:00	50	34	30	30	30	18	5	35	12	28
7:00	43	46	40	32	38	20	6	40	13	32
8:00	43	63	55	66	57	24	8	57	16	45
9:00	28	40	38	35	31	24	17	34	21	30
10:00	24	32	30	33	29	28	21	30	25	28
11:00	25	28	37	21	34	44	18	29	31	30
12:00	21	39	21	21	31	39	33	27	36	29
13:00	26	24	34	30	35	29	22	30	26	29
14:00	35	23	38	24	43	33	25	33	29	32
15:00	54	48	58	58	60	33	37	56	35	50
16:00	75	69	73	72	65	29	32	71	31	59
17:00	48	62	56	66	62	53	46	59	50	56
18:00	27	34	23	30	40	20	21	31	21	28
19:00	20	15	21	8	9	13	8	15	11	13
20:00	5	7	15	16	17	16	9	12	13	12
21:00	4	9	3	6	10	8	5	6	7	6
22:00	6	4	6	7	10	6	3	7	5	6
23:00	3	7	7	5	6	2	2	6	2	5
Total	**553**	**616**	**621**	**593**	**642**	**463**	**323**	**605**	**393**	**544**



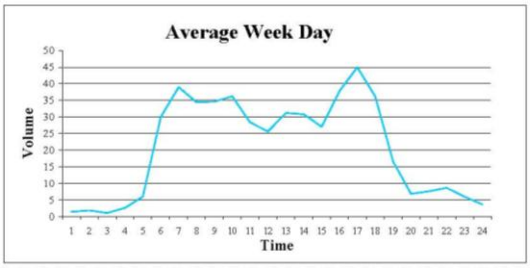
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	**66**
PM Peak	4:00 PM	5:00 PM	**75**
Week Day Average			**605**
Weekend Day Average			**393**
7 Day Average			**544**

All Vehicles

Rhondda Rd - West of Metromix Access — **Westbound**

Day	*Sat*	*Sun*	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*W/Day*	*W/End*	*7 Day*
Time	0-Jan-00	1-Jan-00	2-Jan-00	3-Jan-00	4-Jan-00	5-Jan-00	6-Jan-00	*Ave.*	*Ave.*	*Ave*
0:00	1	0	1	1	3	1	1	1	1	1
1:00	1	0	0	0	2	4	3	2	1	1
2:00	1	2	1	0	1	0	3	1	2	1
3:00	2	3	3	4	3	3	0	3	3	3
4:00	10	8	6	11	8	4	1	6	9	7
5:00	45	47	36	35	42	20	17	30	46	35
6:00	54	60	57	58	58	17	5	39	57	44
7:00	47	56	47	39	46	26	14	34	52	39
8:00	36	48	45	38	37	37	16	35	42	37
9:00	28	31	48	26	41	23	43	36	30	34
10:00	24	28	24	35	27	32	24	28	26	28
11:00	24	36	18	21	29	30	30	26	30	27
12:00	24	30	35	37	32	31	21	31	27	30
13:00	35	29	39	26	39	29	21	31	32	31
14:00	32	26	31	29	34	23	18	27	29	28
15:00	44	43	45	44	55	24	21	38	44	39
16:00	45	40	55	48	49	41	32	45	43	44
17:00	36	43	41	39	51	29	21	36	40	37
18:00	11	16	15	25	17	19	7	17	14	16
19:00	4	4	3	10	12	7	2	7	4	6
20:00	3	4	8	13	4	5	8	8	4	6
21:00	15	23	13	18	5	2	5	9	19	12
22:00	6	9	7	5	4	7	7	6	8	6
23:00	4	3	7	5	3	1	2	4	4	4
Total	**532**	**589**	**585**	**567**	**602**	**415**	**322**	**498**	**561**	**516**



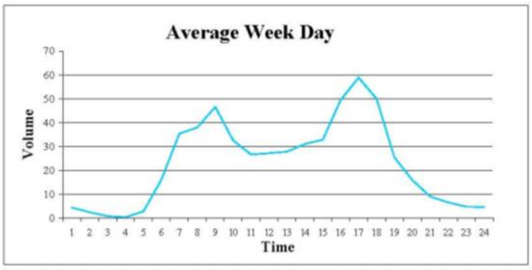
Summary

	from	to	
AM Peak	6:00 AM	7:00 AM	**58**
PM Peak	3:00 PM	4:00 PM	**55**
Week Day Average			**498**
Weekend Day Average			**561**
7 Day Average			**516**

All Vehicles

Rhondda Rd - East of Metromix Access **Eastbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	0	7	6	6	3	1	1	4	1	3
1:00	1	2	4	2	3	3	3	2	3	3
2:00	0	1	2	0	1	0	3	1	2	1
3:00	0	0	0	1	1	2	1	0	2	1
4:00	0	3	1	2	8	4	0	3	2	3
5:00	4	9	10	8	49	20	17	16	19	17
6:00	38	27	27	28	57	20	5	35	13	29
7:00	41	37	39	28	45	27	14	38	21	33
8:00	35	60	54	56	28	36	16	47	26	41
9:00	23	33	34	35	38	22	45	33	34	33
10:00	18	24	32	31	28	33	23	27	28	27
11:00	19	25	34	31	27	26	27	27	27	27
12:00	20	30	15	44	30	28	21	28	25	27
13:00	27	29	32	34	33	26	20	31	23	29
14:00	29	22	40	39	34	24	19	33	22	30
15:00	49	47	56	41	54	23	22	49	23	42
16:00	76	64	72	42	40	39	29	59	34	52
17:00	51	60	62	33	44	28	21	50	25	43
18:00	27	39	25	20	16	17	6	25	12	21
19:00	20	16	22	9	12	7	1	16	4	12
20:00	5	6	17	12	5	5	8	9	7	8
21:00	2	7	2	19	3	2	5	7	4	6
22:00	6	5	7	3	3	7	8	5	8	6
23:00	5	8	8	2	0	1	2	5	2	4
Total	496	561	601	526	562	401	317	549	359	495



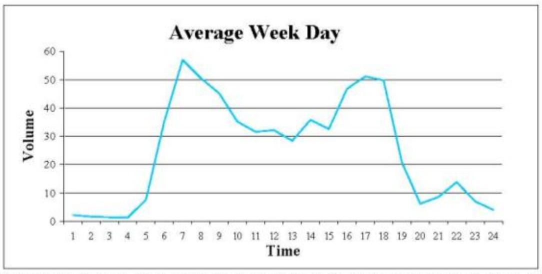
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	60
PM Peak	4:00 PM	5:00 PM	76
Week Day Average			549
Weekend Day Average			359
7 Day Average			495

All Vehicles

Rhondda Rd - East of Metromix Access **Westbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	1	1	1	2	6	3	2	2	3	2
1:00	2	0	1	0	5	0	1	2	1	1
2:00	1	2	2	1	1	1	0	1	1	1
3:00	1	1	1	3	0	1	0	1	1	1
4:00	10	8	7	10	3	3	0	8	2	6
5:00	47	47	36	42	4	6	2	35	4	26
6:00	60	69	66	60	30	12	5	57	9	43
7:00	51	64	59	48	31	16	6	51	11	39
8:00	36	53	52	40	45	18	8	45	13	36
9:00	34	34	51	34	23	19	16	35	18	30
10:00	23	31	31	49	24	22	22	32	22	29
11:00	31	40	32	27	31	42	15	32	29	31
12:00	24	32	38	17	31	39	31	28	35	30
13:00	36	40	50	25	28	23	21	36	22	32
14:00	33	31	30	29	40	38	25	33	32	32
15:00	42	40	48	51	53	31	36	47	34	43
16:00	39	35	52	65	65	28	35	51	32	46
17:00	35	38	37	72	67	50	46	50	48	49
18:00	11	13	15	27	38	19	20	21	20	20
19:00	4	4	3	11	9	12	7	6	10	7
20:00	3	4	7	14	15	17	9	9	13	10
21:00	14	23	15	7	10	8	5	14	7	12
22:00	5	7	6	7	10	6	4	7	5	6
23:00	2	0	4	6	8	2	3	4	3	4
Total	545	617	644	647	577	416	319	606	368	538



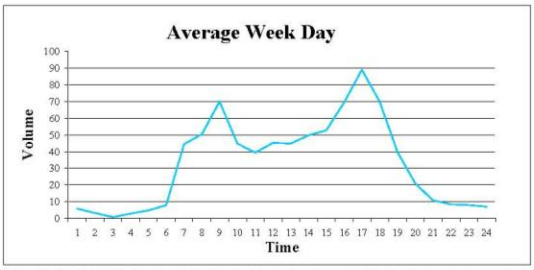
Summary

	from	to	
AM Peak	6:00 AM	7:00 AM	69
PM Peak	5:00 PM	6:00 PM	72
Week Day Average			606
Weekend Day Average			368
7 Day Average			538

All Vehicles

Railway St - North of Rhondda Rd — **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	0	7	6	10	6	5	1	6	3	5
1:00	1	2	4	4	5	1	1	3	1	3
2:00	0	1	2	1	0	1	0	1	1	1
3:00	1	2	4	5	2	1	2	3	2	2
4:00	4	5	5	4	6	4	0	5	2	4
5:00	7	10	10	7	5	9	3	8	6	7
6:00	56	35	49	42	40	17	8	44	13	35
7:00	51	63	54	47	37	21	6	50	14	40
8:00	55	75	84	72	64	30	11	70	21	56
9:00	37	60	35	44	48	33	28	45	31	41
10:00	40	38	49	35	35	41	31	39	36	38
11:00	39	45	60	32	50	51	27	45	39	43
12:00	41	52	52	36	43	65	47	45	56	48
13:00	45	53	53	55	43	48	34	50	41	47
14:00	51	55	61	49	48	46	36	53	41	49
15:00	63	76	80	66	63	50	55	70	53	65
16:00	98	86	86	92	83	38	46	89	42	76
17:00	56	70	71	76	76	64	61	70	63	68
18:00	35	35	39	40	49	24	25	40	25	35
19:00	25	22	25	19	13	16	12	21	14	19
20:00	8	7	10	15	14	18	9	11	14	12
21:00	4	6	11	10	11	8	6	8	7	8
22:00	6	11	4	8	11	8	4	8	6	7
23:00	5	9	7	6	8	2	3	7	3	6
Total	728	825	861	775	760	601	456	790	529	715



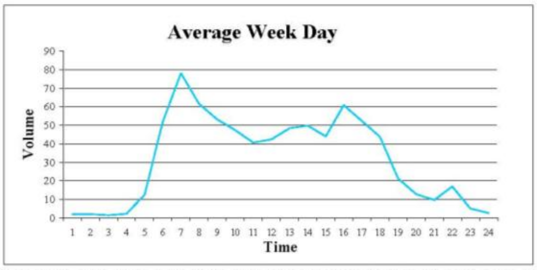
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	84
PM Peak	4:00 PM	5:00 PM	98
Week Day Average			790
Weekend Day Average			529
7 Day Average			715

All Vehicles

Railway St - North of Rhondda Rd — **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	1	1	3	2	3	2	1	2	2	2
1:00	2	0	3	2	3	4	3	2	4	2
2:00	1	2	1	2	1	0	4	1	2	2
3:00	3	2	3	2	1	1	2	2	2	2
4:00	11	11	14	14	13	8	0	13	4	10
5:00	63	58	47	40	52	24	16	52	20	43
6:00	72	82	85	80	72	22	8	78	15	60
7:00	56	74	66	57	55	28	13	62	21	50
8:00	45	53	68	65	35	42	21	53	32	47
9:00	38	48	55	44	52	29	59	47	44	46
10:00	35	43	53	37	35	52	35	41	44	41
11:00	38	53	42	38	41	41	37	42	39	41
12:00	44	51	44	60	43	46	34	48	40	46
13:00	53	49	51	49	47	46	27	50	37	46
14:00	42	49	37	47	45	36	36	44	36	42
15:00	56	51	78	55	64	38	36	61	37	54
16:00	48	49	62	55	48	43	43	52	43	50
17:00	44	49	41	38	47	44	35	44	40	43
18:00	16	18	20	28	24	22	11	21	17	20
19:00	10	10	13	14	17	9	3	13	6	11
20:00	4	11	10	17	6	9	9	10	9	9
21:00	17	19	19	25	5	3	5	17	4	13
22:00	5	6	4	4	6	12	8	5	10	6
23:00	2	2	2	1	6	2	3	3	3	3
Total	706	791	821	776	721	563	449	763	506	690



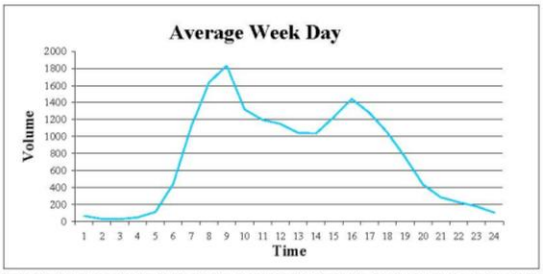
Summary

	from	to	
AM Peak	6:00 AM	7:00 AM	85
PM Peak	3:00 PM	4:00 PM	78
Week Day Average			763
Weekend Day Average			506
7 Day Average			690

All Vehicles

MR217 (Five Islands Rd) - North of Anzac Parade **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	32	58	76	94	76	93	95	67	94	75
1:00	21	24	34	36	38	54	57	31	56	38
2:00	23	24	28	28	33	48	37	27	43	32
3:00	49	44	44	52	49	44	35	48	40	45
4:00	114	115	120	108	108	72	47	113	60	98
5:00	451	443	451	445	425	201	92	443	147	358
6:00	1086	1131	1158	1153	1029	369	178	1111	274	872
7:00	1651	1688	1654	1707	1478	515	273	1636	394	1281
8:00	1766	1812	1953	1953	1686	1053	561	1834	807	1541
9:00	1284	1328	1292	1398	1294	1227	988	1319	1108	1259
10:00	1141	1134	1164	1267	1274	1431	1168	1196	1300	1226
11:00	1089	1060	1123	1175	1295	1443	1267	1148	1355	1207
12:00	988	958	1037	1103	1127	1379	1159	1043	1269	1107
13:00	1011	1020	1000	1014	1141	1145	1076	1037	1111	1058
14:00	1116	1198	1256	1255	1306	1096	1011	1226	1054	1177
15:00	1389	1485	1512	1428	1394	988	970	1442	979	1309
16:00	1236	1253	1311	1394	1197	1023	966	1278	995	1197
17:00	1040	635	1203	1249	1116	912	778	1049	845	990
18:00	692	655	742	835	860	735	456	757	596	711
19:00	357	391	456	456	511	371	303	434	337	406
20:00	244	272	250	332	328	300	259	285	280	284
21:00	204	236	228	219	250	251	175	227	213	223
22:00	126	161	207	169	221	225	125	177	175	176
23:00	80	91	111	91	160	141	70	107	106	106
Total	17190	17216	18410	18961	18396	15116	12146	18035	13631	16776



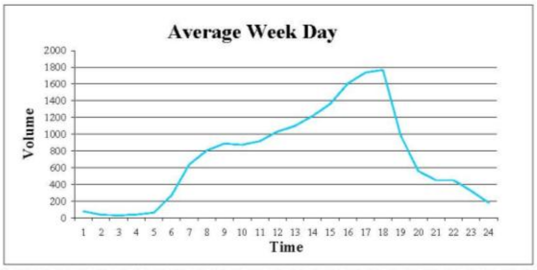
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	1953
PM Peak	3:00 PM	4:00 PM	1512
Week Day Average			18035
Weekend Day Average			13631
7 Day Average			16776

All Vehicles

MR217 (Five Islands Rd) - North of Anzac Parade **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	57	58	77	89	105	197	185	77	191	110
1:00	28	39	35	38	42	100	92	36	96	53
2:00	23	20	25	47	24	68	78	28	73	41
3:00	42	36	35	36	42	52	40	38	46	40
4:00	73	60	62	60	58	64	55	63	60	62
5:00	261	276	274	254	268	144	123	267	134	229
6:00	636	664	645	642	600	247	213	637	230	521
7:00	744	847	833	835	765	323	265	805	294	659
8:00	811	844	931	959	893	588	432	888	510	780
9:00	834	861	925	891	851	798	669	872	734	833
10:00	844	862	850	1001	1030	1014	866	917	940	924
11:00	944	1017	1012	1118	1057	1259	1046	1030	1153	1065
12:00	1046	1084	1049	1119	1203	1309	1127	1100	1218	1134
13:00	1143	1141	1303	1227	1272	1216	1072	1217	1144	1196
14:00	1249	1389	1400	1374	1402	1315	1142	1363	1229	1324
15:00	1465	1623	1645	1625	1676	1287	1093	1607	1190	1488
16:00	1676	1769	1776	1756	1716	1207	1119	1739	1163	1574
17:00	1685	1842	1799	1759	1758	1122	851	1769	987	1545
18:00	896	962	1019	1082	964	591	530	985	561	863
19:00	514	545	551	653	532	351	321	559	336	495
20:00	333	408	469	625	413	292	347	450	320	412
21:00	358	457	471	583	387	350	298	451	324	415
22:00	283	307	329	319	377	343	157	323	250	302
23:00	121	181	147	176	276	266	114	180	190	183
Total	16066	17292	17662	18268	17711	14503	12235	17400	13369	16248



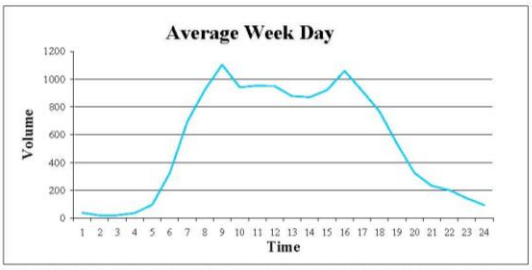
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	1118
PM Peak	5:00 PM	6:00 PM	1842
Week Day Average			17400
Weekend Day Average			13369
7 Day Average			16248

All Vehicles

MR217 (Lake Rd) - Waratah Golf Course **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	21	33	27	58	47	63	99	37	81	50
1:00	18	14	18	19	22	40	48	18	44	26
2:00	21	18	20	26	19	25	29	21	27	23
3:00	36	36	37	34	38	31	26	36	29	34
4:00	105	103	98	93	89	55	38	98	47	83
5:00	333	305	326	331	320	149	82	323	116	264
6:00	653	704	712	711	681	226	109	692	168	542
7:00	886	854	904	991	973	324	202	922	263	733
8:00	966	1086	1026	1210	1235	695	403	1105	549	946
9:00	798	856	967	1047	1041	902	701	942	802	902
10:00	860	960	931	1009	1009	1144	889	954	1017	972
11:00	907	905	995	946	999	1167	1004	950	1086	989
12:00	804	914	892	903	879	1090	924	878	1007	915
13:00	780	887	903	864	916	1011	902	870	957	895
14:00	792	942	952	923	994	949	777	921	863	904
15:00	933	1116	1108	1082	1062	851	781	1060	816	990
16:00	805	927	962	976	911	851	698	916	775	876
17:00	724	781	767	842	725	791	561	768	676	742
18:00	438	591	506	598	544	571	343	535	457	513
19:00	254	301	319	398	346	284	211	324	248	302
20:00	181	230	201	269	273	245	205	231	225	229
21:00	169	206	184	203	237	211	142	200	177	193
22:00	101	126	161	155	170	187	102	143	145	143
23:00	77	83	115	80	105	127	48	92	88	91
Total	**11662**	**12978**	**13131**	**13768**	**13635**	**11989**	**9324**	**13035**	**10657**	**12355**



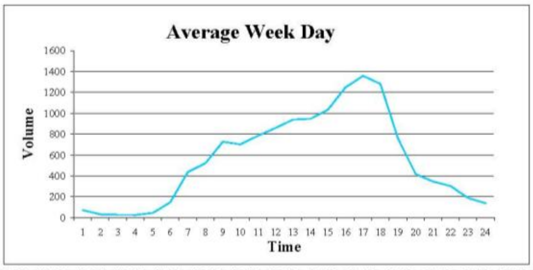
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	1235
PM Peak	3:00 PM	4:00 PM	1116
Week Day Average			13035
Weekend Day Average			10657
7 Day Average			12355

All Vehicles

MR217 (Lake Rd) - Waratah Golf Course **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	43	45	81	103	91	139	129	73	134	90
1:00	13	25	23	64	29	71	69	31	70	42
2:00	14	18	24	50	28	37	44	27	41	31
3:00	25	19	26	24	28	25	27	24	26	25
4:00	41	49	46	47	45	41	34	46	38	43
5:00	150	154	134	142	151	107	65	146	86	129
6:00	390	446	481	435	435	177	150	437	164	359
7:00	481	529	544	563	485	245	150	520	198	428
8:00	693	740	736	787	681	440	300	727	370	625
9:00	689	709	652	765	695	640	488	702	564	663
10:00	708	786	784	849	796	841	738	785	790	786
11:00	785	816	838	882	977	1023	904	860	964	889
12:00	887	887	927	936	1055	1155	974	938	1065	974
13:00	925	919	954	888	1049	1017	947	947	982	957
14:00	971	1063	1091	887	1155	986	952	1033	969	1015
15:00	1224	1198	1239	1247	1328	1018	884	1247	951	1163
16:00	1344	1336	1392	1369	1359	968	865	1360	917	1233
17:00	1250	1330	1317	1264	1243	857	659	1281	758	1131
18:00	703	766	797	827	691	494	435	757	465	673
19:00	397	393	406	512	387	298	223	419	261	374
20:00	336	334	321	429	306	235	262	345	249	318
21:00	226	341	293	378	279	246	189	303	218	279
22:00	158	170	179	193	242	228	106	188	167	182
23:00	87	131	115	151	204	179	96	138	138	138
Total	**12540**	**13204**	**13400**	**13792**	**13739**	**11467**	**9690**	**13335**	**10579**	**12547**



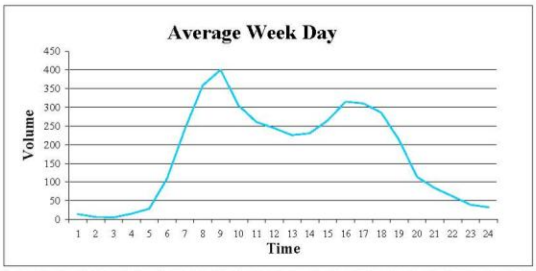
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	977
PM Peak	4:00 PM	5:00 PM	1392
Week Day Average			13335
Weekend Day Average			10579
7 Day Average			12547

All Vehicles

Northville Rd - East of Carinda Ave **Northbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	6	13	17	13	20	23	33	14	28	18
1:00	5	7	6	9	5	11	7	6	9	7
2:00	5	2	4	9	5	15	12	5	14	7
3:00	13	15	16	14	17	10	16	15	13	14
4:00	31	26	27	23	34	22	6	28	14	24
5:00	100	109	110	107	120	62	33	109	48	92
6:00	241	240	251	263	218	63	37	243	50	188
7:00	365	393	385	372	282	120	62	359	91	283
8:00	374	409	421	421	375	208	140	400	174	335
9:00	308	309	310	316	283	289	216	305	253	290
10:00	266	263	241	256	278	332	245	261	289	269
11:00	251	225	233	234	277	349	273	244	311	263
12:00	209	214	219	219	267	310	283	226	297	246
13:00	250	206	229	206	264	294	256	231	275	244
14:00	255	256	248	263	302	244	238	265	241	258
15:00	315	303	342	304	311	276	219	315	248	296
16:00	296	331	315	322	290	284	234	311	259	296
17:00	246	270	312	303	299	278	267	286	273	282
18:00	167	195	213	208	280	194	154	213	174	202
19:00	97	99	128	119	127	132	87	114	110	113
20:00	66	76	103	87	86	70	75	84	73	80
21:00	50	51	63	67	79	61	46	62	54	60
22:00	24	35	40	40	57	52	27	39	40	39
23:00	22	27	40	27	46	40	19	32	30	32
Total	3962	4074	4273	4202	4322	3739	2985	4167	3362	3937



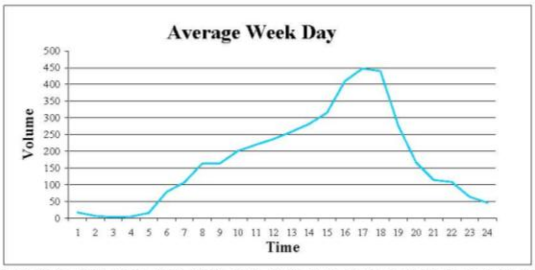
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	421
PM Peak	3:00 PM	4:00 PM	342
Week Day Average			4167
Weekend Day Average			3362
7 Day Average			3937

All Vehicles

Northville Rd - East of Carinda Ave **Southbound**

Day / Time	Mon 14-Jul-08	Tue 15-Jul-08	Wed 16-Jul-08	Thu 17-Jul-08	Fri 18-Jul-08	Sat 19-Jul-08	Sun 20-Jul-08	W/Day Ave.	W/End Ave.	7 Day Ave
0:00	13	12	16	18	26	51	56	17	54	27
1:00	5	5	5	7	9	22	23	6	23	11
2:00	0	3	4	4	2	15	13	3	14	6
3:00	4	2	2	8	7	13	22	5	18	8
4:00	19	14	12	15	18	14	13	16	14	15
5:00	73	84	79	72	83	44	35	78	40	67
6:00	109	113	101	118	94	50	35	107	43	89
7:00	157	151	174	185	153	74	46	164	60	134
8:00	157	175	169	166	155	133	101	164	117	151
9:00	207	192	202	209	194	196	164	201	180	195
10:00	195	220	222	228	233	287	212	220	250	228
11:00	240	240	235	236	233	343	250	237	297	254
12:00	229	252	260	254	295	360	276	258	318	275
13:00	251	283	272	293	309	344	258	282	301	287
14:00	302	301	315	308	350	325	274	315	300	311
15:00	366	435	407	421	421	314	258	410	286	375
16:00	445	432	458	433	471	334	276	448	305	407
17:00	435	466	470	397	432	275	258	440	267	390
18:00	261	264	275	291	292	181	187	277	184	250
19:00	134	193	173	159	170	129	104	166	117	152
20:00	91	118	125	142	94	72	96	114	84	105
21:00	81	107	114	151	88	93	71	108	82	101
22:00	56	64	52	70	77	74	36	64	55	61
23:00	29	42	47	40	70	64	22	46	43	45
Total	3859	4168	4189	4225	4276	3807	3086	4143	3447	3944



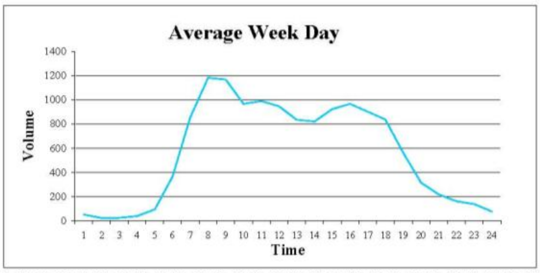
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	240
PM Peak	4:00 PM	5:00 PM	471
Week Day Average			4143
Weekend Day Average			3447
7 Day Average			3944

All Vehicles

MR217 (Toronto Rd) - North of Enterprise Way **Northbound**

Day	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*	*Sun*	*W/Day*	*W/End*	*7 Day*
Time	14-Jul-08	15-Jul-08	16-Jul-08	17-Jul-08	18-Jul-08	19-Jul-08	20-Jul-08	*Ave.*	*Ave.*	*Ave*
0:00	32	52	49	58	58	76	78	50	77	58
1:00	13	25	19	24	31	51	46	22	49	30
2:00	25	17	24	28	22	48	41	23	45	29
3:00	43	33	38	34	44	40	30	38	35	37
4:00	98	110	90	91	78	52	35	93	44	79
5:00	377	368	365	372	331	155	70	363	113	291
6:00	819	877	892	889	800	271	138	855	205	669
7:00	1242	1177	1206	1169	1117	360	221	1182	291	927
8:00	1056	1250	1146	1183	1205	744	446	1168	595	1004
9:00	854	946	1050	1025	955	886	758	966	822	925
10:00	870	916	1030	1079	1058	1060	900	991	980	988
11:00	891	864	987	989	1001	1156	1005	946	1081	985
12:00	788	817	818	857	895	1041	928	835	985	878
13:00	732	815	784	865	903	896	886	820	891	840
14:00	931	911	877	934	966	818	842	924	830	897
15:00	884	954	984	1023	986	689	735	966	712	894
16:00	846	839	926	1027	874	741	754	902	748	858
17:00	776	830	861	879	837	647	573	837	610	772
18:00	437	567	569	625	605	506	365	561	436	525
19:00	229	260	320	358	407	307	256	315	282	305
20:00	202	227	212	218	228	236	192	217	214	216
21:00	137	158	156	175	179	212	140	161	176	165
22:00	112	114	112	149	201	183	96	138	140	138
23:00	65	67	57	77	113	124	48	76	86	79
Total	**12459**	**13194**	**13572**	**14128**	**13894**	**11299**	**9583**	**13449**	**10441**	**12590**



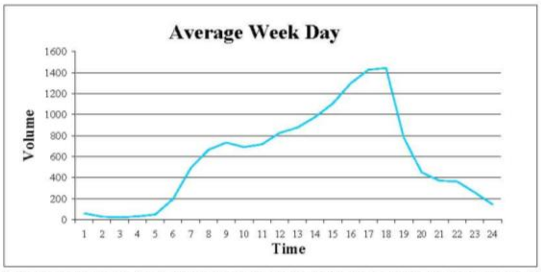
Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	1250
PM Peak	4:00 PM	5:00 PM	1027
		Week Day Average	13449
		Weekend Day Average	10441
		7 Day Average	12590

All Vehicles

MR217 (Toronto Rd) - North of Enterprise Way **Southbound**

Day	*Mon*	*Tue*	*Wed*	*Thu*	*Fri*	*Sat*	*Sun*	*W/Day*	*W/End*	*7 Day*
Time	14-Jul-08	15-Jul-08	16-Jul-08	17-Jul-08	18-Jul-08	19-Jul-08	20-Jul-08	*Ave.*	*Ave.*	*Ave*
0:00	46	44	63	67	84	158	139	61	149	86
1:00	25	29	25	33	35	77	74	29	76	43
2:00	18	19	21	33	24	62	64	23	63	34
3:00	29	29	29	28	36	46	30	30	38	32
4:00	63	46	49	51	42	47	41	50	44	48
5:00	187	219	206	190	181	104	94	197	99	169
6:00	475	508	503	498	473	185	182	491	184	403
7:00	620	690	679	714	624	246	223	665	235	542
8:00	657	722	780	782	728	462	385	734	424	645
9:00	669	667	727	717	675	625	552	691	589	662
10:00	691	675	652	752	816	783	699	717	741	724
11:00	783	780	813	898	854	955	849	826	902	847
12:00	852	880	795	877	977	986	892	876	939	894
13:00	889	897	1070	999	1028	965	850	977	908	957
14:00	970	1161	1175	1109	1108	1064	903	1105	984	1070
15:00	1185	1335	1320	1296	1348	1039	885	1297	962	1201
16:00	1368	1476	1443	1470	1376	1037	915	1427	976	1298
17:00	1396	1475	1457	1448	1442	919	699	1444	809	1262
18:00	683	759	751	886	807	519	444	777	482	693
19:00	423	418	435	535	439	299	279	450	289	404
20:00	293	333	382	502	341	238	278	370	258	338
21:00	279	368	403	466	298	278	238	363	258	333
22:00	220	247	264	250	306	279	129	257	204	242
23:00	96	135	114	146	230	227	91	144	159	148
Total	**12917**	**13912**	**14156**	**14747**	**14272**	**11600**	**9935**	**14001**	**10768**	**13077**



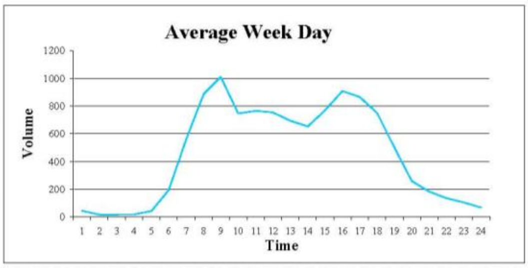
Summary

	from	to	
AM Peak	11:00 AM	12:00 PM	898
PM Peak	4:00 PM	5:00 PM	1476
		Week Day Average	14001
		Weekend Day Average	10768
		7 Day Average	13077

All Vehicles

The Esplanade - Speers Point Park **Eastbound**

Day / *Time*	*Mon* 14-Jul-08	*Tue* 15-Jul-08	*Wed* 16-Jul-08	*Thu* 17-Jul-08	*Fri* 18-Jul-08	*Sat* 19-Jul-08	*Sun* 20-Jul-08	*W/Day Ave.*	*W/End Ave.*	*7 Day Ave*
0:00	19	44	52	54	48	66	61	43	64	49
1:00	5	15	15	18	26	35	37	16	36	22
2:00	16	14	15	16	13	33	28	15	31	19
3:00	16	12	17	19	22	26	12	17	19	18
4:00	38	46	38	40	46	26	20	42	23	36
5:00	200	200	162	200	201	73	40	193	57	154
6:00	534	555	585	568	546	214	104	558	159	444
7:00	912	867	877	911	859	295	125	885	210	692
8:00	921	1090	1042	994	1005	563	301	1010	432	845
9:00	680	746	781	771	756	622	540	747	581	699
10:00	675	716	822	831	779	837	695	765	766	765
11:00	669	721	779	810	793	867	769	754	818	773
12:00	642	711	666	719	736	869	743	695	806	727
13:00	599	705	644	594	717	681	674	652	678	659
14:00	761	728	748	775	829	665	623	768	644	733
15:00	855	913	926	919	928	625	621	908	623	827
16:00	811	837	904	948	830	663	730	866	697	818
17:00	707	773	775	797	707	548	462	752	505	681
18:00	405	454	556	506	578	420	301	500	361	460
19:00	207	223	264	287	305	214	180	257	197	240
20:00	161	189	173	202	183	170	158	182	164	177
21:00	98	137	143	145	148	153	114	134	134	134
22:00	75	88	86	106	158	131	69	103	100	102
23:00	49	66	57	62	101	100	34	67	67	67
Total	**10055**	**10850**	**11127**	**11292**	**11314**	**8896**	**7441**	**10928**	**8169**	**10139**



Summary

	from	to	
AM Peak	8:00 AM	9:00 AM	**1090**
PM Peak	4:00 PM	5:00 PM	**948**
		Week Day Average	**10928**
		Weekend Day Average	**8169**
		7 Day Average	**10139**

This page has intentionally been left blank

Appendix B
SIDRA Results

(No. of pages including blank pages = 24)

Summaries for Existing Vehicle Flows – Page 1–69 to 1–79

Summaries for 2022 Vehicle Flows – Page 1–80 to 1-90

This page has intentionally been left blank

MOVEMENT SUMMARY

Site: George Booth Dr-Northville Dr_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
George Booth Dr-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Northville Dr (S)											
1	L	68	16.2	0.250	9.3	LOS A	1.6	11.8	0.57	0.73	47.3
3	R	407	4.7	0.250	13.7	LOS A	1.6	11.8	0.58	0.80	44.3
Approach		475	6.3	0.250	13.0	LOS A	1.6	11.8	0.58	0.79	44.7
East: George Booth Dr (E)											
4	L	220	8.2	0.217	7.7	LOS A	1.6	12.1	0.33	0.56	48.9
5	T	558	10.0	0.362	6.3	LOS A	3.2	24.4	0.35	0.48	49.8
Approach		778	9.5	0.362	6.7	LOS A	3.2	24.4	0.35	0.50	49.5
West: George Booth Dr (W)											
11	T	659	8.8	0.377	7.3	LOS A	2.5	18.6	0.55	0.61	48.4
12	R	105	12.4	0.378	13.3	LOS A	2.4	18.3	0.55	0.87	45.6
Approach		764	9.3	0.377	8.1	LOS A	2.5	18.6	0.55	0.64	48.0
All Vehicles		2017	8.7	0.377	8.7	LOS A	3.2	24.4	0.48	0.62	47.7

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:51 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: George Booth Dr-Northville Dr_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
George Booth Dr-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Northville Dr (S)											
1	L	61	8.2	0.232	9.7	LOS A	1.7	12.3	0.66	0.74	46.8
3	R	339	3.2	0.232	14.4	LOS A	1.7	12.3	0.66	0.81	43.8
Approach		400	4.0	0.232	13.7	LOS A	1.7	12.3	0.66	0.80	44.2
East: George Booth Dr (E)											
4	L	401	4.0	0.323	7.6	LOS A	2.7	19.2	0.39	0.57	48.5
5	T	639	6.3	0.430	6.3	LOS A	4.1	29.9	0.41	0.50	49.4
Approach		1040	5.4	0.430	6.8	LOS A	4.1	29.9	0.40	0.53	49.1
West: George Booth Dr (W)											
11	T	594	9.1	0.344	7.0	LOS A	2.3	17.2	0.51	0.58	48.6
12	R	131	9.2	0.345	12.9	LOS A	2.2	16.9	0.51	0.83	45.7
Approach		725	9.1	0.344	8.0	LOS A	2.3	17.2	0.51	0.63	48.0
All Vehicles		2165	6.4	0.430	8.5	LOS A	4.1	29.9	0.48	0.61	47.7

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:52 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Northville Dr_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Wakefield Rd-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
1	L	4	25.0	0.211	7.7	LOS A	1.4	11.0	0.30	0.51	49.3
2	T	73	6.8	0.206	6.0	LOS A	1.4	11.0	0.30	0.43	49.9
3	R	175	13.1	0.206	12.2	LOS A	1.4	11.0	0.30	0.70	45.7
Approach		252	11.5	0.206	10.3	LOS A	1.4	11.0	0.30	0.62	46.8
East: Northville Dr (E)											
4	L	99	17.2	0.158	7.1	LOS A	1.1	8.5	0.23	0.48	49.7
5	T	6	0.0	0.158	5.5	LOS A	1.1	8.5	0.23	0.41	50.5
6	R	93	10.8	0.158	11.8	LOS A	1.1	8.5	0.23	0.70	45.9
Approach		198	13.6	0.158	9.3	LOS A	1.1	8.5	0.23	0.58	47.8
North: Appletree Rd (N)											
7	L	92	8.7	0.141	7.5	LOS A	0.9	6.9	0.40	0.57	49.0
8	T	58	6.9	0.141	6.5	LOS A	0.9	6.9	0.40	0.50	49.4
9	R	8	0.0	0.140	12.2	LOS A	0.9	6.9	0.40	0.78	46.0
Approach		158	7.6	0.141	7.4	LOS A	0.9	6.9	0.40	0.56	49.0
West: Charleton St (W)											
10	L	12	8.3	0.038	8.1	LOS A	0.2	1.7	0.47	0.59	48.7
11	T	23	0.0	0.038	6.8	LOS A	0.2	1.7	0.47	0.53	49.0
12	R	3	33.3	0.038	13.9	LOS A	0.2	1.7	0.47	0.79	45.6
Approach		38	5.3	0.038	7.8	LOS A	0.2	1.7	0.47	0.57	48.6
All Vehicles		646	10.8	0.206	9.1	LOS A	1.4	11.0	0.31	0.59	47.7

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:52 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Northville Dr_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Wakefield Rd-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
1	L	9	0.0	0.196	6.8	LOS A	1.4	10.0	0.31	0.51	49.2
2	T	80	6.3	0.195	6.0	LOS A	1.4	10.0	0.31	0.44	49.8
3	R	157	6.4	0.194	12.0	LOS A	1.4	10.0	0.31	0.71	45.7
Approach		246	6.1	0.194	9.8	LOS A	1.4	10.0	0.31	0.61	47.0
East: Northville Dr (E)											
4	L	172	10.5	0.225	7.1	LOS A	1.6	12.4	0.31	0.51	49.3
5	T	25	12.0	0.225	6.1	LOS A	1.6	12.4	0.31	0.44	49.9
6	R	85	8.2	0.225	12.0	LOS A	1.6	12.4	0.31	0.72	45.8
Approach		282	9.9	0.225	8.5	LOS A	1.6	12.4	0.31	0.57	48.2
North: Appletree Rd (N)											
7	L	111	4.5	0.179	7.2	LOS A	1.2	8.9	0.37	0.56	49.1
8	T	91	3.3	0.179	6.2	LOS A	1.2	8.9	0.37	0.49	49.6
9	R	12	0.0	0.179	12.0	LOS A	1.2	8.9	0.37	0.78	46.1
Approach		214	3.7	0.179	7.0	LOS A	1.2	8.9	0.37	0.54	49.1
West: Charleton St (W)											
10	L	5	0.0	0.027	7.7	LOS A	0.2	1.3	0.45	0.57	48.7
11	T	17	11.8	0.027	7.1	LOS A	0.2	1.3	0.45	0.51	49.1
12	R	4	25.0	0.027	13.5	LOS A	0.2	1.3	0.45	0.77	45.7
Approach		26	11.5	0.027	8.2	LOS A	0.2	1.3	0.45	0.56	48.4
All Vehicles		768	7.0	0.225	8.5	LOS A	1.6	12.4	0.33	0.58	48.1

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:52 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Rhondda Rd_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Wakefield Rd-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
11	T	110	9.1	0.060	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	43	18.6	0.043	10.2	LOS A	0.2	1.6	0.29	0.65	47.5
Approach		153	11.8	0.060	2.9	LOS A	0.2	1.6	0.08	0.18	55.9
East: Rhondda Rd (E)											
1	L	47	17.0	0.092	11.2	LOS A	0.4	3.9	0.35	0.63	46.6
3	R	19	52.6	0.092	13.1	LOS A	0.4	3.9	0.35	0.75	46.5
Approach		66	27.3	0.092	11.7	LOS A	0.4	3.9	0.35	0.66	46.6
North: Wakefield Rd (N)											
4	L	32	18.8	0.020	9.0	LOS A	0.0	0.0	0.00	0.67	49.0
5	T	129	8.5	0.070	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		161	10.6	0.070	1.8	LOS A	0.0	0.0	0.00	0.13	57.4
All Vehicles		380	13.9	0.092	4.0	NA	0.4	3.9	0.09	0.25	54.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:52 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Rhondda Rd_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Wakefield Rd-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
11	T	106	9.4	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	45	4.4	0.039	9.4	LOS A	0.2	1.3	0.29	0.65	47.5
Approach		151	7.9	0.058	2.8	LOS A	0.2	1.3	0.09	0.19	55.7
East: Rhondda Rd (E)											
1	L	43	9.3	0.072	10.1	LOS A	0.3	2.7	0.33	0.63	47.4
3	R	21	14.3	0.072	10.5	LOS A	0.3	2.7	0.33	0.71	47.3
Approach		64	10.9	0.072	10.2	LOS A	0.3	2.7	0.33	0.66	47.3
North: Wakefield Rd (N)											
4	L	36	22.2	0.022	9.2	LOS A	0.0	0.0	0.00	0.67	49.0
5	T	148	2.7	0.077	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		184	6.5	0.077	1.8	LOS A	0.0	0.0	0.00	0.13	57.5
All Vehicles		399	7.8	0.077	3.5	NA	0.3	2.7	0.08	0.24	54.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, March 28, 2011 10:15:59 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Rhondda Rd-Metromix Access_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Rhondda Rd-Metromix Site Access
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: MetroMix Quarry Access (S)											
1	L	17	94.1	0.074	15.0	LOS B	0.4	4.9	0.34	0.60	46.2
3	R	22	90.9	0.074	15.2	LOS B	0.4	4.9	0.34	0.70	46.1
Approach		39	92.3	0.074	15.1	LOS B	0.4	4.9	0.34	0.65	46.2
East: Rhondda Rd (E)											
4	L	25	88.0	0.022	12.2	LOS A	0.0	0.0	0.00	0.66	49.0
5	T	60	3.3	0.031	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		85	28.2	0.031	3.6	LOS A	0.0	0.0	0.00	0.20	56.3
West: Rhondda Rd (W)											
11	T	47	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	14	85.7	0.037	14.1	LOS A	0.1	1.2	0.28	0.65	47.3
Approach		61	19.7	0.037	3.2	LOS A	0.1	1.2	0.06	0.15	56.5
All Vehicles		185	38.9	0.074	5.9	NA	0.4	4.9	0.09	0.28	53.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, March 28, 2011 10:06:59 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Rhondda Rd-Metromix Access_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Rhondda Rd-Metromix Site Access
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: MetroMix Quarry Access (S)											
1	L	11	63.6	0.014	11.6	LOS A	0.1	0.7	0.19	0.60	48.1
3	R	2	0.0	0.014	8.8	LOS A	0.1	0.7	0.19	0.65	48.0
Approach		13	53.8	0.014	11.2	LOS A	0.1	0.7	0.19	0.61	48.1
East: Rhondda Rd (E)											
4	L	22	90.9	0.020	12.3	LOS A	0.0	0.0	0.00	0.66	49.0
5	T	46	2.2	0.024	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		68	30.9	0.024	4.0	LOS A	0.0	0.0	0.00	0.21	55.9
West: Rhondda Rd (W)											
11	T	75	4.0	0.039	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	8	87.5	0.021	13.9	LOS A	0.1	0.7	0.25	0.64	47.6
Approach		83	12.0	0.039	1.3	LOS A	0.1	0.7	0.02	0.06	58.5
All Vehicles		164	23.2	0.039	3.2	NA	0.1	0.7	0.03	0.17	56.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:53 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-Rhondda Rd_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Railway St-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
10	L	2	50.0	0.015	8.0	LOS A	0.0	0.0	0.00	0.97	43.3
11	T	18	66.7	0.015	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		20	65.0	0.015	0.8	LOS A	0.0	0.0	0.00	0.10	49.2
North: Railway St (N)											
5	T	9	22.2	0.048	0.1	LOS A	0.3	2.2	0.11	0.00	48.2
6	R	70	12.9	0.048	7.3	LOS A	0.3	2.2	0.11	0.64	42.7
Approach		79	13.9	0.048	6.5	LOS A	0.3	2.2	0.11	0.56	43.2
West: Rhondda Rd (W)											
7	L	62	6.5	0.042	6.7	LOS A	0.2	1.6	0.09	0.58	43.0
9	R	2	50.0	0.042	8.8	LOS A	0.2	1.6	0.09	0.68	42.7
Approach		64	7.8	0.042	6.8	LOS A	0.2	1.6	0.09	0.58	43.0
All Vehicles		163	17.8	0.048	5.9	NA	0.3	2.2	0.09	0.51	43.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:54 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-Rhondda Rd_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Railway St-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
10	L	19	68.4	0.029	8.6	LOS A	0.0	0.0	0.00	0.77	43.3
11	T	20	50.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		39	59.0	0.029	4.2	LOS A	0.0	0.0	0.00	0.38	46.5
North: Railway St (N)											
5	T	3	66.7	0.037	0.2	LOS A	0.2	1.6	0.15	0.00	47.5
6	R	56	10.7	0.037	7.3	LOS A	0.2	1.6	0.15	0.61	42.5
Approach		59	13.6	0.037	7.0	LOS A	0.2	1.6	0.15	0.58	42.7
West: Rhondda Rd (W)											
7	L	76	5.3	0.049	6.7	LOS A	0.3	1.8	0.12	0.57	42.9
9	R	1	0.0	0.050	6.9	LOS A	0.3	1.8	0.12	0.66	42.6
Approach		77	5.2	0.049	6.7	LOS A	0.3	1.8	0.12	0.57	42.9
All Vehicles		175	20.0	0.049	6.2	NA	0.3	1.8	0.10	0.53	43.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:54 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-William St_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Railway St-William St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
11	T	3	0.0	0.125	6.3	LOS A	0.6	4.5	0.30	0.45	42.8
12	R	103	16.5	0.127	8.5	LOS A	0.6	4.5	0.30	0.66	42.0
Approach		106	16.0	0.127	8.5	LOS A	0.6	4.5	0.30	0.65	42.0
East: William St (E)											
1	L	87	14.9	0.073	6.9	LOS A	0.0	0.0	0.00	0.60	43.3
3	R	38	7.9	0.074	7.1	LOS A	0.0	0.0	0.00	0.68	43.0
Approach		125	12.8	0.073	6.9	LOS A	0.0	0.0	0.00	0.62	43.2
North: Railway St (N)											
4	L	91	4.4	0.052	7.1	LOS A	0.4	2.6	0.26	0.45	42.4
5	T	2	0.0	0.053	5.6	LOS A	0.4	2.6	0.26	0.48	43.2
Approach		93	4.3	0.052	7.0	LOS A	0.4	2.6	0.26	0.46	42.4
All Vehicles		324	11.4	0.127	7.5	NA	0.6	4.5	0.17	0.58	42.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:54 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-William St_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Railway St-William St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
11	T	5	0.0	0.143	6.2	LOS A	0.6	4.9	0.29	0.47	42.9
12	R	121	11.6	0.142	8.2	LOS A	0.6	4.9	0.29	0.65	42.1
Approach		126	11.1	0.142	8.1	LOS A	0.6	4.9	0.29	0.65	42.1
East: William St (E)											
1	L	77	10.4	0.079	6.7	LOS A	0.0	0.0	0.00	0.59	43.3
3	R	64	0.0	0.079	6.8	LOS A	0.0	0.0	0.00	0.67	43.0
Approach		141	5.7	0.079	6.8	LOS A	0.0	0.0	0.00	0.63	43.1
North: Railway St (N)											
4	L	69	0.0	0.041	6.9	LOS A	0.3	2.0	0.26	0.45	42.4
5	T	4	0.0	0.040	5.7	LOS A	0.3	2.0	0.26	0.48	43.1
Approach		73	0.0	0.041	6.9	LOS A	0.3	2.0	0.26	0.45	42.4
All Vehicles		340	6.5	0.142	7.3	NA	0.6	4.9	0.16	0.60	42.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:54 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: William St-Short St_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Railway St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: William St (S)											
11	T	47	4.3	0.048	5.8	LOS A	0.2	1.5	0.18	0.49	43.6
12	R	8	0.0	0.048	7.3	LOS A	0.2	1.5	0.18	0.73	42.6
Approach		55	3.6	0.048	6.0	LOS A	0.2	1.5	0.18	0.52	43.5
East: Short St (E)											
1	L	13	7.7	0.052	6.7	LOS A	0.0	0.0	0.00	0.58	43.3
3	R	73	17.8	0.052	7.4	LOS A	0.0	0.0	0.00	0.66	43.0
Approach		86	16.3	0.052	7.3	LOS A	0.0	0.0	0.00	0.65	43.0
North: William St (N)											
4	L	151	13.2	0.134	7.3	LOS A	0.8	6.5	0.22	0.49	42.6
5	T	53	7.5	0.134	5.8	LOS A	0.8	6.5	0.22	0.48	43.4
Approach		204	11.8	0.134	6.9	LOS A	0.8	6.5	0.22	0.49	42.8
All Vehicles		345	11.6	0.134	6.8	NA	0.8	6.5	0.16	0.53	42.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:55 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: William St-Short St_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Railway St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: William St (S)											
11	T	60	3.3	0.054	5.6	LOS A	0.2	1.8	0.17	0.49	43.7
12	R	5	0.0	0.054	7.1	LOS A	0.2	1.8	0.17	0.74	42.6
Approach		65	3.1	0.054	5.7	LOS A	0.2	1.8	0.17	0.51	43.6
East: Short St (E)											
1	L	4	0.0	0.047	6.4	LOS A	0.0	0.0	0.00	0.58	43.3
3	R	79	7.6	0.047	7.0	LOS A	0.0	0.0	0.00	0.65	43.0
Approach		83	7.2	0.047	7.0	LOS A	0.0	0.0	0.00	0.65	43.0
North: William St (N)											
4	L	142	9.2	0.126	7.1	LOS A	0.8	5.9	0.20	0.50	42.6
5	T	55	5.5	0.126	5.6	LOS A	0.8	5.9	0.20	0.48	43.5
Approach		197	8.1	0.126	6.7	LOS A	0.8	5.9	0.20	0.50	42.9
All Vehicles		345	7.0	0.126	6.6	NA	0.8	5.9	0.15	0.54	43.0

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:55 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Short St_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
York St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
4	L	77	16.9	0.108	7.0	LOS A	0.0	0.0	0.00	0.78	43.3
5	T	113	8.8	0.108	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		190	12.1	0.108	2.8	LOS A	0.0	0.0	0.00	0.31	47.0
North: York St (N)											
11	T	141	4.3	0.082	0.7	LOS A	0.6	4.3	0.32	0.00	46.1
12	R	11	0.0	0.081	7.4	LOS A	0.6	4.3	0.32	0.85	43.0
Approach		152	3.9	0.082	1.2	LOS A	0.6	4.3	0.32	0.06	45.8
West: Short St (W)											
1	L	9	22.2	0.170	8.7	LOS A	0.8	6.3	0.39	0.58	41.7
3	R	152	9.2	0.169	8.7	LOS A	0.8	6.3	0.39	0.70	41.6
Approach		161	9.9	0.169	8.7	LOS A	0.8	6.3	0.39	0.69	41.6
All Vehicles		503	8.9	0.169	4.2	NA	0.8	6.3	0.22	0.36	44.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:55 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Short St_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
York St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
4	L	71	8.5	0.114	6.7	LOS A	0.0	0.0	0.00	0.79	43.3
5	T	136	7.4	0.114	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		207	7.7	0.114	2.3	LOS A	0.0	0.0	0.00	0.27	47.5
North: York St (N)											
11	T	190	7.9	0.111	0.7	LOS A	0.8	6.0	0.34	0.00	45.9
12	R	12	0.0	0.110	7.5	LOS A	0.8	6.0	0.34	0.86	43.0
Approach		202	7.4	0.111	1.1	LOS A	0.8	6.0	0.34	0.05	45.7
West: Short St (W)											
1	L	13	7.7	0.160	8.6	LOS A	0.8	5.9	0.42	0.58	41.5
3	R	132	9.1	0.161	9.0	LOS A	0.8	5.9	0.42	0.73	41.3
Approach		145	9.0	0.161	9.0	LOS A	0.8	5.9	0.42	0.71	41.4
All Vehicles		554	7.9	0.161	3.6	NA	0.8	6.0	0.23	0.31	45.1

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:56 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Anzac Pde_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
York St-Anzac Pde
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
1	L	13	0.0	0.063	6.4	LOS A	0.0	0.0	0.00	0.87	43.3
2	T	97	19.6	0.063	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
3	R	16	0.0	0.023	7.4	LOS A	0.1	0.4	0.36	0.59	41.9
Approach		126	15.1	0.063	1.6	LOS A	0.1	0.4	0.05	0.16	48.1
East: Anzac Pde (E)											
4	L	14	0.0	0.022	10.0	LOS A	0.1	0.4	0.29	0.85	40.8
5	T	30	6.7	0.201	13.2	LOS A	1.0	7.7	0.52	0.91	38.9
6	R	91	6.6	0.201	13.3	LOS A	1.0	7.7	0.52	0.95	38.8
Approach		135	5.9	0.201	13.0	LOS A	1.0	7.7	0.50	0.93	39.0
North: York St (N)											
7	L	178	2.8	0.150	6.5	LOS A	0.0	0.0	0.00	0.69	43.3
8	T	92	16.3	0.150	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
9	R	7	14.3	0.011	7.5	LOS A	0.0	0.2	0.23	0.56	42.3
Approach		277	7.6	0.150	4.4	LOS A	0.0	0.2	0.01	0.46	45.3
West: Anzac Pde (W)											
10	L	7	28.6	0.015	11.6	LOS A	0.0	0.3	0.24	0.85	40.8
11	T	22	31.8	0.055	16.4	LOS B	0.3	2.3	0.55	0.92	37.8
12	R	3	0.0	0.055	14.6	LOS B	0.3	2.3	0.55	0.86	37.7
Approach		32	28.1	0.055	15.2	LOS B	0.3	2.3	0.48	0.90	38.4
All Vehicles		570	10.0	0.201	6.4	NA	1.0	7.7	0.16	0.53	43.7

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, March 28, 2011 10:22:24 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Anzac Pde_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
York St-Anzac Pde
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
1	L	4	0.0	0.048	6.4	LOS A	0.0	0.0	0.00	0.90	43.3
2	T	85	9.4	0.048	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
3	R	28	0.0	0.039	7.4	LOS A	0.1	0.8	0.36	0.60	41.9
Approach		117	6.8	0.048	2.0	LOS A	0.1	0.8	0.09	0.17	47.6
East: Anzac Pde (E)											
4	L	47	6.4	0.078	10.4	LOS A	0.2	1.4	0.29	0.86	40.8
5	T	45	4.4	0.249	12.7	LOS A	1.3	9.7	0.52	0.90	39.1
6	R	115	2.6	0.248	12.8	LOS A	1.3	9.7	0.52	0.95	39.1
Approach		207	3.9	0.248	12.2	LOS A	1.3	9.7	0.47	0.92	39.5
North: York St (N)											
7	L	182	3.8	0.150	6.5	LOS A	0.0	0.0	0.00	0.69	43.3
8	T	94	4.3	0.150	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
9	R	5	0.0	0.007	6.8	LOS A	0.0	0.1	0.19	0.56	42.5
Approach		281	3.9	0.150	4.4	LOS A	0.0	0.1	0.00	0.46	45.3
West: Anzac Pde (W)											
10	L	9	0.0	0.014	9.6	LOS A	0.0	0.2	0.18	0.88	40.9
11	T	22	13.6	0.049	13.4	LOS A	0.2	1.8	0.50	0.89	39.1
12	R	7	0.0	0.049	12.7	LOS A	0.2	1.8	0.50	0.88	39.0
Approach		38	7.9	0.049	12.4	LOS A	0.2	1.8	0.42	0.89	39.5
All Vehicles		643	4.7	0.248	6.9	NA	1.3	9.7	0.19	0.58	43.2

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, March 28, 2011 10:22:17 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Pitt St_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
York St-Pitt St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pitt St (S)											
1	L	18	5.6	0.048	7.9	LOS A	0.2	1.7	0.34	0.56	42.0
3	R	29	17.2	0.048	8.8	LOS A	0.2	1.7	0.34	0.69	41.8
Approach		47	12.8	0.048	8.4	LOS A	0.2	1.7	0.34	0.64	41.9
East: York St (E)											
4	L	26	7.7	0.100	6.7	LOS A	0.0	0.0	0.00	0.87	43.3
5	T	150	17.3	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		176	15.9	0.100	1.0	LOS A	0.0	0.0	0.00	0.13	48.9
West: York St (W)											
11	T	135	14.1	0.083	0.6	LOS A	0.6	4.4	0.31	0.00	46.2
12	R	12	0.0	0.083	7.4	LOS A	0.6	4.4	0.31	0.85	43.0
Approach		147	12.9	0.084	1.2	LOS A	0.6	4.4	0.31	0.07	45.9
All Vehicles		370	14.3	0.100	2.0	NA	0.6	4.4	0.17	0.17	46.7

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:57 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Pitt St_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
York St-Pitt St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pitt St (S)											
1	L	15	0.0	0.044	7.5	LOS A	0.2	1.5	0.30	0.55	42.1
3	R	32	9.4	0.044	8.2	LOS A	0.2	1.5	0.30	0.66	42.1
Approach		47	6.4	0.044	7.9	LOS A	0.2	1.5	0.30	0.63	42.1
East: York St (E)											
4	L	17	5.9	0.078	6.6	LOS A	0.0	0.0	0.00	0.88	43.3
5	T	128	5.5	0.078	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		145	5.5	0.078	0.8	LOS A	0.0	0.0	0.00	0.10	49.1
West: York St (W)											
11	T	150	7.3	0.088	0.5	LOS A	0.6	4.7	0.28	0.00	46.6
12	R	11	9.1	0.088	7.6	LOS A	0.6	4.7	0.28	0.88	43.0
Approach		161	7.5	0.088	1.0	LOS A	0.6	4.7	0.28	0.06	46.3
All Vehicles		353	6.5	0.088	1.8	NA	0.6	4.7	0.17	0.15	46.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Friday, March 25, 2011 5:01:57 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Toronto Rd-Five Islands Rd_AM

CTLRRV - Teralba Quarry Extensions
Existing AM
Toronto Rd-Five Islands Rd
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Toronto Rd (S)											
1	L	70	17.1	0.714	10.1	LOS A	8.8	63.7	0.79	0.91	47.8
2	T	1446	3.3	0.717	8.8	LOS A	8.8	63.7	0.80	0.87	47.5
3	R	19	21.1	0.704	16.5	LOS B	8.5	61.7	0.80	1.05	44.2
Approach		1535	4.1	0.717	9.0	LOS B	8.8	63.7	0.80	0.87	47.4
East: First St (E)											
4	L	11	9.1	0.145	9.9	LOS A	0.7	5.4	0.63	0.83	48.1
5	T	73	8.2	0.145	8.7	LOS A	0.7	5.4	0.63	0.77	48.5
6	R	335	4.2	0.348	14.0	LOS A	2.2	15.6	0.67	0.86	43.9
Approach		419	5.0	0.348	12.9	LOS A	2.2	15.6	0.67	0.84	44.7
North: Five Islands Rd (N)											
7	L	150	6.0	0.404	6.2	LOS A	3.4	24.6	0.37	0.54	49.9
8	T	891	5.3	0.404	5.1	LOS A	3.4	24.6	0.38	0.45	50.4
9	R	44	27.3	0.404	12.6	LOS A	3.3	24.2	0.39	0.83	46.6
Approach		1085	6.3	0.404	5.6	LOS A	3.4	24.6	0.38	0.48	50.2
West: Toronto Rd (W)											
10	L	37	45.9	0.194	14.7	LOS B	1.2	10.9	0.85	0.93	44.5
11	T	36	16.7	0.194	12.5	LOS A	1.2	10.9	0.85	0.91	44.7
12	R	72	11.1	0.211	19.9	LOS B	1.3	9.9	0.84	0.95	40.2
Approach		145	21.4	0.211	16.7	LOS B	1.3	10.9	0.85	0.93	42.2
All Vehicles		3184	5.7	0.717	8.7	LOS A	8.8	63.7	0.64	0.74	47.6

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:57 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Toronto Rd-Five Islands Rd_PM

CTLRRV - Teralba Quarry Extensions
Existing PM
Toronto Rd-Five Islands Rd
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Toronto Rd (S)											
1	L	75	9.3	0.487	7.2	LOS A	4.1	29.6	0.59	0.61	48.8
2	T	987	2.6	0.487	6.0	LOS A	4.1	29.6	0.60	0.54	48.8
3	R	40	35.0	0.488	13.8	LOS A	3.9	28.7	0.61	0.91	46.4
Approach		1102	4.3	0.487	6.3	LOS A	4.1	29.6	0.60	0.56	48.7
East: First St (E)											
4	L	23	0.0	0.128	11.0	LOS A	0.7	5.2	0.74	0.88	46.6
5	T	36	11.1	0.128	10.1	LOS A	0.7	5.2	0.74	0.84	47.0
6	R	277	2.5	0.378	15.7	LOS B	2.7	19.6	0.82	0.97	43.0
Approach		336	3.3	0.379	14.8	LOS B	2.7	19.6	0.81	0.95	43.6
North: Five Islands Rd (N)											
7	L	177	4.0	0.602	6.9	LOS A	5.7	40.9	0.58	0.59	48.8
8	T	1316	3.2	0.603	5.9	LOS A	5.7	40.9	0.59	0.53	48.9
9	R	14	50.0	0.609	14.1	LOS A	5.6	40.9	0.60	0.91	46.6
Approach		1507	3.7	0.603	6.1	LOS A	5.7	40.9	0.59	0.54	48.8
West: Toronto Rd (W)											
10	L	76	19.7	0.247	11.6	LOS A	1.4	11.2	0.75	0.87	46.5
11	T	48	12.5	0.247	10.1	LOS A	1.4	11.2	0.75	0.84	46.9
12	R	142	9.9	0.193	15.1	LOS B	1.2	9.3	0.74	0.91	43.6
Approach		266	13.2	0.247	13.2	LOS B	1.4	11.2	0.74	0.89	44.9
All Vehicles		3211	4.6	0.603	7.7	LOS A	5.7	40.9	0.63	0.62	47.8

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Friday, March 25, 2011 5:01:57 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Existing.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: George Booth Dr-Northville Dr_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
George Booth Dr-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Northville Dr (S)											
1	L	80	15.0	0.325	9.9	LOS A	2.2	16.6	0.66	0.79	46.8
3	R	485	4.3	0.325	14.4	LOS A	2.2	16.6	0.66	0.86	43.9
Approach		565	5.8	0.325	13.8	LOS A	2.2	16.6	0.66	0.85	44.2
East: George Booth Dr (E)											
4	L	264	8.3	0.266	7.9	LOS A	2.1	15.7	0.39	0.57	48.6
5	T	667	10.0	0.443	6.5	LOS A	4.3	33.0	0.43	0.51	49.3
Approach		931	9.6	0.444	6.9	LOS A	4.3	33.0	0.42	0.52	49.1
West: George Booth Dr (W)											
11	T	788	8.8	0.478	7.9	LOS A	3.5	26.5	0.63	0.68	47.8
12	R	126	12.7	0.477	14.1	LOS A	3.5	26.4	0.64	0.94	45.0
Approach		914	9.3	0.478	8.8	LOS A	3.5	26.5	0.63	0.72	47.4
All Vehicles		2410	8.6	0.478	9.2	LOS A	4.3	33.0	0.56	0.67	47.2

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 28 March 2011 11:26:30 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: George Booth Dr-Northville Dr_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
George Booth Dr-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Northville Dr (S)											
1	L	74	9.5	0.325	11.0	LOS A	2.6	19.4	0.78	0.83	46.0
3	R	407	3.7	0.325	15.7	LOS B	2.6	19.4	0.78	0.88	42.8
Approach		481	4.6	0.325	15.0	LOS B	2.6	19.4	0.78	0.87	43.2
East: George Booth Dr (E)											
4	L	479	4.0	0.397	7.9	LOS A	3.5	25.6	0.46	0.59	48.1
5	T	764	6.3	0.526	6.5	LOS A	5.6	41.2	0.50	0.53	48.8
Approach		1243	5.4	0.526	7.0	LOS A	5.6	41.2	0.49	0.55	48.5
West: George Booth Dr (W)											
11	T	711	9.1	0.435	7.3	LOS A	3.1	23.5	0.60	0.61	48.0
12	R	156	9.0	0.436	13.2	LOS A	3.0	22.9	0.60	0.87	45.5
Approach		867	9.1	0.435	8.4	LOS A	3.1	23.5	0.60	0.66	47.5
All Vehicles		2591	6.5	0.526	9.0	LOS A	5.6	41.2	0.58	0.65	47.1

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 6 June 2011 1:05:26 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Northville Dr_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Wakefield Rd-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
1	L	5	20.0	0.250	7.6	LOS A	1.8	13.7	0.34	0.52	49.0
2	T	87	6.9	0.247	6.1	LOS A	1.8	13.7	0.34	0.45	49.5
3	R	207	12.1	0.247	12.3	LOS A	1.8	13.7	0.34	0.70	45.6
Approach		299	10.7	0.247	10.4	LOS A	1.8	13.7	0.34	0.63	46.7
East: Northville Dr (E)											
4	L	120	18.3	0.194	7.3	LOS A	1.4	11.0	0.27	0.49	49.5
5	T	7	0.0	0.194	5.6	LOS A	1.4	11.0	0.27	0.42	50.1
6	R	111	10.8	0.194	12.0	LOS A	1.4	11.0	0.27	0.69	45.8
Approach		238	14.3	0.194	9.4	LOS A	1.4	11.0	0.27	0.58	47.7
North: Appletree Rd (N)											
7	L	110	9.1	0.175	7.8	LOS A	1.2	9.0	0.44	0.60	48.7
8	T	70	7.1	0.175	6.7	LOS A	1.2	9.0	0.44	0.53	49.1
9	R	10	0.0	0.175	12.5	LOS A	1.2	9.0	0.44	0.78	45.9
Approach		190	7.9	0.175	7.7	LOS A	1.2	9.0	0.44	0.58	48.7
West: Charleton St (W)											
10	L	14	7.1	0.046	8.5	LOS A	0.3	2.2	0.52	0.61	48.4
11	T	27	0.0	0.046	7.2	LOS A	0.3	2.2	0.52	0.56	48.6
12	R	3	33.3	0.046	14.3	LOS A	0.3	2.2	0.52	0.81	45.4
Approach		44	4.5	0.046	8.1	LOS A	0.3	2.2	0.52	0.59	48.3
All Vehicles		771	10.8	0.247	9.3	LOS A	1.8	13.7	0.36	0.60	47.5

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 28 March 2011 11:26:31 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Northville Dr_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Wakefield Rd-Northville Dr
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
1	L	11	0.0	0.244	6.9	LOS A	1.8	13.3	0.36	0.53	48.9
2	T	96	6.3	0.244	6.2	LOS A	1.8	13.3	0.36	0.46	49.4
3	R	192	8.3	0.245	12.2	LOS A	1.8	13.3	0.36	0.71	45.6
Approach		299	7.4	0.245	10.1	LOS A	1.8	13.3	0.36	0.62	46.8
East: Northville Dr (E)											
4	L	205	10.2	0.273	7.2	LOS A	2.1	15.9	0.35	0.53	49.0
5	T	30	13.3	0.273	6.3	LOS A	2.1	15.9	0.35	0.46	49.5
6	R	101	7.9	0.273	12.1	LOS A	2.1	15.9	0.35	0.72	45.7
Approach		336	9.8	0.273	8.6	LOS A	2.1	15.9	0.35	0.58	48.0
North: Appletree Rd (N)											
7	L	133	4.5	0.222	7.5	LOS A	1.6	11.5	0.43	0.59	48.8
8	T	109	3.7	0.222	6.4	LOS A	1.6	11.5	0.43	0.53	49.2
9	R	14	0.0	0.222	12.3	LOS A	1.6	11.5	0.43	0.79	46.0
Approach		256	3.9	0.223	7.3	LOS A	1.6	11.5	0.43	0.57	48.8
West: Charleton St (W)											
10	L	6	0.0	0.033	8.1	LOS A	0.2	1.6	0.50	0.59	48.5
11	T	20	10.0	0.033	7.4	LOS A	0.2	1.6	0.50	0.54	48.7
12	R	5	20.0	0.033	13.7	LOS A	0.2	1.6	0.50	0.78	45.4
Approach		31	9.7	0.033	8.6	LOS A	0.2	1.6	0.50	0.59	48.1
All Vehicles		922	7.4	0.273	8.7	LOS A	2.1	15.9	0.38	0.59	47.8

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 28 March 2011 11:26:31 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Rhondda Rd_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Wakefield Rd-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
11	T	132	9.1	0.072	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	53	20.8	0.054	10.6	LOS A	0.3	2.2	0.33	0.67	47.3
Approach		185	12.4	0.072	3.0	LOS A	0.3	2.2	0.09	0.19	55.8
East: Rhondda Rd (E)											
1	L	58	19.0	0.111	11.5	LOS A	0.5	4.6	0.38	0.65	46.3
3	R	20	45.0	0.110	13.0	LOS A	0.5	4.6	0.38	0.78	46.3
Approach		78	25.6	0.111	11.9	LOS A	0.5	4.6	0.38	0.68	46.3
North: Wakefield Rd (N)											
4	L	40	22.5	0.025	9.2	LOS A	0.0	0.0	0.00	0.67	49.0
5	T	154	8.4	0.083	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		194	11.3	0.083	1.9	LOS A	0.0	0.0	0.00	0.14	57.3
All Vehicles		457	14.2	0.111	4.1	NA	0.5	4.6	0.10	0.25	54.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:00:10 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Wakefield Rd-Rhondda Rd_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Wakefield Rd-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Wakefield Rd (S)											
11	T	127	9.4	0.069	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	61	16.4	0.060	10.4	LOS A	0.3	2.4	0.34	0.67	47.3
Approach		188	11.7	0.069	3.4	LOS A	0.3	2.4	0.11	0.22	55.2
East: Rhondda Rd (E)											
1	L	57	17.5	0.117	11.4	LOS A	0.6	4.7	0.39	0.65	46.4
3	R	29	24.1	0.117	11.9	LOS A	0.6	4.7	0.39	0.77	46.3
Approach		86	19.8	0.117	11.5	LOS A	0.6	4.7	0.39	0.69	46.4
North: Wakefield Rd (N)											
4	L	42	21.4	0.026	9.2	LOS A	0.0	0.0	0.00	0.67	49.0
5	T	177	2.8	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		219	6.4	0.092	1.8	LOS A	0.0	0.0	0.00	0.13	57.5
All Vehicles		493	10.8	0.117	4.1	NA	0.6	4.7	0.11	0.26	54.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:06:05 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Rhondda Rd-Metromix Access_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Rhondda Rd-Metromix Site Access
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: MetroMix Quarry Access (S)											
1	L	19	94.7	0.083	15.7	LOS B	0.4	5.4	0.37	0.61	45.6
3	R	22	90.9	0.083	15.9	LOS B	0.4	5.4	0.37	0.72	45.5
Approach		41	92.7	0.083	15.8	LOS B	0.4	5.4	0.37	0.67	45.6
East: Rhondda Rd (E)											
4	L	31	87.1	0.027	12.1	LOS A	0.0	0.0	0.00	0.66	49.0
5	T	71	2.8	0.037	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
Approach		102	28.4	0.037	3.7	LOS A	0.0	0.0	0.00	0.20	56.2
West: Rhondda Rd (W)											
11	T	56	0.0	0.029	0.0	LOS A	0.0	0.0	0.00	0.00	60.0
12	R	20	90.0	0.056	14.7	LOS B	0.2	2.0	0.32	0.66	46.9
Approach		76	23.7	0.056	3.9	LOS B	0.2	2.0	0.08	0.17	55.9
All Vehicles		219	38.8	0.083	6.0	NA	0.4	5.4	0.10	0.28	53.7

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 28 March 2011 11:26:32 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-Rhondda Rd_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Railway St-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
10	L	2	50.0	0.011	8.0	LOS A	0.0	0.0	0.00	0.95	43.3
11	T	14	50.0	0.011	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		16	50.0	0.011	1.0	LOS A	0.0	0.0	0.00	0.12	49.0
North: Railway St (N)											
5	T	10	20.0	0.063	0.1	LOS A	0.4	3.0	0.09	0.00	48.5
6	R	89	18.0	0.063	7.5	LOS A	0.4	3.0	0.09	0.64	42.7
Approach		99	18.2	0.063	6.8	LOS A	0.4	3.0	0.09	0.57	43.2
West: Rhondda Rd (W)											
7	L	74	6.8	0.049	6.7	LOS A	0.3	1.9	0.07	0.58	43.0
9	R	2	50.0	0.050	8.7	LOS A	0.3	1.9	0.07	0.69	42.8
Approach		76	7.9	0.049	6.8	LOS A	0.3	1.9	0.07	0.58	43.0
All Vehicles		191	16.8	0.063	6.3	NA	0.4	3.0	0.08	0.54	43.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:01:14 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-Rhondda Rd_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Railway St-Rhondda Rd
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
10	L	20	65.0	0.028	8.5	LOS A	0.0	0.0	0.00	0.76	43.3
11	T	19	36.8	0.028	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		39	51.3	0.028	4.4	LOS A	0.0	0.0	0.00	0.39	46.3
North: Railway St (N)											
5	T	3	66.7	0.043	0.2	LOS A	0.2	1.9	0.15	0.00	47.5
6	R	67	10.4	0.044	7.3	LOS A	0.2	1.9	0.15	0.61	42.5
Approach		70	12.9	0.044	7.0	LOS A	0.2	1.9	0.15	0.58	42.7
West: Rhondda Rd (W)											
7	L	91	5.5	0.059	6.7	LOS A	0.3	2.2	0.11	0.57	42.9
9	R	1	0.0	0.059	6.9	LOS A	0.3	2.2	0.11	0.66	42.7
Approach		92	5.4	0.059	6.7	LOS A	0.3	2.2	0.11	0.57	42.9
All Vehicles		201	16.9	0.059	6.4	NA	0.3	2.2	0.10	0.54	43.4

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 28 March 2011 11:26:32 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-William St_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Railway St-William St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
11	T	4	0.0	0.143	6.4	LOS A	0.6	4.9	0.33	0.47	42.7
12	R	116	11.2	0.142	8.5	LOS A	0.6	4.9	0.33	0.67	41.8
Approach		120	10.8	0.142	8.4	LOS A	0.6	4.9	0.33	0.67	41.8
East: William St (E)											
1	L	109	19.3	0.093	7.0	LOS A	0.0	0.0	0.00	0.60	43.3
3	R	46	8.7	0.093	7.1	LOS A	0.0	0.0	0.00	0.68	43.0
Approach		155	16.1	0.093	7.0	LOS A	0.0	0.0	0.00	0.62	43.2
North: Railway St (N)											
4	L	109	4.6	0.062	7.2	LOS A	0.4	3.2	0.30	0.43	42.2
5	T	2	0.0	0.063	5.8	LOS A	0.4	3.2	0.30	0.50	42.9
Approach		111	4.5	0.062	7.2	LOS A	0.4	3.2	0.30	0.43	42.2
All Vehicles		386	11.1	0.142	7.5	NA	0.6	4.9	0.19	0.58	42.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:01:32 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: Railway St-William St_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Railway St-William St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Railway St (S)											
11	T	6	0.0	0.167	6.3	LOS A	0.8	5.7	0.32	0.48	42.7
12	R	140	8.6	0.165	8.3	LOS A	0.8	5.7	0.32	0.67	41.9
Approach		146	8.2	0.165	8.2	LOS A	0.8	5.7	0.32	0.66	41.9
East: William St (E)											
1	L	92	10.9	0.095	6.8	LOS A	0.0	0.0	0.00	0.59	43.3
3	R	77	0.0	0.095	6.8	LOS A	0.0	0.0	0.00	0.67	43.0
Approach		169	5.9	0.095	6.8	LOS A	0.0	0.0	0.00	0.63	43.1
North: Railway St (N)											
4	L	82	0.0	0.049	7.1	LOS A	0.3	2.4	0.29	0.43	42.3
5	T	5	0.0	0.049	5.8	LOS A	0.3	2.4	0.29	0.49	43.0
Approach		87	0.0	0.049	7.0	LOS A	0.3	2.4	0.29	0.44	42.3
All Vehicles		402	5.5	0.165	7.3	NA	0.8	5.7	0.18	0.60	42.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:06:49 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: William St-Short St_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Railway St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: William St (S)											
11	T	56	3.6	0.060	5.9	LOS A	0.3	1.9	0.22	0.50	43.5
12	R	10	0.0	0.060	7.4	LOS A	0.3	1.9	0.22	0.74	42.5
Approach		66	3.0	0.060	6.1	LOS A	0.3	1.9	0.22	0.53	43.3
East: Short St (E)											
1	L	15	6.7	0.067	6.6	LOS A	0.0	0.0	0.00	0.58	43.3
3	R	93	22.6	0.067	7.6	LOS A	0.0	0.0	0.00	0.66	43.0
Approach		108	20.4	0.067	7.5	LOS A	0.0	0.0	0.00	0.65	43.0
North: William St (N)											
4	L	174	9.8	0.156	7.3	LOS A	1.0	7.9	0.26	0.46	42.4
5	T	64	7.8	0.156	5.9	LOS A	1.0	7.9	0.26	0.50	43.2
Approach		238	9.2	0.156	6.9	LOS A	1.0	7.9	0.26	0.47	42.6
All Vehicles		412	11.2	0.156	7.0	NA	1.0	7.9	0.18	0.53	42.8

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:02:15 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: William St-Short St_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Railway St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: William St (S)											
11	T	71	2.8	0.066	5.7	LOS A	0.3	2.1	0.19	0.50	43.6
12	R	6	0.0	0.066	7.2	LOS A	0.3	2.1	0.19	0.75	42.6
Approach		77	2.6	0.066	5.8	LOS A	0.3	2.1	0.19	0.52	43.5
East: Short St (E)											
1	L	5	0.0	0.056	6.4	LOS A	0.0	0.0	0.00	0.58	43.3
3	R	94	7.4	0.056	7.0	LOS A	0.0	0.0	0.00	0.65	43.0
Approach		99	7.1	0.056	7.0	LOS A	0.0	0.0	0.00	0.65	43.0
North: William St (N)											
4	L	165	6.7	0.148	7.1	LOS A	1.0	7.1	0.23	0.49	42.5
5	T	66	6.1	0.148	5.7	LOS A	1.0	7.1	0.23	0.48	43.4
Approach		231	6.5	0.148	6.7	LOS A	1.0	7.1	0.23	0.49	42.8
All Vehicles		407	5.9	0.148	6.6	NA	1.0	7.1	0.16	0.53	43.0

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:07:11 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Short St_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
York St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
4	L	98	21.4	0.134	7.1	LOS A	0.0	0.0	0.00	0.77	43.3
5	T	135	8.9	0.134	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		233	14.2	0.134	3.0	LOS A	0.0	0.0	0.00	0.33	46.9
North: York St (N)											
11	T	168	4.2	0.098	0.9	LOS A	0.7	5.3	0.37	0.00	45.5
12	R	13	0.0	0.098	7.6	LOS A	0.7	5.3	0.37	0.85	43.0
Approach		181	3.9	0.098	1.4	LOS A	0.7	5.3	0.37	0.06	45.3
West: Short St (W)											
1	L	10	20.0	0.200	8.9	LOS A	1.0	7.3	0.44	0.60	41.5
3	R	175	5.7	0.200	8.8	LOS A	1.0	7.3	0.44	0.73	41.4
Approach		185	6.5	0.200	8.8	LOS A	1.0	7.3	0.44	0.72	41.4
All Vehicles		599	8.7	0.200	4.3	NA	1.0	7.3	0.25	0.37	44.6

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:02:46 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Short St_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
York St-Short St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
4	L	85	8.2	0.136	6.7	LOS A	0.0	0.0	0.00	0.79	43.3
5	T	163	7.4	0.136	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		248	7.7	0.136	2.3	LOS A	0.0	0.0	0.00	0.27	47.5
North: York St (N)											
11	T	227	7.9	0.132	0.9	LOS A	1.0	7.6	0.38	0.00	45.4
12	R	14	0.0	0.132	7.7	LOS A	1.0	7.6	0.38	0.86	43.0
Approach		241	7.5	0.132	1.3	LOS A	1.0	7.6	0.38	0.05	45.3
West: Short St (W)											
1	L	15	6.7	0.195	9.0	LOS A	1.0	7.0	0.47	0.60	41.1
3	R	153	6.5	0.196	9.3	LOS A	1.0	7.0	0.47	0.77	41.0
Approach		168	6.5	0.196	9.3	LOS A	1.0	7.0	0.47	0.75	41.0
All Vehicles		657	7.3	0.196	3.7	NA	1.0	7.6	0.26	0.31	44.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:07:51 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Anzac Pde_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
York St-Anzac Pde
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
1	L	16	0.0	0.080	6.4	LOS A	0.0	0.0	0.00	0.87	43.3
2	T	121	23.1	0.080	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
3	R	19	0.0	0.027	7.6	LOS A	0.1	0.5	0.39	0.60	41.8
Approach		156	17.9	0.080	1.6	LOS A	0.1	0.5	0.05	0.16	48.1
East: Anzac Pde (E)											
4	L	17	0.0	0.027	10.1	LOS A	0.1	0.5	0.31	0.85	40.7
5	T	35	5.7	0.263	14.3	LOS A	1.4	10.5	0.58	0.95	38.1
6	R	109	6.4	0.263	14.5	LOS B	1.4	10.5	0.58	1.00	38.1
Approach		161	5.6	0.262	14.0	LOS B	1.4	10.5	0.55	0.97	38.4
North: York St (N)											
7	L	213	2.8	0.173	6.5	LOS A	0.0	0.0	0.00	0.69	43.3
8	T	103	10.7	0.173	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
9	R	8	12.5	0.012	7.5	LOS A	0.0	0.2	0.27	0.56	42.2
Approach		324	5.6	0.173	4.5	LOS A	0.0	0.2	0.01	0.46	45.2
West: Anzac Pde (W)											
10	L	8	25.0	0.017	11.6	LOS A	0.0	0.3	0.28	0.85	40.7
11	T	26	30.8	0.074	17.8	LOS B	0.4	3.1	0.59	0.96	36.9
12	R	4	0.0	0.074	16.0	LOS B	0.4	3.1	0.59	0.89	36.9
Approach		38	26.3	0.074	16.3	LOS B	0.4	3.1	0.52	0.93	37.6
All Vehicles		679	9.6	0.262	6.7	NA	1.4	10.5	0.17	0.54	43.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:03:07 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Anzac Pde_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
York St-Anzac Pde
Stop (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: York St (S)											
1	L	5	0.0	0.058	6.4	LOS A	0.0	0.0	0.00	0.90	43.3
2	T	102	9.8	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
3	R	33	0.0	0.048	7.6	LOS A	0.1	0.9	0.39	0.61	41.8
Approach		140	7.1	0.058	2.0	LOS A	0.1	0.9	0.09	0.18	47.5
East: Anzac Pde (E)											
4	L	57	7.0	0.097	10.6	LOS A	0.2	1.8	0.32	0.87	40.7
5	T	53	3.8	0.325	14.2	LOS A	2.0	14.6	0.58	0.97	38.1
6	R	138	2.9	0.325	14.4	LOS A	2.0	14.6	0.58	1.02	38.0
Approach		248	4.0	0.326	13.5	LOS A	2.0	14.6	0.52	0.98	38.6
North: York St (N)											
7	L	210	0.5	0.175	6.4	LOS A	0.0	0.0	0.00	0.69	43.3
8	T	115	6.1	0.175	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
9	R	6	0.0	0.008	6.9	LOS A	0.0	0.1	0.21	0.56	42.4
Approach		331	2.4	0.175	4.2	LOS A	0.0	0.1	0.00	0.45	45.4
West: Anzac Pde (W)											
10	L	11	0.0	0.017	9.7	LOS A	0.0	0.3	0.21	0.87	40.9
11	T	27	14.8	0.066	14.6	LOS B	0.3	2.5	0.55	0.92	38.4
12	R	8	0.0	0.067	13.8	LOS A	0.3	2.5	0.55	0.91	38.3
Approach		46	8.7	0.066	13.3	LOS B	0.3	2.5	0.46	0.91	38.9
All Vehicles		765	4.2	0.326	7.4	NA	2.0	14.6	0.22	0.60	42.9

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:08:19 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Pitt St_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
York St-Pitt St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pitt St (S)											
1	L	22	9.1	0.063	8.4	LOS A	0.3	2.3	0.38	0.59	41.7
3	R	35	17.1	0.063	9.1	LOS A	0.3	2.3	0.38	0.71	41.5
Approach		57	14.0	0.063	8.8	LOS A	0.3	2.3	0.38	0.66	41.6
East: York St (E)											
4	L	31	6.5	0.124	6.6	LOS A	0.0	0.0	0.00	0.87	43.3
5	T	184	19.6	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		215	17.7	0.124	1.0	LOS A	0.0	0.0	0.00	0.13	48.9
West: York St (W)											
11	T	154	9.7	0.094	0.8	LOS A	0.7	5.1	0.35	0.00	45.7
12	R	14	0.0	0.094	7.6	LOS A	0.7	5.1	0.35	0.85	42.9
Approach		168	8.9	0.094	1.4	LOS A	0.7	5.1	0.35	0.07	45.4
All Vehicles		440	13.9	0.124	2.1	NA	0.7	5.1	0.19	0.17	46.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:03:44 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

SIDRA INTERSECTION

MOVEMENT SUMMARY

Site: York St-Pitt St_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
York St-Pitt St
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Pitt St (S)											
1	L	19	5.3	0.058	7.9	LOS A	0.3	2.0	0.33	0.56	42.0
3	R	39	10.3	0.058	8.5	LOS A	0.3	2.0	0.33	0.69	41.8
Approach		58	8.6	0.058	8.3	LOS A	0.3	2.0	0.33	0.65	41.9
East: York St (E)											
4	L	20	5.0	0.092	6.6	LOS A	0.0	0.0	0.00	0.88	43.3
5	T	153	5.2	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		173	5.2	0.092	0.8	LOS A	0.0	0.0	0.00	0.10	49.1
West: York St (W)											
11	T	181	8.3	0.108	0.7	LOS A	0.8	6.3	0.32	0.00	46.0
12	R	14	14.3	0.108	8.0	LOS A	0.8	6.3	0.32	0.89	43.0
Approach		195	8.7	0.108	1.2	LOS A	0.8	6.3	0.32	0.06	45.8
All Vehicles		426	7.3	0.108	2.0	NA	0.8	6.3	0.19	0.16	46.5

LOS (Aver. Int. Delay): NA. The average intersection delay is not a good LOS measure for two-way sign control due to zero delays associated with major road movements.
Level of Service (Worst Movement): LOS A. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.

Processed: Monday, 6 June 2011 1:08:48 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

MOVEMENT SUMMARY

Site: Toronto Rd-Five Islands Rd_AM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_AM
Toronto Rd-Five Islands Rd
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Toronto Rd (S)											
1	L	85	18.8	0.924	19.3	LOS B	21.3	154.6	1.00	1.36	40.5
2	T	1729	3.2	0.924	18.6	LOS B	21.3	154.6	1.00	1.36	39.9
3	R	23	21.7	0.920	27.0	LOS B	20.3	146.8	1.00	1.38	37.3
Approach		1837	4.2	0.924	18.7	LOS B	21.3	154.6	1.00	1.36	39.8
East: First St (E)											
4	L	13	7.7	0.188	10.5	LOS A	1.0	7.4	0.69	0.86	47.6
5	T	87	8.0	0.188	9.3	LOS A	1.0	7.4	0.69	0.81	48.0
6	R	401	4.2	0.463	15.4	LOS B	3.5	25.1	0.77	0.97	43.3
Approach		501	5.0	0.463	14.2	LOS B	3.5	25.1	0.76	0.94	44.1
North: Five Islands Rd (N)											
7	L	180	6.1	0.496	6.4	LOS A	4.6	33.7	0.45	0.55	49.4
8	T	1065	5.3	0.496	5.3	LOS A	4.6	33.7	0.46	0.47	49.8
9	R	55	30.9	0.495	12.9	LOS A	4.4	33.2	0.47	0.83	46.6
Approach		1300	6.5	0.496	5.8	LOS A	4.6	33.7	0.46	0.49	49.6
West: Toronto Rd (W)											
10	L	40	40.0	0.526	35.4	LOS C	3.4	29.6	0.94	1.06	31.3
11	T	43	16.3	0.524	33.3	LOS C	3.4	29.6	0.94	1.06	31.4
12	R	84	8.3	0.249	21.4	LOS B	2.0	14.8	0.98	0.99	39.1
Approach		167	18.0	0.526	27.8	LOS C	3.4	29.6	0.96	1.03	35.0
All Vehicles		3805	5.7	0.924	14.1	LOS A	21.3	154.6	0.78	0.99	43.0

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS C. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 6 June 2011 1:04:46 PM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

MOVEMENT SUMMARY

Site: Toronto Rd-Five Islands Rd_PM

CTLRRV - Teralba Quarry Extensions
2022 with 1.5% pa compound growth on surveyed flows (2010/2011) and 1 million pa production for Metromix_PM
Toronto Rd-Five Islands Rd
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Toronto Rd (S)											
1	L	89	9.0	0.618	8.3	LOS A	6.5	46.9	0.72	0.73	48.1
2	T	1180	2.6	0.616	7.2	LOS A	6.5	46.9	0.73	0.69	47.8
3	R	48	35.4	0.615	15.3	LOS B	6.3	46.2	0.74	0.99	45.3
Approach		1317	4.3	0.616	7.6	LOS B	6.5	46.9	0.73	0.70	47.8
East: First St (E)											
4	L	27	0.0	0.185	12.3	LOS A	1.1	8.3	0.83	0.92	45.4
5	T	43	11.6	0.185	11.5	LOS A	1.1	8.3	0.83	0.89	45.7
6	R	331	2.4	0.579	20.2	LOS B	5.2	37.2	0.94	1.08	39.8
Approach		401	3.2	0.578	18.7	LOS B	5.2	37.2	0.92	1.05	40.6
North: Five Islands Rd (N)											
7	L	211	3.8	0.746	8.4	LOS A	9.9	71.4	0.75	0.76	47.9
8	T	1573	3.2	0.746	7.6	LOS A	9.9	71.6	0.76	0.74	47.7
9	R	16	50.0	0.762	16.1	LOS B	9.9	71.6	0.77	0.98	45.2
Approach		1800	3.7	0.746	7.8	LOS B	9.9	71.6	0.76	0.74	47.7
West: Toronto Rd (W)											
10	L	95	23.2	0.399	15.5	LOS B	2.6	20.9	0.83	0.96	43.0
11	T	57	12.3	0.399	13.9	LOS A	2.6	20.9	0.83	0.94	43.3
12	R	168	8.9	0.275	16.3	LOS B	1.9	14.5	0.84	0.95	42.7
Approach		320	13.8	0.400	15.7	LOS B	2.6	20.9	0.84	0.95	42.9
All Vehicles		3838	4.7	0.746	9.5	LOS A	9.9	71.6	0.77	0.78	46.4

Level of Service (Aver. Int. Delay): LOS A. Based on average delay for all vehicle movements. LOS Method: Delay (RTA NSW).
Level of Service (Worst Movement): LOS B. LOS Method for individual vehicle movements: Delay (RTA NSW).
Approach LOS values are based on the worst delay for any vehicle movement.
Roundabout Capacity Model: SIDRA Standard.

Processed: Monday, 28 March 2011 11:26:35 AM
SIDRA INTERSECTION 5.0.5.1510
Project: X:\CTLRRV - Teralba Quarry\SIDRA\CTLRRV-SIDRA_Future 2022.sip
8000324, HALCROW PACIFIC PTY LTD, FLOATING

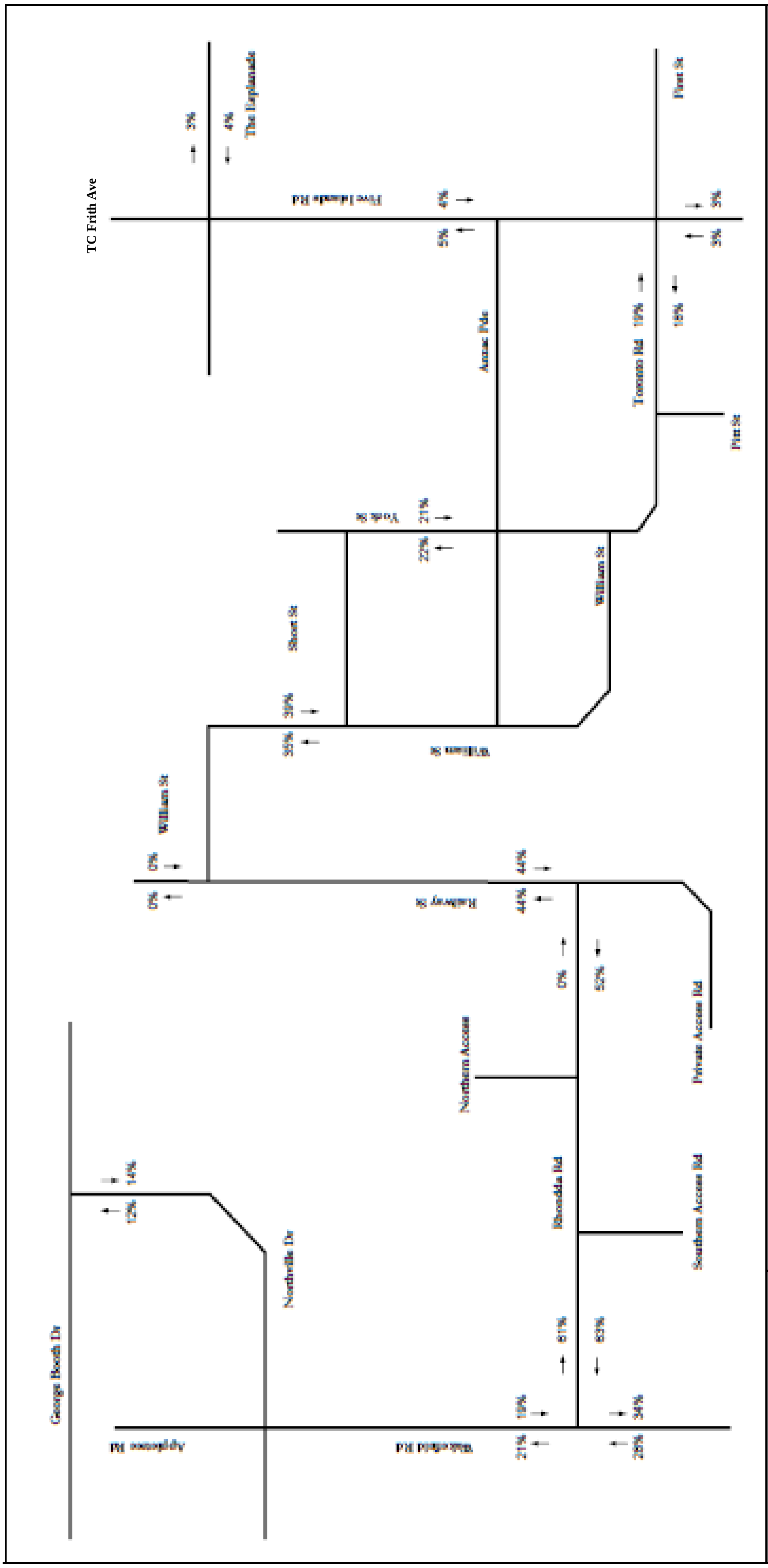
SIDRA INTERSECTION

Appendix C

Percentage of Metromix Trucks Over All Heavy Vehicles

(No. of pages including blank pages = 4)

This page has intentionally been left blank



Appendix C : Percentage of Metromix Trucks (i.e. 85th percentile for 700,000 tpa sales) to All Heavy Vehicles

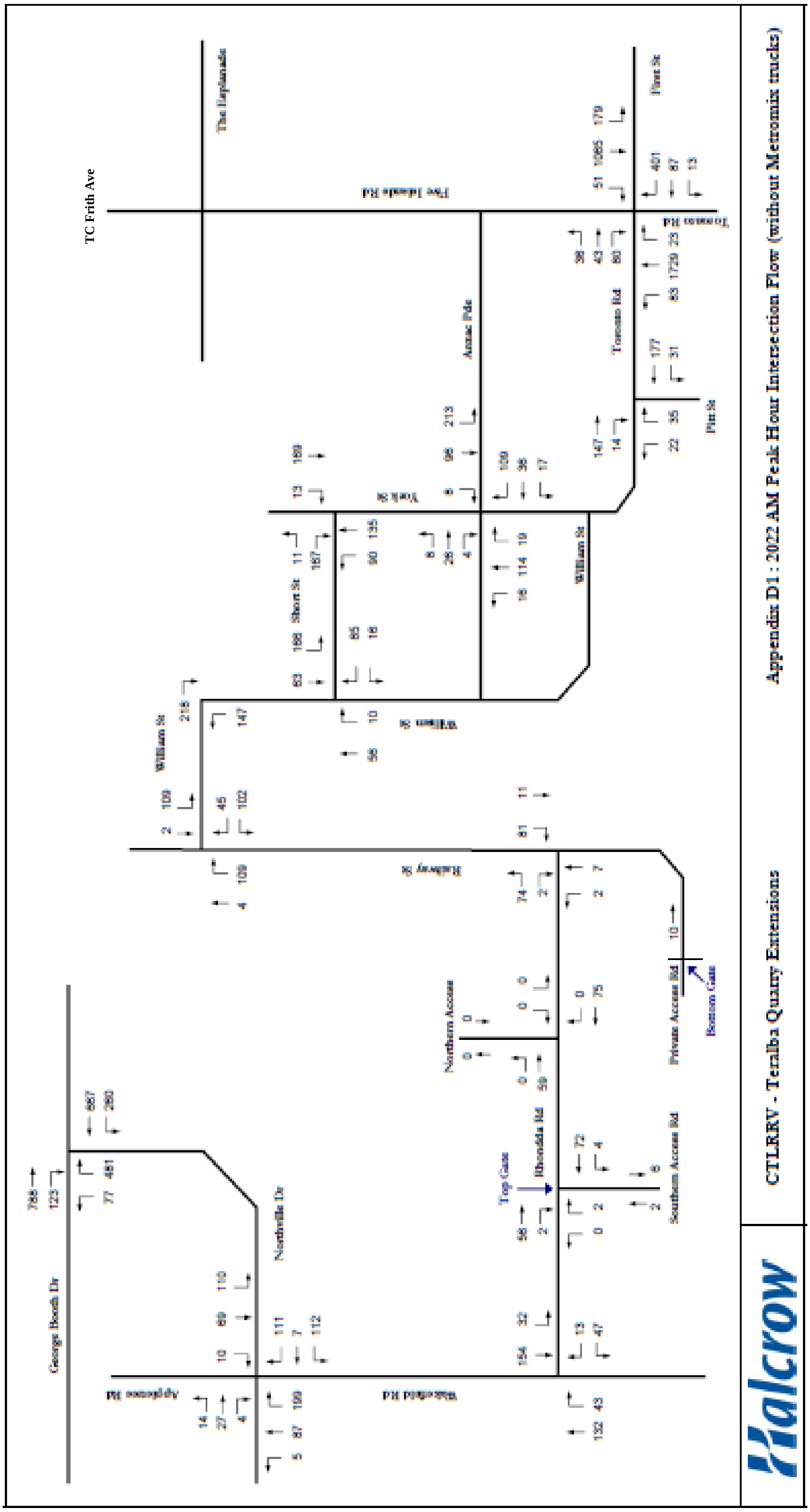
This page has intentionally been left blank

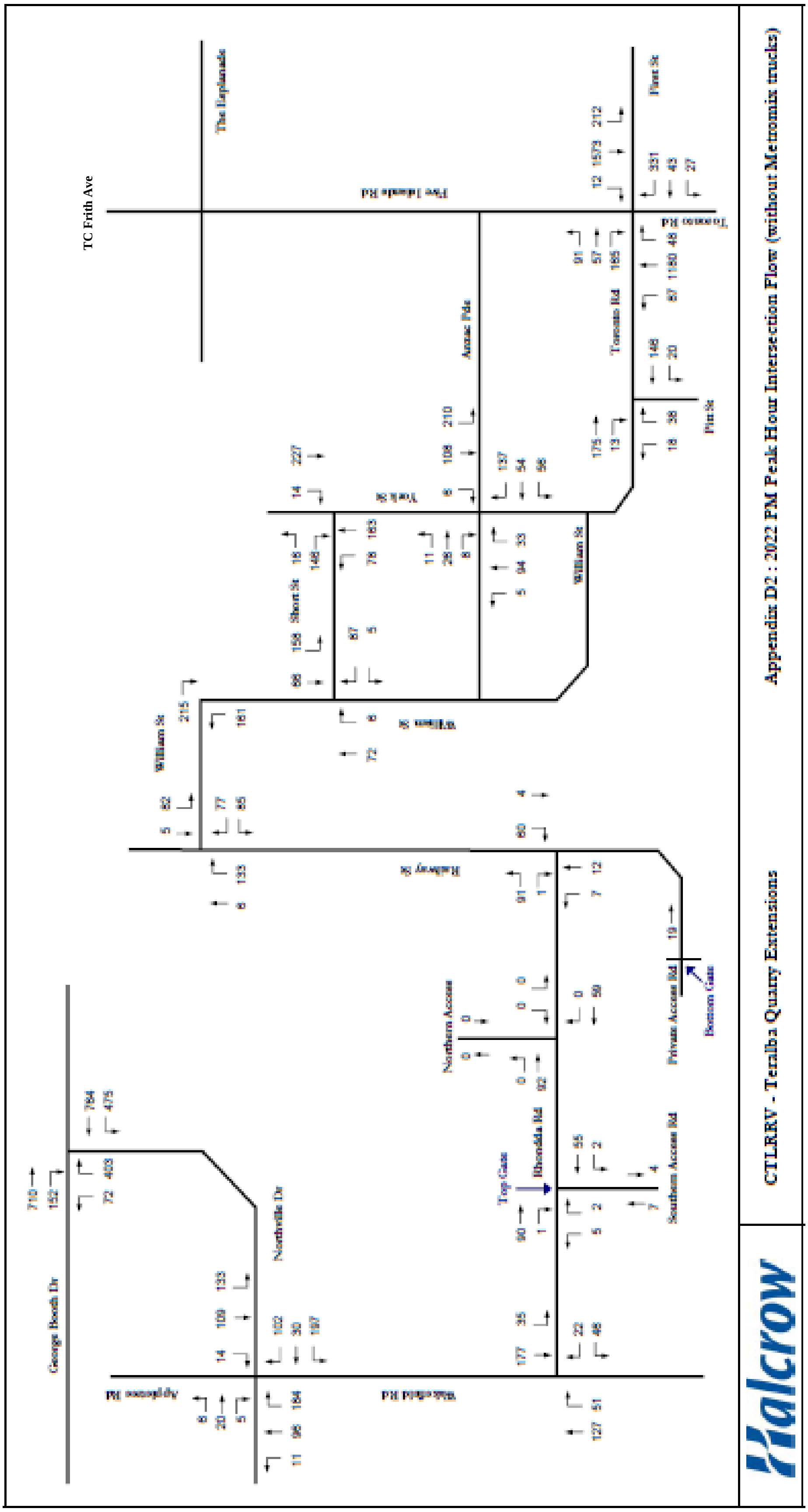
Appendix D

2022 Future Base Flows without Metromix Trucks

(No. of pages including blank pages = 4)

This page has intentionally been left blank


Appendix D1 : 2022 AM Peak Hour Intersection Flow (without Metromix trucks)
CTLRRV - Teralba Quarry Extensions
Halcrow


Appendix D2 : 2022 PM Peak Hour Intersection Flow (without Metromix trucks)
CTLRRV - Teralba Quarry Extensions