PROPOSED MIXED USE DEVELOPMENT

1-9 FLORENCE STREET AND 19-23 QUINN STREET,

SOUTH WENTWORTHVILLE

Traffic and Parking Assessment Report

25 November 2013

Ref: 13111

Prepared by

Terraffic Pty Ltd
Traffic and Parking Consultants

Suite 71, 23 MacMahon Street, Hurstville NSW 2220 – Tel : (02) 9570 5200 – Fax : (02) 9570 5300
Email: logan@terraffic.com.au Web: www.terraffic.com.au
Terraffic Pty Ltd ABN 83 078 415 871

TABLE OF CONTENTS

1. INTRODUCTION 1

2. PARKING ASSESSMENT 7

3. TRAFFIC ASSESSMENT 12

APPENDICES

APPENDIX A — TRAFFIC COUNT DATA

APPENDIX B — SIDRA MOVEMENT SUMMARY SHEETS FOR THE STATION STREET/QUINN STREET INTERSECTION

APPENDIX C — SIDRA MOVEMENT SUMMARY SHEETS FOR THE GREAT WESTERN HIGHWAY/FLORENCE STREET INTERSECTION

APPENDIX D — PROPOSED QUINN STREET ROADWAY EXTENSION

LIST OF ILLUSTRATIONS

FIGURE 1 — LOCATION

FIGURE 2 — SITE

FIGURE 3 — ROAD HIERARCHY

FIGURE 4 — EXISTING TRAFFIC CONTROLS

FIGURE 5A — AM PEAK PERIOD TRAFFIC FLOWS

FIGURE 5B — PM PEAK PERIOD TRAFFIC FLOWS

FIGURE 6A — AM PEAK TRAFFIC ASSIGNMENT

FIGURE 6B — PM PEAK TRAFFIC ASSIGNMENT

1. INTRODUCTION

This report has been prepared to accompany a Development Application to Holroyd City Council for a mixed use commercial/residential development proposal to be located on a consolidated site at 1-9 Florence Street and 19-23 Quinn Street, South Wentworthville (Figures 1 and 2).

The subject site is located on the northern side of the Western (M4) Motorway and has a site area of 6,126.61m^2. The site has frontages of 82.31m to Florence Street, 77.31m to Quinn Street and 41.52m to Station Street. The existing site development comprises 8 residential lots with a single level dwelling on each lot. A survey plan prepared by Geographic Solutions Surveyors is reproduced in the following pages and shows the location of the existing access driveways along all street frontages.

The proposed development comprises the construction of 3 multi-level mixed use commercial/residential buildings as follows:

Building A	54 dwellings (6x1 bedroom and 48 x 2 bedroom units)
Building B	35 dwellings (35 x 2 bedroom units)
Building C	536.99m^2 commercial office (3 suites) and 65 dwellings (15 x 1 bedroom and 50 x 2 bedroom units)
Total Development	**536.99m^2 commercial office (3 suites) and 154 dwellings (21 x 1 bedroom and 133 x 2 bedroom units)**

Off-street car parking is proposed for a total of 210 vehicles on three basement levels comprising the following:

Residential Parking	152 spaces (including 25 disabled spaces)
Residential Visitor Parking	31 spaces
Commercial Parking	27 spaces (including 1 disabled space)
Total	**210 spaces (including 26 disabled spaces)**

The commercial parking provision includes 2 dedicated courier parking bays located under Building C. These spaces have an area at the rear of the space to facilitate loading from the rear of the van.

Vehicular access to the proposed basement carpark is via a new 6.1m wide combined entry/exit driveway off Florence Street. For drainage reasons, the access ramp rises from the Florence Street boundary up to RL34.06 before dropping down into the basement.

Clause 2.2 in Part N of Holroyd Council's Development Control Plan specifies the following Development Control that impacts on the development site:

C2. A 15 metre connecting laneway between Florence Street and Quinn Street is required in accordance with Figure 14.

A copy of Figure 14 is reproduced below and shows a 15m wide extension of Quinn Street.

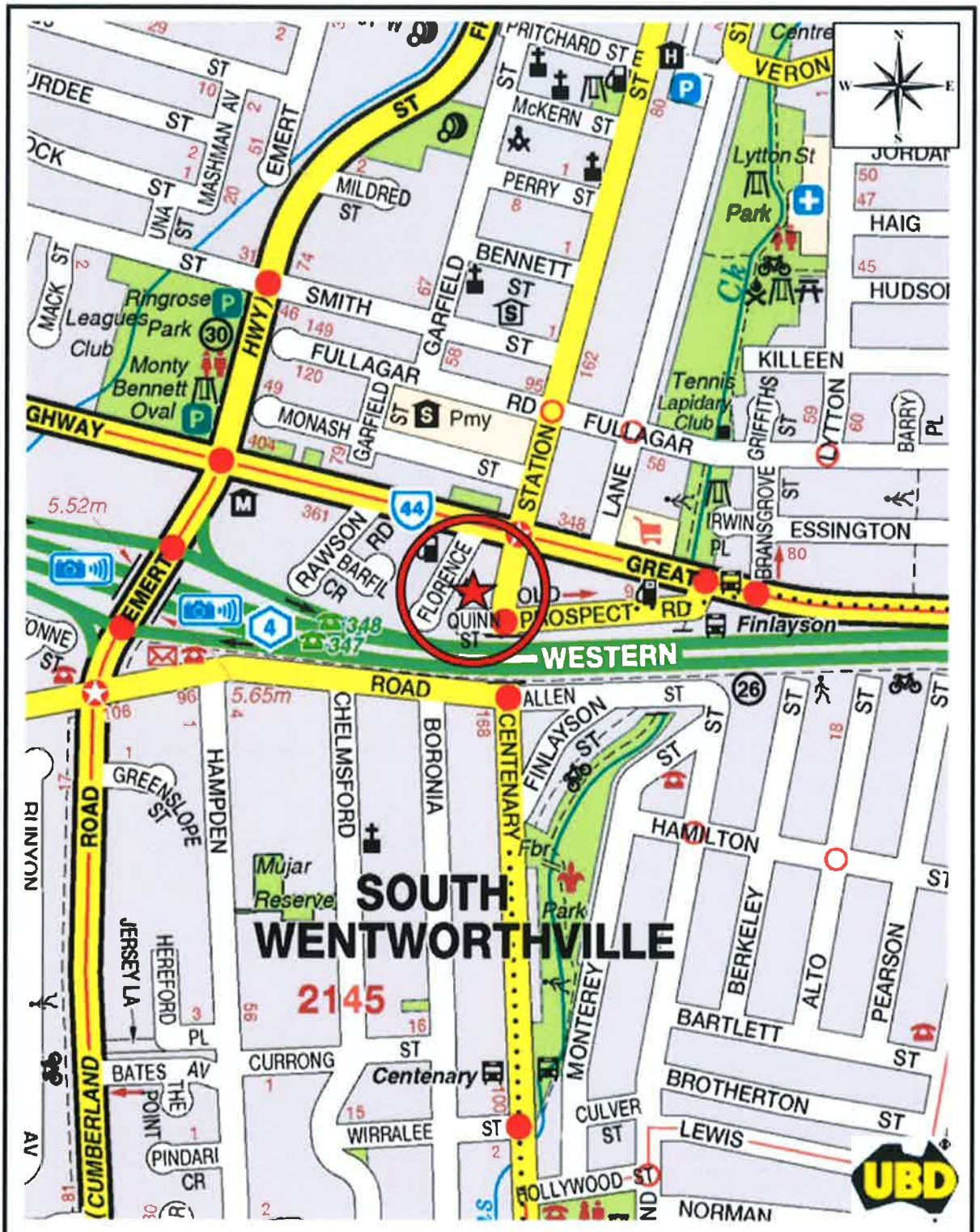
Figure 14- Proposed Laneways

Following discussions with Council's Traffic Engineer Mr Platon, it was determined that the road corridor will comprise the following:

- A formalised cul-de-sac in Quinn Street located approximately 50m from Station St
- a 4m wide one-way eastbound roadway from Florence Street to the new cul-de-sac in Quinn Street
- a GIVE-WAY restriction on eastbound vehicles entering the cul-de-sac

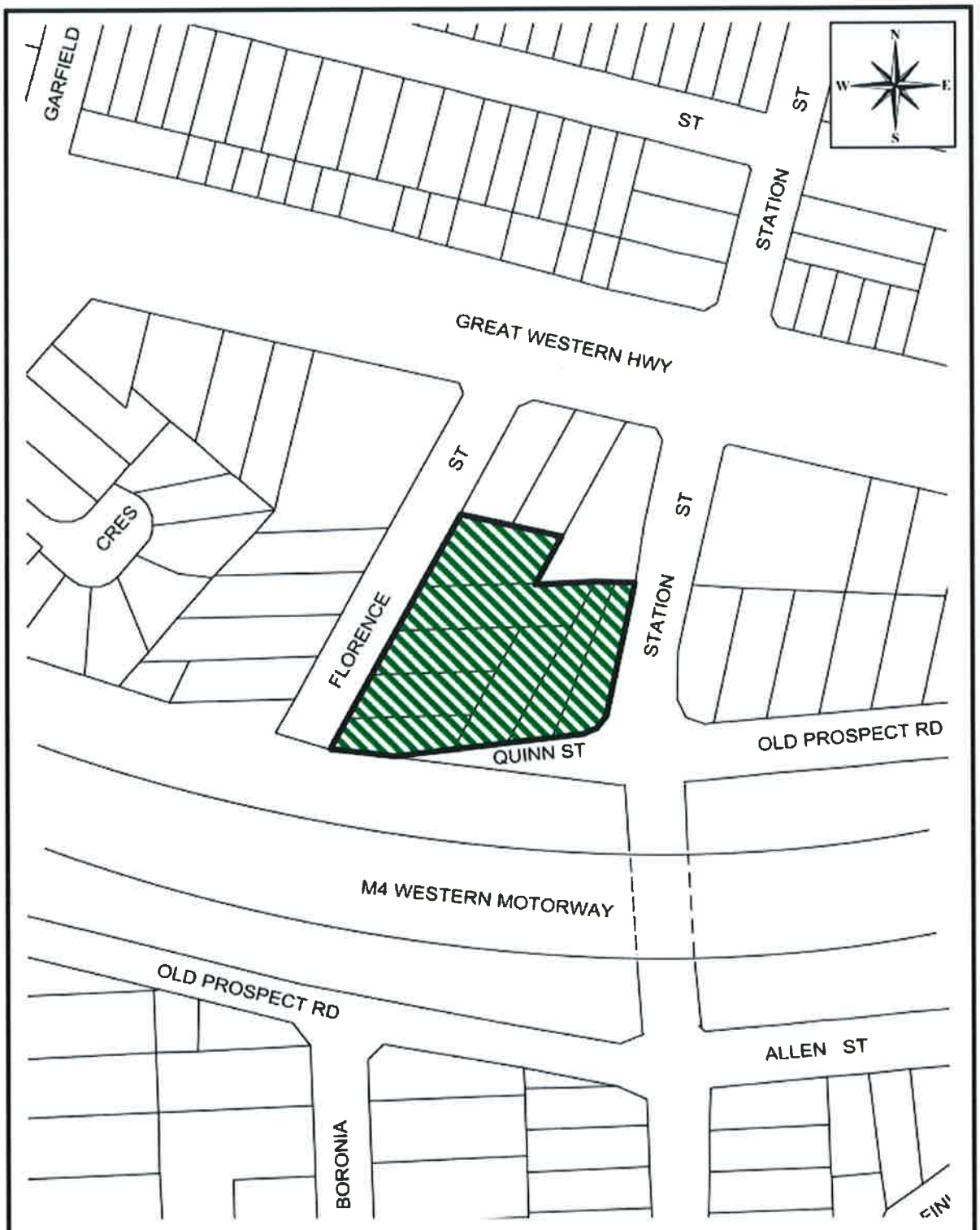
The primary purpose of providing an eastbound only link is to eliminate the potential for a "rat-run" for traffic that would typically turn left at the Great Western Highway. The proposed cul-de-sac also facilitates the existing u-turn movement that is quite prevalent in Quinn Street. These traffic arrangements are discussed and illustrated in Chapter 3 of this report.

The purpose of this report is to assess the traffic and parking implications of the development proposal.



Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

LOCATION
FIGURE 1



Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

SITE
FIGURE 2


SITE PLAN
1-9 FLORENCE STREET
19-23 QUINN STREET
SOUTH WENTWORTHVILLE
CLIENT MACKENZIE ARCHITECTS
1882
SHT 1
TITLE DESCRIPTION
LOTS 17-20 DP8773
LOTS A&B DP376698
LOT 2 DP 516861
LOT 19 DP793928
L.G.A HOLROYD
GEOGRAPHIC SOLUTIONS
SURVEYORS
8 TRICKETT ROAD
CRONULLA
NSW 2230
Tel (02) 9501 5207
Email geographicsolns@optusnet.com.au
SCALE 1:200
DATUM AHD
ORIGIN SSM 164001
SURVEYED GM & CS
DRAWN GM
DATE 15/10/2012
FLORENCE STREET
QUINN STREET
WESTERN FREEWAY
A
B
C
D
E
F

2. PARKING ASSESSMENT

Council Car Parking Requirement

The development site is within Zone B6 under Part 2 of the Holroyd LEP 2013.

Table 3.1 in Part A of the Holroyd Development Control Plan 2013 (effective 5th August 2013) specifies the following car parking requirements that are applicable to the proposed development site:

	Bedroom per dwelling:	Minimum Spaces Required	Maximum Spaces Required
Residential flat buildings, dwellings in B1, B2 and B6 business zones (including shop top housing)	Studio / 1 bedroom	0.8	1
	2 bedroom	1	1.5
	3 bedroom	1.2	2
	4+ bedroom	1.5	2
	Visitor / dwelling	0.2	0.5

	Measure	Minimum Spaces Required	Maximum Spaces Required
Commercial (including retail premises, business premises and office premises) in all other B1, B2 and B6 zoned areas.	Ground Floor – Leasable GFA	1 per $20m^2$	1 per $10m^2$
	Above Ground Floor – Leasable GFA	1 per $40m^2$	1 per $15m^2$

Application of the Council DCP requirements to the proposed development yields a minimum parking requirement of 208 spaces and maximum requirement of 352 spaces calculated as follows:

Minimum parking requirement

BUILDING A

6 x 1 bedroom units @ 0.8 space per dwelling	4.8 spaces
48 x 2 bedroom units @ 1 space per dwelling	48.0 spaces
Total Residential	*52.8 spaces (say 53 spaces)*

Resident Visitors 54 units @ 0.2 space per dwelling	10.8 spaces (say 11 spaces)
Building A Minimum Total	**63.6 spaces (say 64 spaces)**

BUILDING B

35 x 2 bedroom units @ 1 space per dwelling	35.0 spaces
Total Residential	*35.0 spaces*
Resident Visitors 35 units @ 0.2 space per dwelling	7.0 spaces
Building B Minimum Total	**42.0 spaces**

BUILDING C

15 x 1 bedroom units @ 0.8 space per dwelling	12.0 spaces
50 x 2 bedroom units @ 1 space per dwelling	50.0 spaces
Total Residential	*62.0 spaces*
Resident Visitors 65 units @ 0.2 space per dwelling	13.0 spaces
Commercial 536.99m^2 @ 1 space per 20m^2 GFA	26.8 spaces (say 27 spaces)
Building C Minimum Total	**101.8 spaces (say 102 spaces)**

COMBINED DEVELOPMENT

Total Residential	149.8 spaces (say 150 spaces)
Total Resident Visitors	30.8 spaces (say 31 spaces)
Commercial	26.8 spaces (say 27 spaces)
Total Minimum Parking Requirement	**207.4 spaces (say 208 spaces)**

Maximum parking requirement

BUILDING A

6 x 1 bedroom units @ 1 space per dwelling	6.0 spaces
48 x 2 bedroom units @ 1.5 spaces per dwelling	72.0 spaces
Total Residential	*78.0 spaces*
Resident Visitors 54 units @ 0.5 space per dwelling	27.0 spaces
Building A Maximum Total	**105.0 spaces**

BUILDING B

35 x 2 bedroom units @ 1.5 spaces per dwelling	52.5 spaces (say 53 spaces)
Total Residential	*52.5 spaces*
Resident Visitors 35 units @ 0.5 space per dwelling	17.5 spaces (say 17 spaces)
Building B Maximum Total	**70.0 spaces**

BUILDING C

15 x 1 bedroom units @ 1 space per dwelling	15.0 spaces

50 x 2 bedroom units @ 1.5 spaces per dwelling	75.0 spaces
Total Residential	*90.0 spaces*
Resident Visitors 65 units @ 0.5 space per dwelling	32.5 spaces (say 33 spaces)
Commercial 536.99m^2 @ 1 space per 10m^2 GFA	53.7 spaces (say 54 spaces)
Building C Maximum Total	**176.2 spaces (say 177 spaces)**
COMBINED DEVELOPMENT	
Total Residential	220.5 spaces (say 221 spaces)
Total Resident Visitors	77.0 spaces
Commercial	53.7 spaces (say 54 spaces)
Total Minimum Parking Requirement	**351.2 spaces (say 352 spaces)**

The proposed development contains 210 off-street car parking spaces comprising 152 resident spaces, 31 resident visitor spaces and 27 commercial spaces. This parking provision clearly satisfies the minimum DCP requirement of 208 spaces.

As noted in the Introduction of this report, it is proposed that 2 of the commercial parking spaces be signposted for courier vehicles. As the floorspace will not be occupied by a retailer, it is unlikely that delivery vehicles larger than a standard courier van (B99 vehicle) will be required to access the site. This approach is consistent with a recently approved development at 29-33 Joyce Street, Pendle Hill (DA 2013/378) in which 2 of the commercial parking spaces were allocated to courier parking.

Car Park Compliance

The proposed car parking areas and access ramps have been designed to generally satisfy the following requirements of the Australian Standard AS/NZS2890.1:2004 – *"Off-street car parking"*:

- *Class 1A* long-stay parking spaces have a minimum length of 5.5m and width of 2.4m
- An additional 0.3m has been provided for spaces adjacent to a wall or obstruction
- The access/manoeuvring aisles satisfy the minimum requirement of 5.8m
- Pavement cross-falls at parking spaces do not exceed 5% (1 in 20) in any direction
- Columns have been located in accordance with Clause 5.2 of the Standard

- The two way access ramp exceeds the minimum width requirement of 6.1m wall to wall
- Maximum ramp grades do not exceed 25% (1 in 4)
- Ramp transitions do not exceed 12.5% (1 in 8) over a distance of 2.0m for crests
- Ramp transitions do not exceed 15.0% (1 in 6.7) over a distance of 2.0m for sags
- A minimum headroom clearance of 2.2m has been provided throughout the basement carpark
- Pedestrian sight lines in accordance with Figure 3.3 of the Standard have been provided

The disabled parking spaces have been designed in accordance with the Australian Standard AS/NZS2890.6:2009 – "Off-street parking for people with disabilities" as follows:

- A 5.4m long x 2.4m wide dedicated (non-shared) parking space (Clause 2.2)
- An adjacent shared area that is also 5.4m long x 2.4m wide (Clause 2.2)
- A 2.4m long x 2.4m wide shared area that is located within the access aisle (not marked) (Clause 2.2)
- A minimum headroom of 2.5m above the disabled spaces (Clause 2.4)
- Pavement cross-falls in disabled spaces do not exceed 2.5% (1 in 40) in any direction (Clause 2.3)

Council Bicycle Parking Requirement

Table 3.1 in Part A of the Holroyd Development Control Plan 2013 (effective 5th August 2013) specifies the following bicycle parking requirements that are applicable to the proposed development site:

Use/Location	Measure	Minimum Spaces	Maximum Spaces
Ground Floor – business zones	GLFA: Employee	1 per $300m^2$	Unlimited
	GLFA: Visitor	1 per $2500m^2$	
Residential Flat Building	Unit:		
	Studio	None	
	1 bedroom	0.5	
	2 bedroom	0.5	
	3+ bedroom	0.5	
	+ Visitors per unit	0.1	

Application of the Council DCP requirements to the proposed development yields a minimum bicycle parking requirement of 95 bicycle spaces calculated as follows:

Minimum bicycle parking requirement

BUILDING A	
6 x 1 bedroom units @ 0.5 space per dwelling	3.0 spaces
48 x 2 bedroom units @ 0.5 space per dwelling	24.0 spaces
Total Residential	*27.0 spaces*
Resident Visitors 54 units @ 0.1 space per dwelling	5.4 spaces (say 5 spaces)
Building A Minimum Total	**32.4 spaces (say 32 spaces)**
BUILDING B	
35 x 2 bedroom units @ 0.5 space per dwelling	17.5 spaces (say 17 spaces)
Total Residential	*17.5 spaces (say 17 spaces)*
Resident Visitors 35 units @ 0.1 space per dwelling	3.5 spaces (say 4 spaces)
Building B Minimum Total	**21.0 spaces (say 21 spaces)**
BUILDING C	
15 x 1 bedroom units @ 0.5 space per dwelling	7.5 spaces (say 8 spaces)
50 x 2 bedroom units @ 0.5 space per dwelling	25.0 spaces
Total Residential	*32.5 spaces (say 33 spaces)*
Resident Visitors 65 units @ 0.1 space per dwelling	6.5 spaces (say 7 spaces)
Commercial 592.32m^2 @ 1 space per 300m^2 GFA	2.0 employee spaces
Commercial 592.32m^2 @ 1 space per 2500m^2 GFA	0.2 visitor spaces (say 0 spaces)
Building C Minimum Total	**41.2 spaces (say 42 spaces)**
COMBINED DEVELOPMENT	
Total Residential	77.0 spaces
Total Resident Visitors	15.4 spaces (say 16 spaces)
Commercial Tenants	2.0 spaces
Total Minimum Parking Requirement	**94.4 spaces (say 95 spaces)**

The proposed development contains 100 bicycle parking spaces which clearly satisfies the minimum DCP requirement of 95 bicycle spaces.

In the circumstances, it can be concluded that the proposed development has no unacceptable parking implications.

3. TRAFFIC ASSESSMENT

Road Hierarchy

The classifications assigned to the road network serving the site by the RMS (Figure 3) identify the following classified State and Regional Roads:

State Road	**Regional Road**
Western Motorway (M4)	Station Street – Centenary Road
Great Western Highway	
Cumberland Highway	

As can be seen, the Great Western Highway is classified by the RMS as a *State Road* performing an arterial road function through the area. It generally carries three (3) travel lanes in each direction with additional turning lanes at key intersections and traffic signals. The median island on the Great Western Highway to the west of Station Street restricts traffic to left in and left out of side streets, including Florence Street.

The Station Street – Centenary Road link is a classified *Regional Road* and provides a key north-south road link through the area. The section of Station Street between the Great Western Highway and Quinn Street contains a narrow median island that restricts all right turn movements to/from Aldi on the eastern side of Station Street and to/from Hungary Jacks on the western side of Station Street.

Florence Street is an unclassified *Local Road* with a primary function of providing access to properties along its 150m length. It carries a single traffic lane in each direction with kerbside parking permitted along both sides of the road. As noted above, all movements to/from the Great Western Highway are restricted to left in/left out only.

Quinn Street is also an unclassified local road that extends for a distance of 60m from Station Street. In addition to providing vehicular access to Nos 21 and 23 Quinn Street, the roadway is continually used by southbound traffic on Station Street to undertake a u-turn and head back towards the Great Western Highway or the Hungary Jacks access driveway. While the

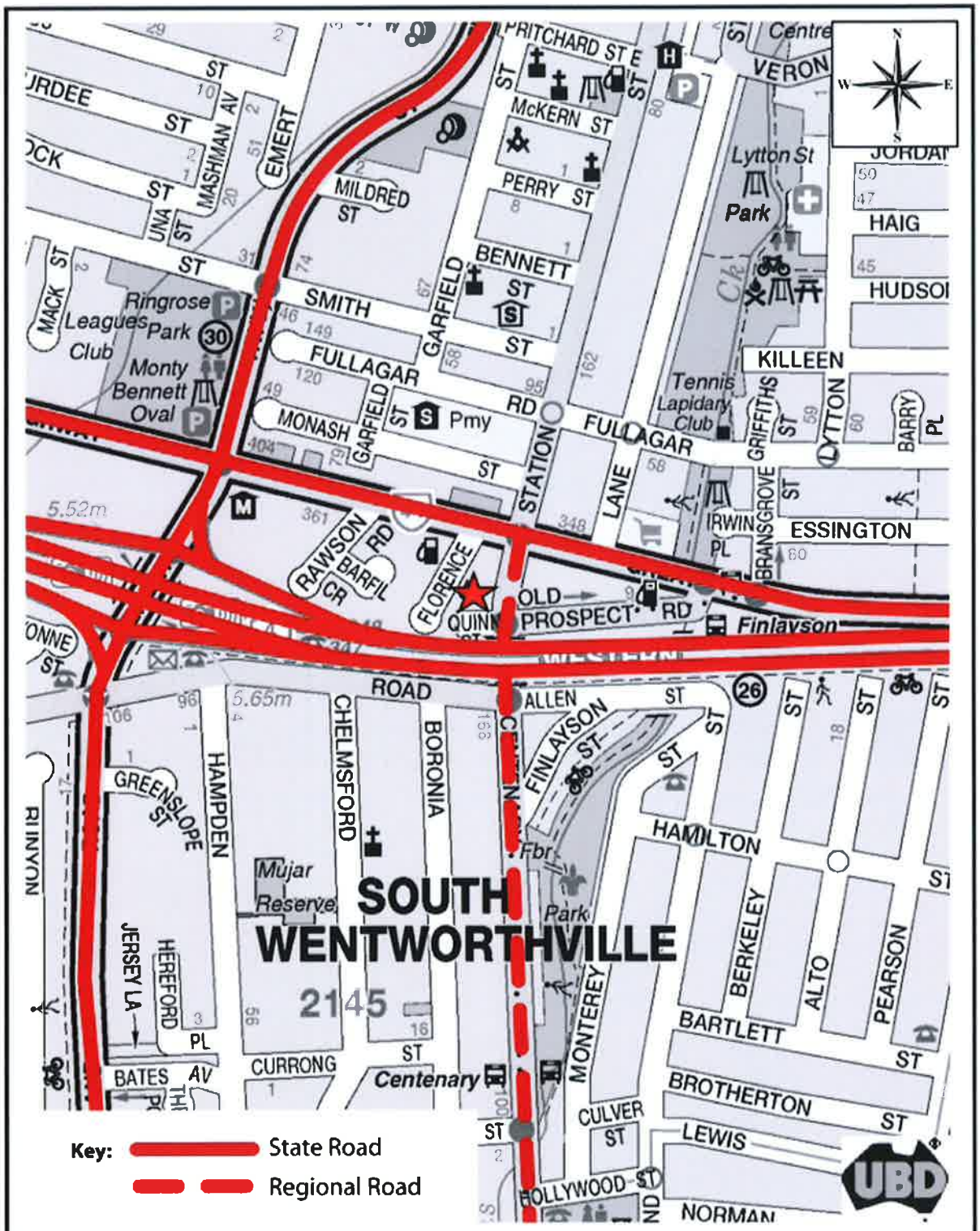
intersection of Station Street and Quinn Street is signalised, traffic turning left from Quinn Street into Station Street can *turn on red*. This feature of the signals facilitates the u-turn movement in Quinn Street.

Old Prospect Road is also an unclassified *local road* that operates on a one-way eastbound basis from Station Street to the Great Western Highway. All eastbound traffic must turn left onto the Great Western Highway.

As can be seen in the aerial photograph below, Old Prospect Road incorporates a section of the *Parramatta to Liverpool T-way* (Route T80). During peak periods, buses generally travel on the T-way network every 5-10 minutes in each direction. The closest T-way bus stop to the site is located at the eastern end of Old Prospect Road, a walk of approximately 350m from the site.

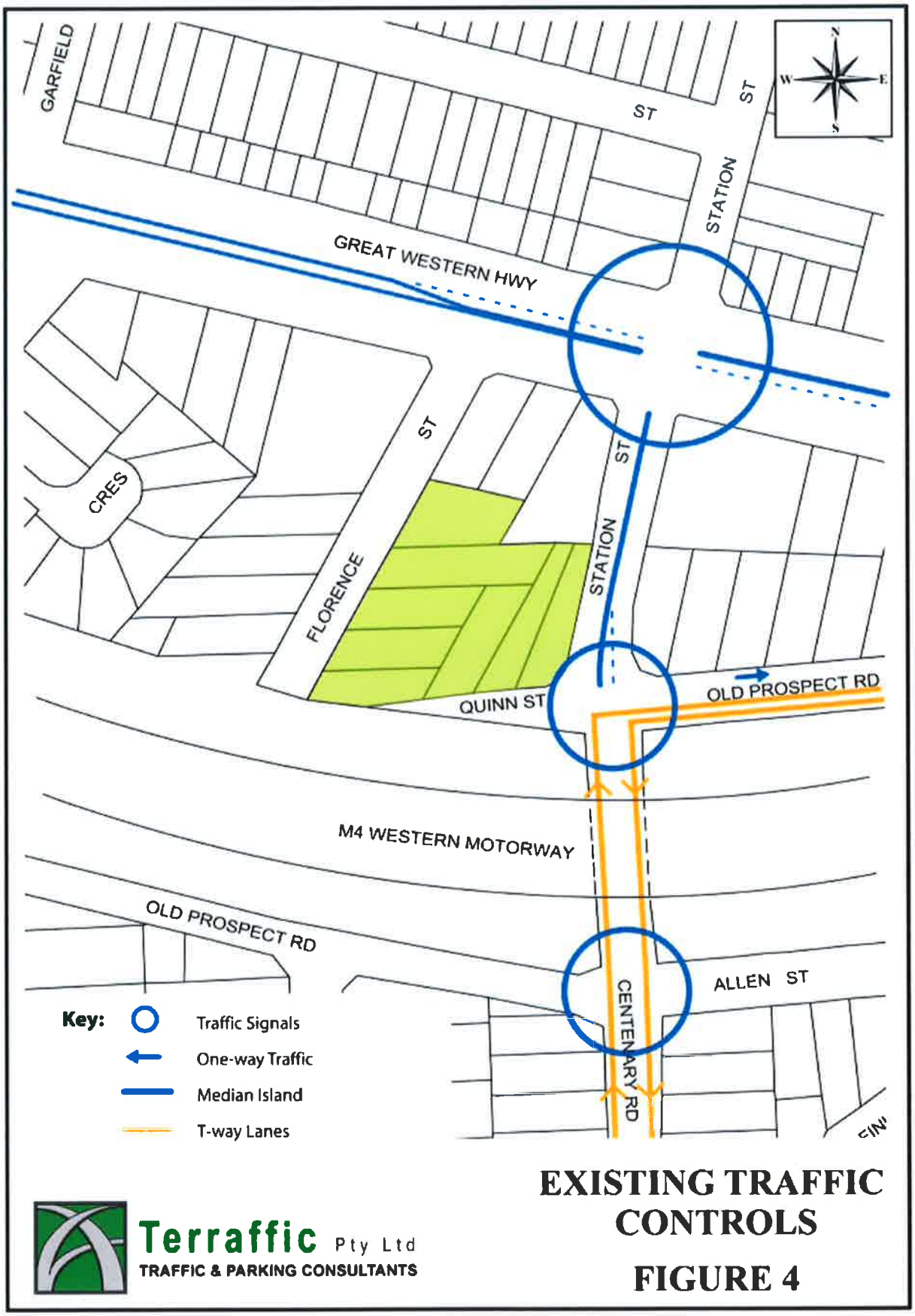
Aerial photograph of the site and surrounding road network

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4.



ROAD HIERARCHY

FIGURE 3


GARFIELD
ST
ST
STATION
GREAT WESTERN HWY
CRES
FLORENCE
ST
ST
STATION
QUINN ST
OLD PROSPECT RD
M4 WESTERN MOTORWAY
OLD PROSPECT RD
ALLEN ST
CENTENARY RD
Key:
Traffic Signals
One-way Traffic
Median Island
T-way Lanes
Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS
EXISTING TRAFFIC CONTROLS
FIGURE 4

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken at the following intersections:

1. The Great Western Highway and Florence Street
2. Station Street and Quinn Street/Old Prospect Road
3. Florence Street and the Hungry Jacks access driveway

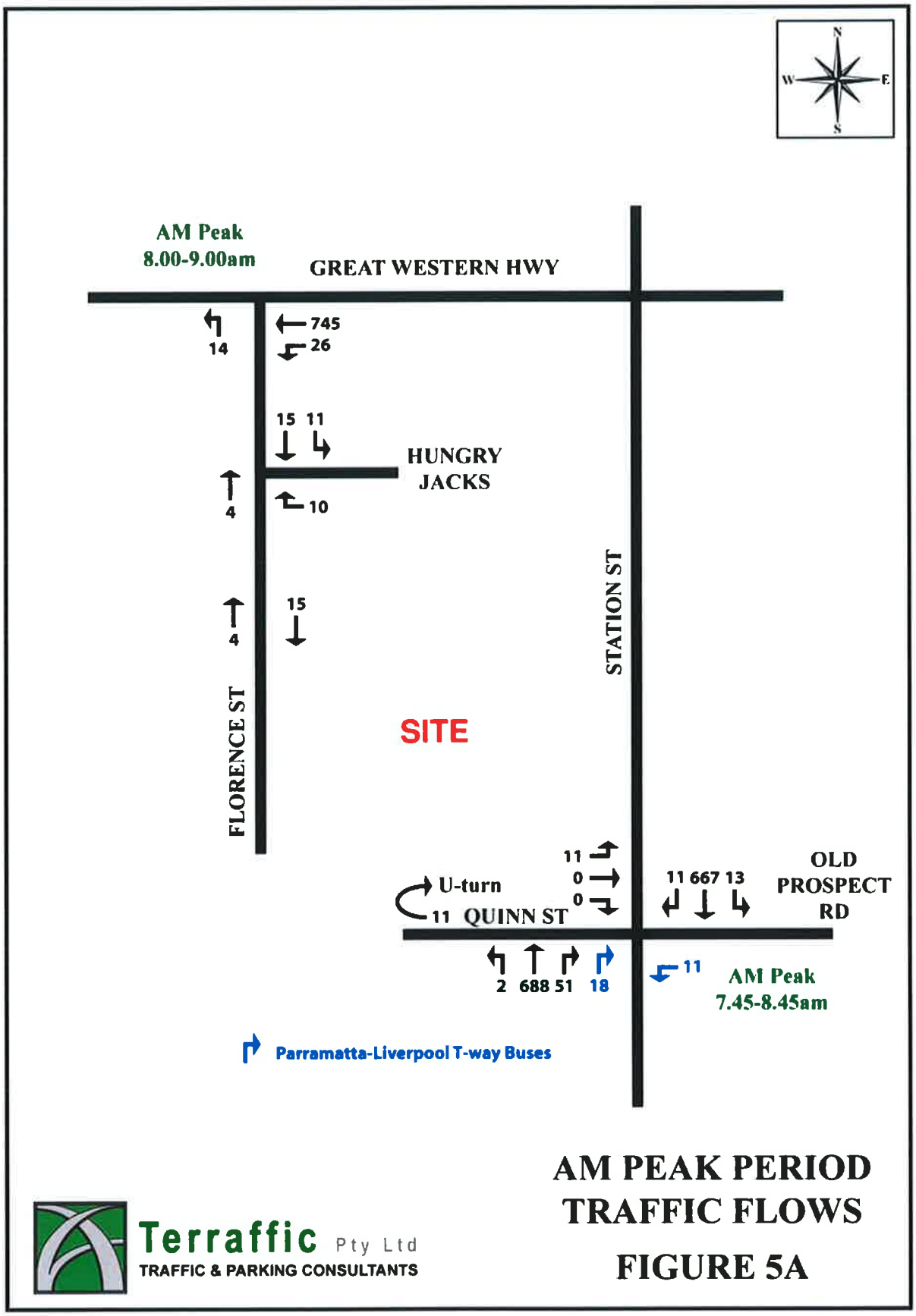
The surveys were carried out as part of this assignment between 7.00-9.00am and 4.00-6.00pm on Wednesday 23rd October 2013. The results of the traffic surveys are reproduced in full in Appendix A and illustrated on Figures 5A and 5B revealing that:

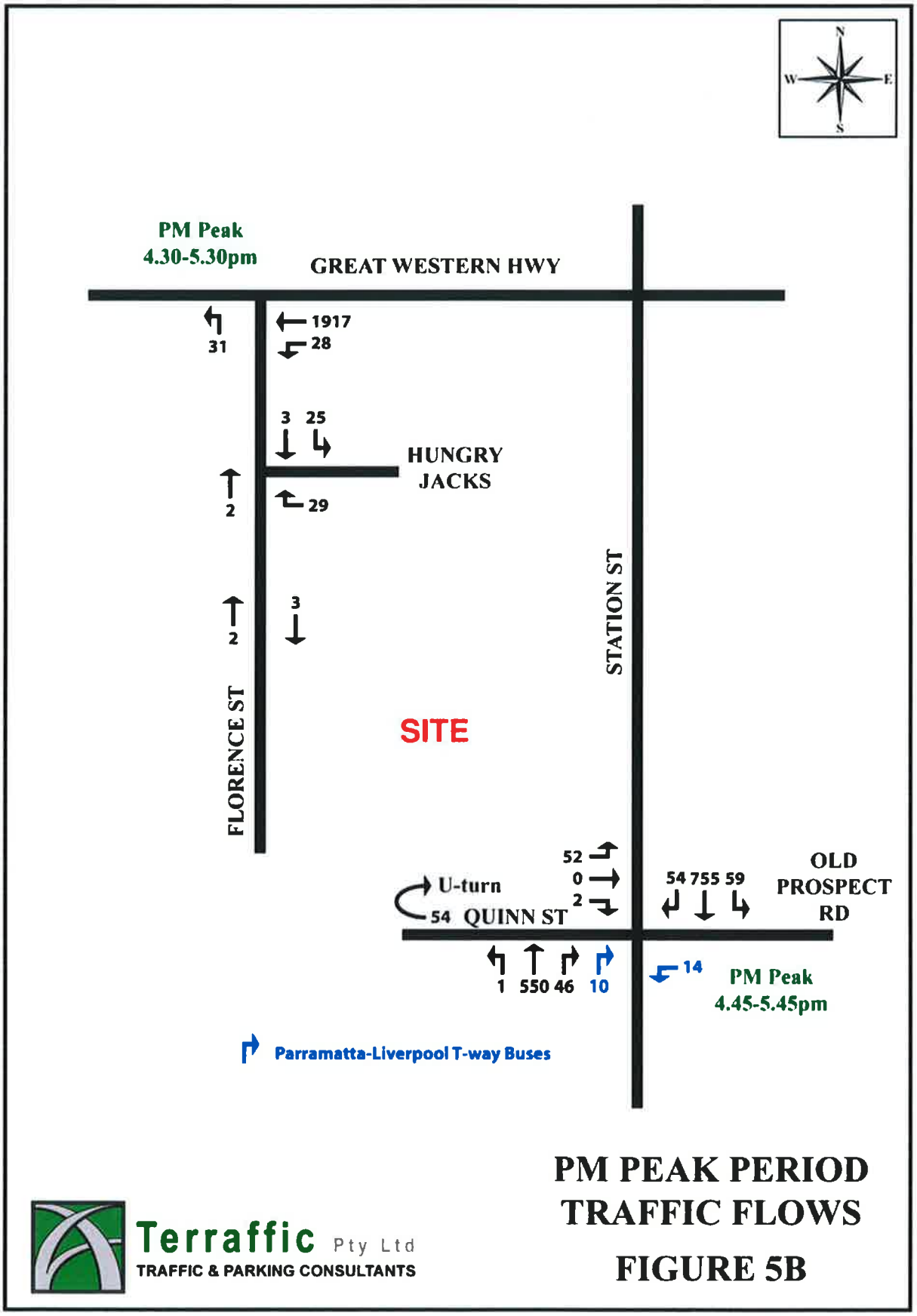
- the morning peak period occurs at the Station Street/Quinn Street intersection between 7.45-8.45am. At that time, 11 vehicles turned right into Quinn Street, performed the u-turn and then turned left back onto Station Street to head north

- the morning peak period occurs at the Great Western Highway/Florence Street intersection between 8.00-9.00am. At that time, there were 40 vehicles per hour (vph) on Florence Street comprising 26vph heading southbound and 14vph heading northbound. Of those 40 vehicles, 21 were generated by Hungry Jacks

- the evening peak period occurs at the Station Street/Quinn Street intersection between 4.45-5.45pm. At that time, 54 vehicles turned right into Quinn Street, performed the u-turn and then turned left back onto Station Street to head north. This equates to almost 1 car per minute making a u-turn in Quinn Street

- the evening peak period occurs at the Great Western Highway/Florence Street intersection between 4.30-5.30pm. At that time, there were 59vph on Florence Street comprising 28vph heading southbound and 31vph heading northbound. Of those 59 vehicles, 54 were generated by Hungry Jacks


N
W
E
S
AM Peak
8.00-9.00am
GREAT WESTERN HWY
14
745
26
15 11
HUNGRY
JACKS
4
10
4
15
FLORENCE ST
STATION ST
SITE
11
0
0
U-turn
11 QUINN ST
11 667 13
OLD
PROSPECT
RD
2 688 51 18
11
AM Peak
7.45-8.45am
Parramatta-Liverpool T-way Buses
AM PEAK PERIOD
TRAFFIC FLOWS
FIGURE 5A
Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS



PM PEAK PERIOD TRAFFIC FLOWS

FIGURE 5B

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Projected Traffic Generation

An indication of the traffic generation potential of the development proposal is provided by reference to the Roads and Traffic Authority's publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002).*

The RTA *Guidelines* are based on extensive surveys of a wide range of land uses and nominates the following traffic generation rates which are applicable to the proposed development:

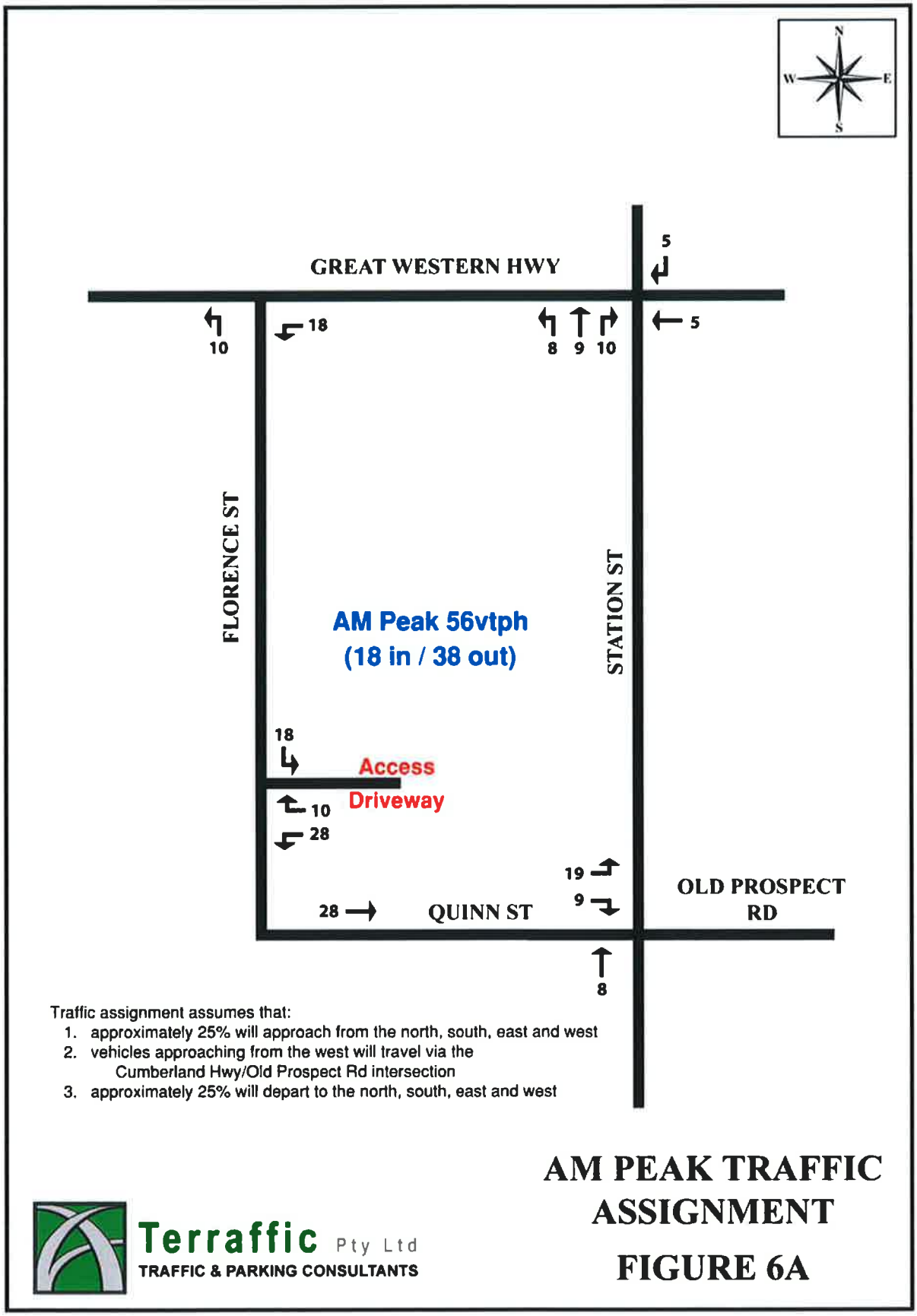
High Density Residential Flat Buildings	
Metropolitan Sub-Regional Centres	0.29 peak hour vehicle trips per dwelling
Commercial Office	2.0 peak hour vehicle trips per 100m^2 GFA

Traffic Generating Potential of Proposed Development

Application of the above traffic generation rates to the components of the proposed development yields a traffic generation potential of approximately 56 vehicle trips per hour (vtph) during the AM and PM peak periods as set out below:

AM Peak Period	
154 apartments @ 0.29vtph per dwelling	45vtph (9 in / 36 out)
536.99m^2 Commercial Office @ 2vtph per 100m^2 GFA	11vtph (9 in / 2 out)
Total	**56vtph (18 in/ 38 out)**
PM Peak Period	
154 apartments @ 0.29vtph per dwelling	45vtph (36 in / 9 out)
536.99m^2 Commercial Office @ 2vtph per 100m^2 GFA	11vtph (2 in / 9 out)
Total	**56vtph (38 in/ 18 out)**

It should also be noted that the existing 8 dwellings on the site would have a traffic generating potential in the order of 8vtph. To that end, the additional traffic generated by the proposed development is approximately 48vtph. The assignment of traffic generated by the proposed development is illustrated on Figures 6A and 6B.



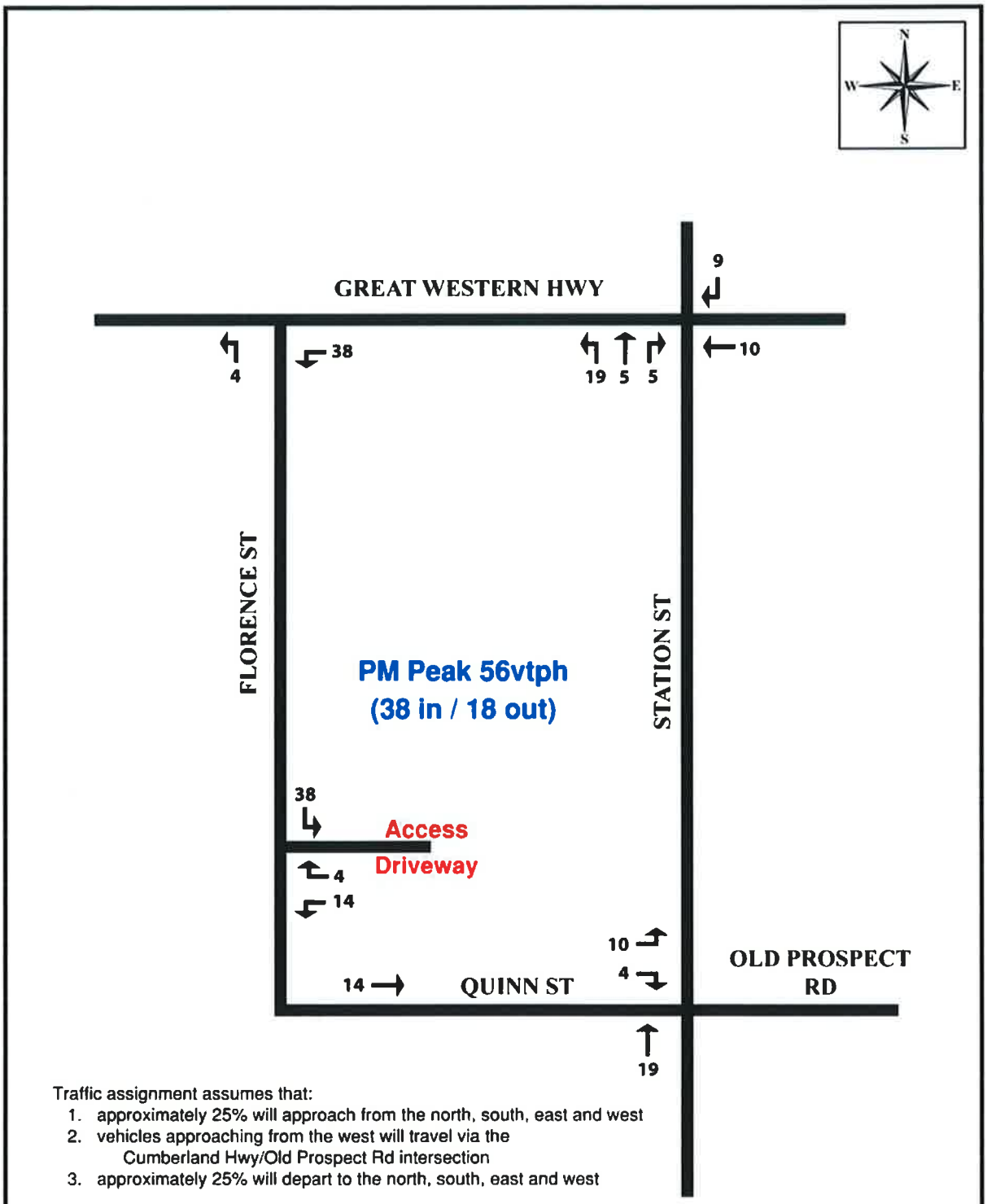
Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

AM PEAK TRAFFIC ASSIGNMENT

FIGURE 6A



Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west

PM PEAK TRAFFIC ASSIGNMENT

FIGURE 6B

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Traffic Implications – Road Network Capacity

The main traffic implications of the proposed development in terms of road network capacity concern the effect of the additional traffic demand generated by the proposed development on the operating performance of the Station Street/Quinn Street intersection and Great Western Highway/Florence Street intersection. That effect can be assessed using the SIDRA traffic model and criteria for interpreting the results of SIDRA analysis are set out on the schedule reproduced in the following pages.

The results of the SIDRA analysis of the operating performance of the Station Street/Quinn Street intersection under existing conditions and projected post-development traffic demand is set out in Table 3.1 and on the SIDRA MOVEMENT SUMMARY SHEETS reproduced in Appendix B. The SIDRA analysis reveals that the intersection operates satisfactorily under existing and projected post-development traffic demand.

The results of the SIDRA analysis of the operating performance of the Great Western Highway and Florence Street intersection under existing conditions and projected post-development traffic demand is set out in Table 3.2 and on the SIDRA MOVEMENT SUMMARY SHEETS reproduced in Appendix C. The SIDRA analysis reveals that the intersection will continue to operate at a satisfactory level of service with the injection of the projected post-development traffic demand.

In the circumstances, it can be concluded that the proposed development has no unacceptable traffic implications in terms of road network capacity.

Traffic-Related Environmental Effect

As the development site has direct vehicular access to the higher order road network, there is no need for traffic generated by the proposed development to travel on local residential streets.

In the circumstances, the proposed development will not have any unacceptable traffic implications in terms of traffic-related environmental effect.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF STATION ST AND QUINN ST / OLD PROSPECT RD, SOUTH WENTWORTHVILLE

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	PM	AM	PM
Level of Service		B	B	B	B
Degree of Saturation		0.757	0.901	0.767	0.901
Average Vehicle Delay (secs/veh)					
Station Street (south)	L	24.3	21.8	24.8	22.0
	T	16.1	13.6	16.6	13.8
	R	18.4	22.0	18.4	22.0
Old Prospect Rd (east)	L	8.2	8.2	8.2	8.2
	T	n/a	n/a	n/a	n/a
	R	n/a	n/a	n/a	n/a
Station Street (north)	L	23.3	40.8	23.3	40.8
	T	15.1	32.6	15.1	32.6
	R	31.9	28.1	32.0	28.9
Quinn Street (west)	L	14.4	17.4	17.6	14.7
	T	0.0	0.0	0.0	0.0
	R	14.4	17.4	17.6	14.7
TOTAL AVERAGE VEHICLE DELAY		**15.9**	**24.8**	**16.2**	**24.6**

TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF GREAT WESTERN HWY AND FLORENCE ST, SOUTH WENTWORTHVILLE					
Key Indicators		**Existing Traffic Demand**		**Projected Development Traffic Demand**	
		AM	**PM**	**AM**	**PM**
Level of Service		A	A	A	A
Degree of Saturation		0.101	0.254	0.103	0.257
Average Vehicle Delay (secs/veh)					
Florence Street (south)	L	8.3	9.8	8.3	9.8
Great Western Hwy (east)	L T	10.9 0.0	10.9 0.0	10.9 0.0	10.9 0.0
TOTAL AVERAGE VEHICLE DELAY		**0.5**	**0.3**	**0.9**	**0.5**

Proposed Quinn Street Extension

As noted in the Introduction of this report, Clause 2.2 in Part N of Holroyd Council's Development Control Plan requires a 15 metre connecting laneway between Florence Street and Quinn Street.

Following the site inspections and traffic surveys undertaken as part of this assessment, it was found that Quinn Street functions as a u-turn bay for traffic to head back along Station Street to the Great Western Highway. While the majority of this traffic was observed departing the Aldi carpark on the eastern side of Station Street, other vehicles were observed entering the Hungry Jacks carpark off Station Street.

Following discussions with Council's Traffic Engineer Mr Platon, it was determined that the 15m wide connecting laneway will comprise the following:

- A formalised cul-de-sac in Quinn Street located approximately 50m from Station St
- a 4m wide one-way eastbound roadway from Florence Street to the new cul-de-sac in Quinn Street
- a GIVE-WAY restriction for eastbound vehicles entering the cul-de-sac

The primary purpose of providing an eastbound only link is to:

1. enable residents on Florence Street access Station Street and conveniently head north, east or south. Those heading west can turn left onto the Highway from Florence Street

2. eliminate the potential for a *"rat-run"* for traffic that would typically turn left at the Great Western Highway from Station Street. A two-way roadway would not be in the best interests of residents in Florence Street or those in the developing areas to the west of the site.

It was also determined that ability to perform the u-turn movement should be retained, albeit in a controlled and safe manner. Should the ability to perform a u-turn be removed from Quinn Street, drivers will simply continue southerly towards Centenary Road and perform the manoeuvre on the road network to the south of the M4 Motorway.

A plan of the proposed Quinn Street extension is reproduced in Appendix D and will require the appropriate support of Council's Traffic Committee.

In the circumstances, it can be concluded that the proposed development has no unacceptable traffic implications.

Criteria for Interpreting Results of SIDRA Analysis

1. *Level of Service (LOS)*

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. *Average Vehicle Delay (AVD)*

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

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

3. *Degree of Saturation (DS)*

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

1 *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

APPENDIX A

TRAFFIC COUNT DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013

Lights

Time Per	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0715	7	91	0	1	0	0	0	137	13	0	0	0	249
0715 - 0730	5	110	0	0	0	0	0	138	11	0	0	0	264
0730 - 0745	1	112	1	1	0	0	0	155	6	1	0	0	277
0745 - 0800	3	164	3	3	0	0	0	210	6	0	0	0	389
0800 - 0815	3	174	1	1	0	0	0	147	7	0	0	0	333
0815 - 0830	2	181	2	3	0	0	1	157	18	0	0	0	364
0830 - 0845	5	146	5	4	0	0	1	169	20	0	0	0	350
0845 - 0900	14	153	10	11	0	0	0	142	14	0	0	0	344
Period End	40	1131	22	24	0	0	2	1255	95	1	0	0	2570

Buses

Time Per	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0715	0	0	0	0	0	0	0	1	3	3	0	0	7
0715 - 0730	0	0	0	0	0	0	0	0	4	1	0	0	5
0730 - 0745	0	1	0	0	0	0	0	0	5	4	0	0	10
0745 - 0800	0	0	0	0	0	0	0	1	5	3	0	0	9
0800 - 0815	0	1	0	0	0	0	0	1	2	1	0	0	5
0815 - 0830	0	0	0	0	0	0	0	1	7	5	0	0	13
0830 - 0845	0	1	0	0	0	0	0	2	4	2	0	0	9
0845 - 0900	0	1	0	0	0	0	0	0	1	4	0	0	6
Period End	0	4	0	0	0	0	0	6	31	23	0	0	64

Lights

Peak Time	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0800	16	477	4	5	0	0	0	640	36	1	0	0	1179
0715 - 0815	12	560	5	5	0	0	0	650	30	1	0	0	1263
0730 - 0830	9	631	7	8	0	0	1	669	37	1	0	0	1363
0745 - 0845	13	665	11	11	0	0	2	683	51	0	0	0	1436
0800 - 0900	24	654	18	19	0	0	2	615	59	0	0	0	1391
PEAK HOUR	13	665	11	11	0	0	2	683	51	0	0	0	1436

Buses

Peak Time	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0800	0	1	0	0	0	0	0	2	17	11	0	0	31
0715 - 0815	0	2	0	0	0	0	0	2	16	9	0	0	29
0730 - 0830	0	2	0	0	0	0	0	3	19	13	0	0	37
0745 - 0845	0	2	0	0	0	0	0	5	18	11	0	0	36
0800 - 0900	0	3	0	0	0	0	0	4	14	12	0	0	33
PEAK HOUR	0	2	0	0	0	0	0	5	18	11	0	0	36

Combined

Time Per	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0715	7	91	0	1	0	0	0	138	16	3	0	0	256
0715 - 0730	5	110	0	0	0	0	0	138	15	1	0	0	269
0730 - 0745	1	113	1	1	0	0	0	155	11	5	0	0	287
0745 - 0800	3	164	3	3	0	0	0	211	11	3	0	0	398
0800 - 0815	3	175	1	1	0	0	0	148	9	1	0	0	338
0815 - 0830	2	181	2	3	0	0	1	158	25	5	0	0	377
0830 - 0845	5	147	5	4	0	0	1	171	24	2	0	0	359
0845 - 0900	14	154	10	11	0	0	0	142	15	4	0	0	350
Period End	40	1135	22	24	0	0	2	1261	126	24	0	0	2634

Peds

Time Per	NORTH Station St	WEST Quinn St	SOUTH Station St	EAST Old Prospect Rd	TOT
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0700 - 0715	0	0	0	0	0
0715 - 0730	0	0	0	0	0
0730 - 0745	5	2	0	0	7
0745 - 0800	0	3	0	1	4
0800 - 0815	1	2	0	1	4
0815 - 0830	2	5	0	0	7
0830 - 0845	1	10	0	1	12
0845 - 0900	1	18	0	0	19
Period End	10	40	0	3	53

Combined

Peak Time	NORTH Station St			WEST Quinn St			SOUTH Station St			EAST Old Prospect Rd			TOT
	L	T	R	L	T	R	L	T	R	L	T	R	
0700 - 0800	16	478	4	5	0	0	0	642	53	12	0	0	1210
0715 - 0815	12	562	5	5	0	0	0	652	46	10	0	0	1292
0730 - 0830	9	633	7	8	0	0	1	672	56	14	0	0	1400
0745 - 0845	13	667	11	11	0	0	2	688	69	11	0	0	1472
0800 - 0900	24	657	18	19	0	0	2	619	73	12	0	0	1424
PEAK HOUR	13	667	11	11	0	0	2	688	69	11	0	0	1472

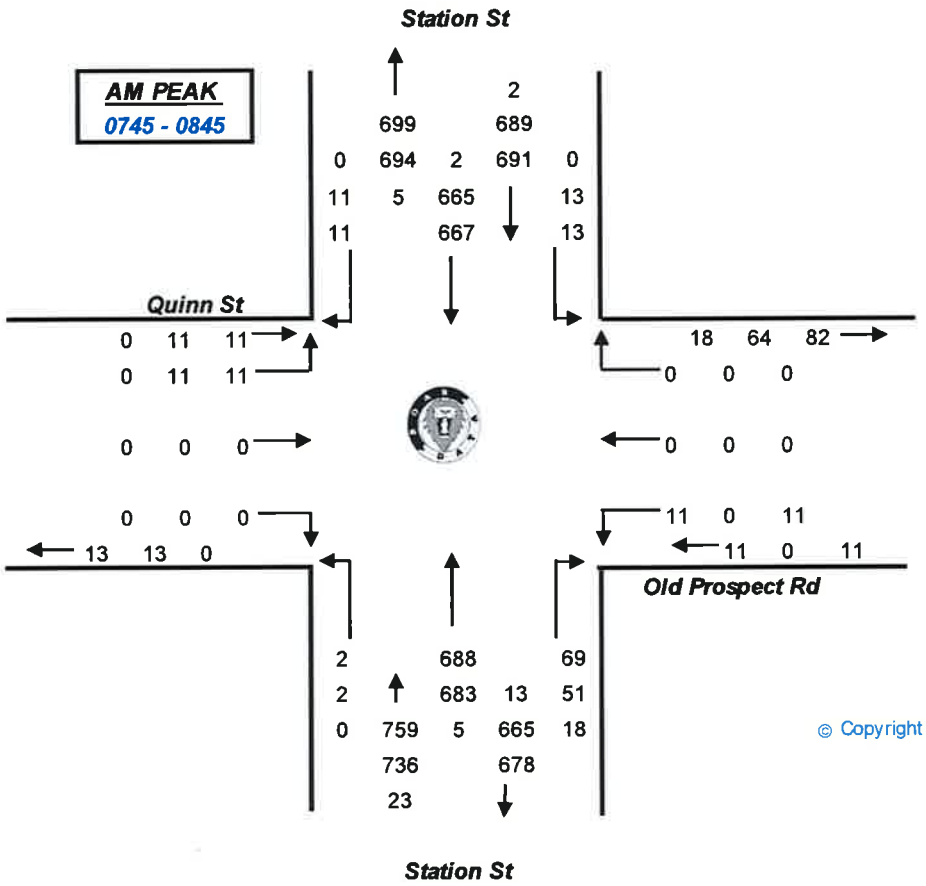
Peds

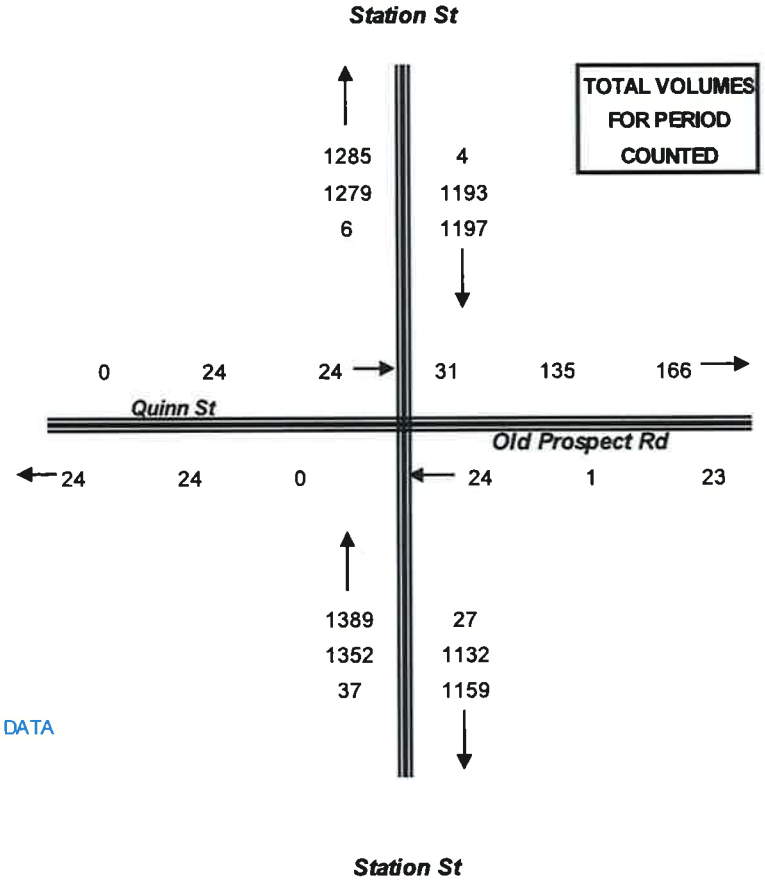
Peak Per	NORTH Station St	WEST Quinn St	SOUTH Station St	EAST Old Prospect Rd	TOT
	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	
0700 - 0800	5	5	0	1	11
0715 - 0815	6	7	0	2	15
0730 - 0830	8	12	0	2	22
0745 - 0845	4	20	0	3	27
0800 - 0900	5	35	0	2	42
PEAK HR	4	20	0	3	27

TERRAFFIC PTY LTD

R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013





TERRAFFIC PTY LTD

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	10	182	21	21	0	0	0	125	15	0	0	0	374
1615 - 1630	12	216	9	9	0	0	0	125	16	0	0	0	387
1630 - 1645	13	173	12	12	0	0	0	126	12	0	0	0	348
1645 - 1700	12	186	15	13	0	1	0	125	15	0	0	0	367
1700 - 1715	11	182	11	10	0	1	0	156	9	0	0	0	380
1715 - 1730	19	175	14	14	0	0	0	144	11	0	0	0	377
1730 - 1745	17	211	14	15	0	0	1	124	11	0	0	0	393
1745 - 1800	14	172	16	16	0	0	0	122	18	1	0	0	359
Period End	108	1497	112	110	0	2	1	1047	107	1	0	0	2985

Buses

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	0	0	0	0	0	0	0	4	3	0	0	7
1615 - 1630	0	0	0	0	0	0	0	1	4	5	0	0	10
1630 - 1645	0	0	0	0	0	0	0	0	3	3	0	0	6
1645 - 1700	0	1	0	0	0	0	0	0	4	2	0	0	7
1700 - 1715	0	0	0	0	0	0	0	1	1	5	0	0	7
1715 - 1730	0	0	0	0	0	0	0	0	5	4	0	0	9
1730 - 1745	0	0	0	0	0	0	0	0	0	3	0	0	3
1745 - 1800	0	1	0	0	0	0	0	0	2	3	0	0	6
Period End	0	2	0	0	0	0	0	2	23	28	0	0	55

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	47	757	57	55	0	1	0	501	58	0	0	0	1476
1615 - 1715	48	757	47	44	0	2	0	532	52	0	0	0	1482
1630 - 1730	55	716	52	49	0	2	0	551	47	0	0	0	1472
1645 - 1745	59	754	54	52	0	2	1	549	46	0	0	0	1517
1700 - 1800	61	740	55	55	0	1	1	546	49	1	0	0	1509
PEAK HOUR	59	754	54	52	0	2	1	549	46	0	0	0	1517

Heavies

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	1	0	0	0	0	0	1	15	13	0	0	30
1615 - 1715	0	1	0	0	0	0	0	2	12	15	0	0	30
1630 - 1730	0	1	0	0	0	0	0	1	13	14	0	0	29
1645 - 1745	0	1	0	0	0	0	0	1	10	14	0	0	26
1700 - 1800	0	1	0	0	0	0	0	1	8	15	0	0	25
PEAK HOUR	0	1	0	0	0	0	0	1	10	14	0	0	26

Combined

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	10	182	21	21	0	0	0	125	19	3	0	0	381
1615 - 1630	12	216	9	9	0	0	0	126	20	5	0	0	397
1630 - 1645	13	173	12	12	0	0	0	126	15	3	0	0	354
1645 - 1700	12	187	15	13	0	1	0	125	19	2	0	0	374
1700 - 1715	11	182	11	10	0	1	0	157	10	5	0	0	387
1715 - 1730	19	175	14	14	0	0	0	144	16	4	0	0	386
1730 - 1745	17	211	14	15	0	0	1	124	11	3	0	0	396
1745 - 1800	14	173	16	16	0	0	0	122	20	4	0	0	365
Period End	108	1499	112	110	0	2	1	1049	130	29	0	0	3040

Buses

	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1615	3	1	0	0	4
1615 - 1630	0	3	0	1	4
1630 - 1645	1	1	0	1	3
1645 - 1700	1	0	0	0	1
1700 - 1715	3	3	0	1	7
1715 - 1730	2	2	0	0	4
1730 - 1745	0	1	0	0	1
1745 - 1800	2	4	0	2	8
Period End	12	15	0	5	32

Combined

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	47	758	57	55	0	1	0	502	73	13	0	0	1506
1615 - 1715	48	758	47	44	0	2	0	534	64	15	0	0	1512
1630 - 1730	55	717	52	49	0	2	0	552	60	14	0	0	1501
1645 - 1745	59	755	54	52	0	2	1	550	56	14	0	0	1543
1700 - 1800	61	741	55	55	0	1	1	547	57	16	0	0	1534
PEAK HOUR	59	755	54	52	0	2	1	550	56	14	0	0	1543

Peds

	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1700	5	5	0	2	12
1615 - 1715	5	7	0	3	15
1630 - 1730	7	6	0	2	15
1645 - 1745	6	6	0	1	13
1700 - 1800	7	10	0	3	20
PEAK HR	6	6	0	1	13

TERRAFFIC PTY LTD

R.O.A.R DATA

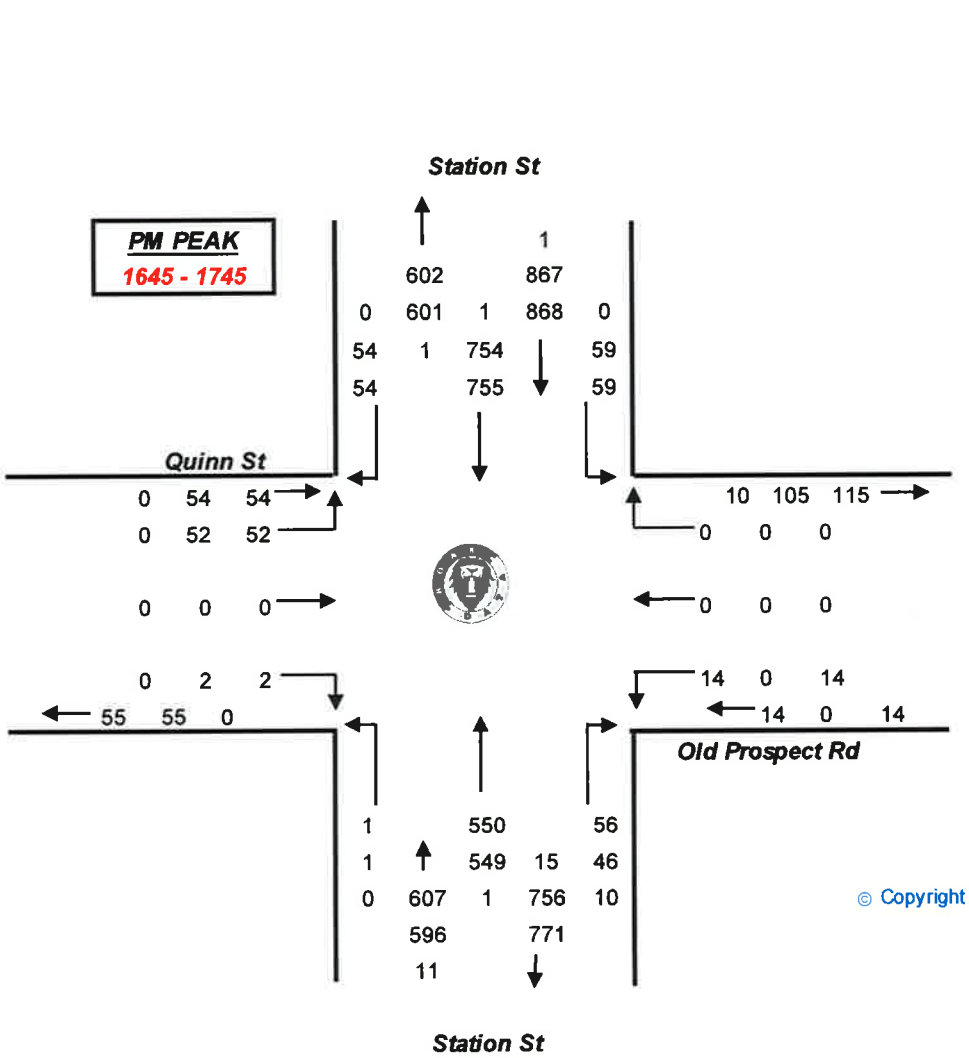
Reliable, Original & Authentic Results

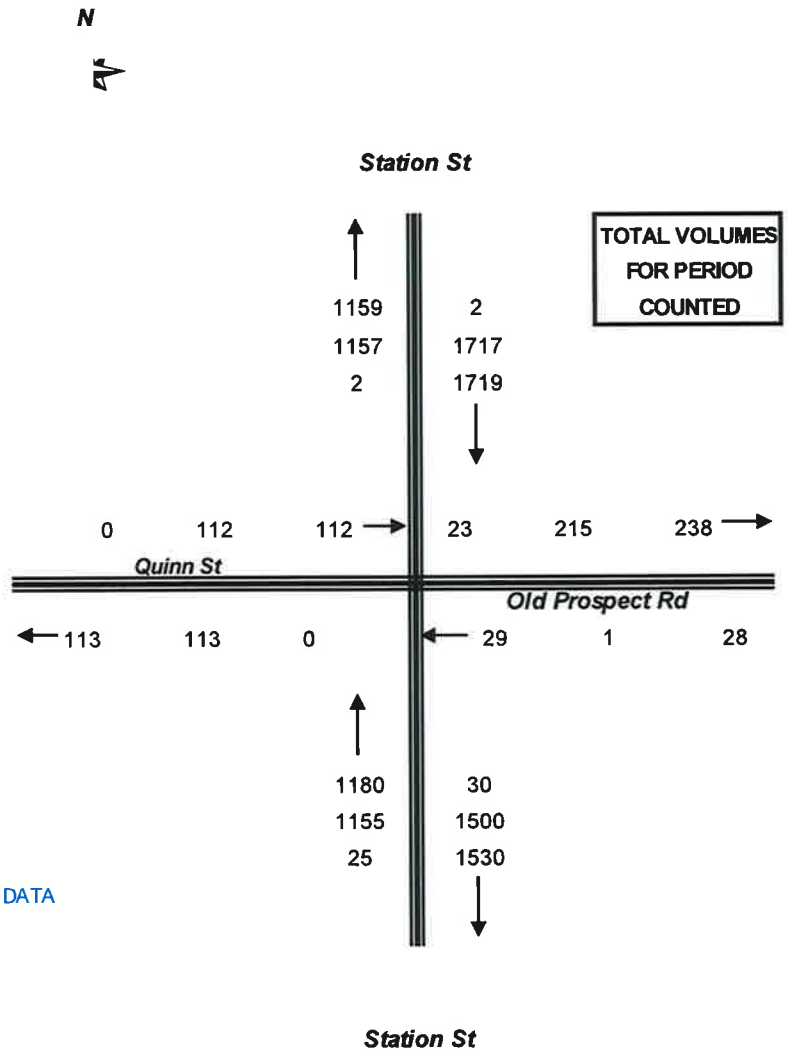
Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.

Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St

Day/Date : Wednesday 23rd October 2013





TERRAFFIC PTY LTD

R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Terraffic Pty. Ltd.

Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St

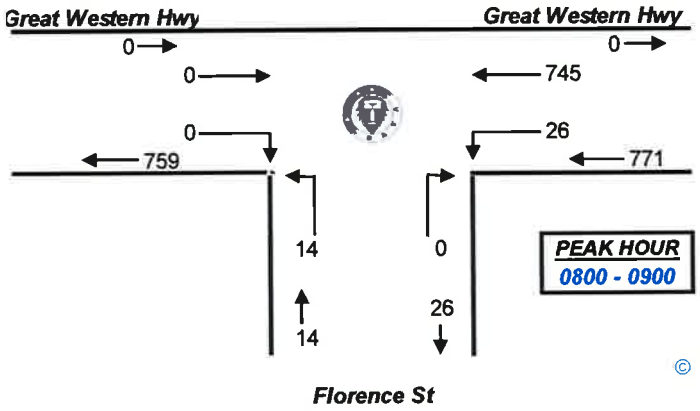
Day/Date : Wednesday 23rd October 2013

All Vehicles

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0715			3		5	134	142
0715 - 0730			0		0	128	128
0730 - 0745			0		2	219	221
0745 - 0800			0		1	191	192
0800 - 0815			4		3	155	162
0815 - 0830			2		8	198	208
0830 - 0845			4		7	161	172
0845 - 0900			4		8	231	243
Period End	**0**	**0**	**17**	**0**	**34**	**1417**	**1468**

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0800	0	0	3	0	8	672	683
0715 - 0815	0	0	4	0	6	693	703
0730 - 0830	0	0	6	0	14	763	783
0745 - 0845	0	0	10	0	19	705	734
0800 - 0900	0	0	14	0	26	745	785

PEAK HR	**0**	**0**	**14**	**0**	**26**	**745**	**785**

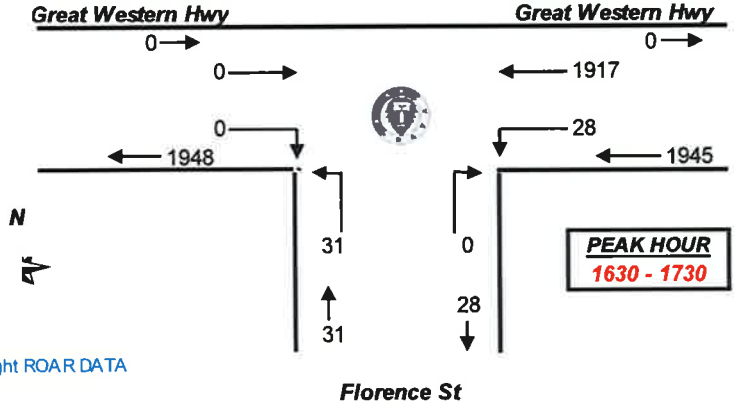


All Vehicles

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1615			10		5	478	493
1615 - 1630			18		10	367	395
1630 - 1645			7		8	462	477
1645 - 1700			2		9	480	491
1700 - 1715			13		5	452	470
1715 - 1730			9		6	523	538
1730 - 1745			12		7	416	435
1745 - 1800			10		6	398	414
Period End	**0**	**0**	**81**	**0**	**56**	**3576**	**3713**

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1700	0	0	37	0	32	1787	1856
1615 - 1715	0	0	40	0	32	1761	1833
1630 - 1730	0	0	31	0	28	1917	1976
1645 - 1745	0	0	36	0	27	1871	1934
1700 - 1800	0	0	44	0	24	1789	1857

PEAK HR	**0**	**0**	**31**	**0**	**28**	**1917**	**1976**



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Terraffic Pty. Ltd.

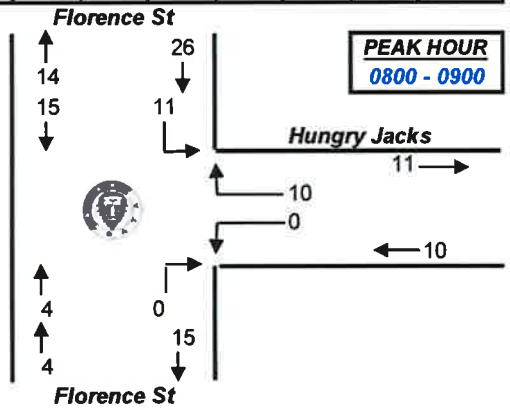
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St

Day/Date : Wednesday 23rd October 2013

All Vehicles

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Time Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOTAL**
0700 - 0715	4	1	3	0	0	0	**8**
0715 - 0730	0	0	0	0	0	0	**0**
0730 - 0745	1	1	0	0	0	0	**2**
0745 - 0800	1	0	0	0	0	0	**1**
0800 - 0815	1	2	2	0	0	2	**7**
0815 - 0830	3	5	2	0	0	0	**10**
0830 - 0845	5	2	3	0	0	1	**11**
0845 - 0900	6	2	3	0	0	1	**12**
Period End	**21**	**13**	**13**	**0**	**0**	**4**	**51**

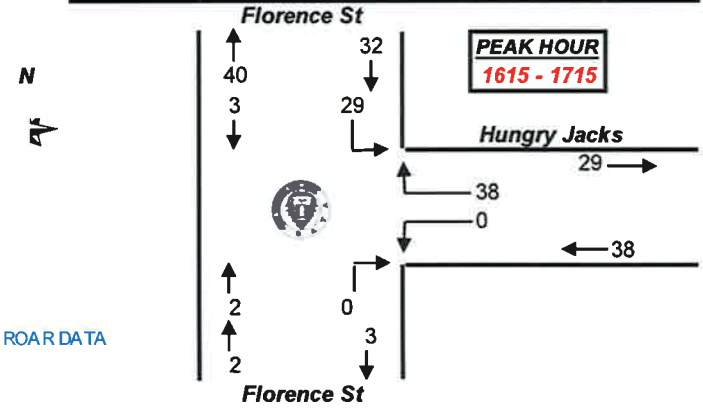
	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Peak Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOTAL**
0700 - 0800	6	2	3	0	0	0	**11**
0715 - 0815	3	3	2	0	0	2	**10**
0730 - 0830	6	8	4	0	0	2	**20**
0745 - 0845	10	9	7	0	0	3	**29**
0800 - 0900	15	11	10	0	0	4	**40**
PEAK HR	**15**	**11**	**10**	**0**	**0**	**4**	**40**



All Vehicles

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Time Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOTAL**
1600 - 1615	1	4	10	0	0	0	**15**
1615 - 1630	0	8	17	0	0	1	**26**
1630 - 1645	0	10	7	0	0	0	**17**
1645 - 1700	1	8	2	0	0	0	**11**
1700 - 1715	2	3	12	0	0	1	**18**
1715 - 1730	2	4	8	0	0	1	**15**
1730 - 1745	1	6	11	0	0	1	**19**
1745 - 1800	3	3	9	0	0	1	**16**
Period End	**10**	**46**	**76**	**0**	**0**	**5**	**137**

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Peak Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOTAL**
1600 - 1700	2	30	36	0	0	1	**69**
1615 - 1715	3	29	38	0	0	2	**72**
1630 - 1730	5	25	29	0	0	2	**61**
1645 - 1745	6	21	33	0	0	3	**63**
1700 - 1800	8	16	40	0	0	4	**68**
PEAK HR	**3**	**29**	**38**	**0**	**0**	**2**	**72**



TERRAFFIC PTY LTD

APPENDIX B

SIDRA MOVEMENT SUMMARY SHEETS FOR THE STATION STREET/QUINN STREET INTERSECTION

MOVEMENT SUMMARY

Site: Station St and Quinn St/Old Prospect Rd - Existing AM Peak

Existing AM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Station St											
1	L2	2	0.0	0.757	24.3	LOS B	20.6	147.9	0.80	0.74	39.4
2	T1	688	2.9	0.757	16.1	LOS B	20.6	147.9	0.80	0.74	39.4
3	R2	69	26.1	0.132	18.4	LOS B	0.7	5.0	0.70	0.73	39.8
Approach		759	5.0	0.757	16.4	LOS B	20.6	147.9	0.79	0.74	39.4
East: Old Prospect Rd											
4	L2	11	100.0	0.010	8.2	LOS A	0.0	0.0	0.00	2.30	48.9
Approach		11	100.0	0.010	8.2	NA	0.0	0.0	0.00	2.30	48.9
North: Station St											
7	L2	13	0.0	0.696	23.3	LOS B	19.6	140.4	0.79	0.72	40.1
8	T1	667	3.0	0.696	15.1	LOS B	19.6	140.4	0.79	0.72	40.1
9	R2	11	0.0	0.045	31.9	LOS C	0.3	2.3	0.77	0.70	29.2
Approach		691	2.9	0.696	15.5	LOS B	19.6	140.4	0.79	0.72	39.9
West: Quinn St											
10	L2	11	0.0	0.023	14.4	LOS A	0.2	1.3	0.55	0.68	38.3
12	R2	1	0.0	0.023	14.3	LOS A	0.2	1.3	0.55	0.68	38.3
Approach		12	0.0	0.023	14.4	LOS A	0.2	1.3	0.55	0.68	38.3
All Vehicles		1473	4.7	0.757	15.9	LOS B	20.6	147.9	0.79	0.74	39.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		24	15.3	LOS B			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Station St and Quinn St/Old Prospect Rd - Existing PM Peak

Existing PM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Station St											
1	L2	1	0.0	0.593	21.8	LOS B	14.3	102.6	0.72	0.64	41.5
2	T1	550	2.7	0.593	13.6	LOS A	14.3	102.6	0.72	0.64	41.5
3	R2	56	17.9	0.148	22.0	LOS B	0.9	6.0	0.81	0.73	37.3
Approach		607	4.1	0.593	14.4	LOS A	14.3	102.6	0.72	0.64	41.1
East: Old Prospect Rd											
4	L2	14	100.0	0.013	8.2	LOS A	0.0	0.0	0.00	2.30	48.9
Approach		14	100.0	0.013	8.2	NA	0.0	0.0	0.00	2.30	48.9
North: Station St											
7	L2	59	0.0	0.901	40.8	LOS C	36.0	257.1	0.89	1.03	30.1
8	T1	755	2.6	0.901	32.6	LOS C	36.0	257.1	0.89	1.03	30.1
9	R2	54	0.0	0.161	28.1	LOS B	1.5	10.7	0.73	0.76	30.7
Approach		868	2.3	0.901	32.9	LOS C	36.0	257.1	0.88	1.01	30.1
West: Quinn St											
10	L2	52	0.0	0.095	17.4	LOS B	1.1	7.4	0.61	0.73	36.3
12	R2	2	0.0	0.095	17.4	LOS B	1.1	7.4	0.61	0.73	36.3
Approach		54	0.0	0.095	17.4	LOS B	1.1	7.4	0.61	0.73	36.3
All Vehicles		1543	3.8	0.901	24.8	LOS B	36.0	257.1	0.80	0.87	34.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	6	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	6	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		12	22.9	LOS C			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Station St and Quinn St/Old Prospect Rd - Projected AM Peak

Projected AM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Station St											
1	L2	2	0.0	0.767	24.8	LOS B	21.3	152.6	0.81	0.75	39.0
2	T1	697	2.9	0.767	16.6	LOS B	21.3	152.6	0.81	0.75	39.0
3	R2	69	26.1	0.132	18.4	LOS B	0.7	5.0	0.70	0.73	39.8
Approach		768	4.9	0.767	16.8	LOS B	21.3	152.6	0.80	0.75	39.1
East: Old Prospect Rd											
4	L2	11	100.0	0.010	8.2	LOS A	0.0	0.0	0.00	2.30	48.9
Approach		11	100.0	0.010	8.2	NA	0.0	0.0	0.00	2.30	48.9
North: Station St											
7	L2	13	0.0	0.696	23.3	LOS B	19.6	140.4	0.79	0.72	40.1
8	T1	667	3.0	0.696	15.1	LOS B	19.6	140.4	0.79	0.72	40.1
9	R2	11	0.0	0.046	32.0	LOS C	0.3	2.3	0.77	0.70	29.1
Approach		691	2.9	0.696	15.5	LOS B	19.6	140.4	0.79	0.72	39.9
West: Quinn St											
10	L2	30	0.0	0.086	17.6	LOS B	0.8	5.3	0.59	0.70	36.2
12	R2	9	0.0	0.086	17.6	LOS B	0.8	5.3	0.59	0.70	36.2
Approach		39	0.0	0.086	17.6	LOS B	0.8	5.3	0.59	0.70	36.2
All Vehicles		1509	4.6	0.767	16.2	LOS B	21.3	152.6	0.78	0.75	39.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		24	15.3	LOS B			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SIDRA INTERSECTION 6

MOVEMENT SUMMARY

Site: Station St and Quinn St/Old Prospect Rd - Projected PM Peak

Projected PM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total 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: Station St											
1	L2	1	0.0	0.613	22.0	LOS B	15.0	107.5	0.73	0.65	41.4
2	T1	569	2.6	0.613	13.8	LOS A	15.0	107.5	0.73	0.65	41.4
3	R2	56	17.9	0.148	22.0	LOS B	0.9	6.0	0.81	0.73	37.3
Approach		626	4.0	0.613	14.6	LOS B	15.0	107.5	0.73	0.65	41.0
East: Old Prospect Rd											
4	L2	14	100.0	0.013	8.2	LOS A	0.0	0.0	0.00	2.30	48.9
Approach		14	100.0	0.013	8.2	NA	0.0	0.0	0.00	2.30	48.9
North: Station St											
7	L2	59	0.0	0.901	40.8	LOS C	36.0	257.2	0.89	1.03	30.1
8	T1	755	2.6	0.901	32.6	LOS C	36.0	257.2	0.89	1.03	30.1
9	R2	54	0.0	0.167	28.9	LOS C	1.6	10.9	0.75	0.76	30.4
Approach		868	2.3	0.901	32.9	LOS C	36.0	257.2	0.88	1.01	30.1
West: Quinn St											
10	L2	62	0.0	0.129	14.7	LOS B	1.1	7.8	0.59	0.73	38.1
12	R2	6	0.0	0.129	14.7	LOS B	1.1	7.8	0.59	0.73	38.1
Approach		68	0.0	0.129	14.7	LOS B	1.1	7.8	0.59	0.73	38.1
All Vehicles		1576	3.7	0.901	24.6	LOS B	36.0	257.2	0.80	0.87	34.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	6	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	6	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		12	22.9	LOS C			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX C

SIDRA MOVEMENT SUMMARY SHEETS FOR THE GREAT WESTERN HIGHWAY/FLORENCE STREET INTERSECTION

MOVEMENT SUMMARY

▽ Site: Great Western Hwy and Florence St - Existing AM Peak

Existing AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total 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: Florence St											
1	L2	14	0.0	0.012	8.3	LOS A	0.0	0.3	0.25	0.59	45.2
Approach		14	0.0	0.012	8.3	LOS A	0.0	0.3	0.25	0.59	45.2
East: Great Western Hwy											
4	L2	26	0.0	0.101	10.9	LOS A	0.0	0.0	0.00	0.16	76.2
5	T1	745	3.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.04	79.1
Approach		771	2.9	0.101	0.4	NA	0.0	0.0	0.00	0.04	79.0
All Vehicles		785	2.8	0.101	0.5	NA	0.0	0.3	0.00	0.05	78.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: Great Western Hwy and Florence St - Existing PM Peak

Existing PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total 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: Florence St											
1	L2	31	0.0	0.036	9.8	LOS A	0.1	1.0	0.45	0.67	44.3
Approach		31	0.0	0.036	9.8	LOS A	0.1	1.0	0.45	0.67	44.3
East: Great Western Hwy											
4	L2	28	0.0	0.254	10.9	LOS A	0.0	0.0	0.00	0.07	78.3
5	T1	1917	3.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.02	79.5
Approach		1945	3.0	0.254	0.2	NA	0.0	0.0	0.00	0.02	79.5
All Vehicles		1976	2.9	0.254	0.3	NA	0.1	1.0	0.01	0.03	78.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: Great Western Hwy and Florence St - Projected AM Peak

Projected AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Florence St											
1	L2	24	0.0	0.020	8.3	LOS A	0.1	0.6	0.24	0.60	45.2
Approach		24	0.0	0.020	8.3	LOS A	0.1	0.6	0.24	0.60	45.2
East: Great Western Hwy											
4	L2	45	0.0	0.103	10.9	LOS A	0.0	0.0	0.00	0.25	73.9
5	T1	745	3.0	0.103	0.0	LOS A	0.0	0.0	0.00	0.05	78.7
Approach		790	2.8	0.103	0.6	NA	0.0	0.0	0.00	0.06	78.4
All Vehicles		814	2.7	0.103	0.9	NA	0.1	0.6	0.01	0.08	76.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: Great Western Hwy and Florence St - Projected PM Peak

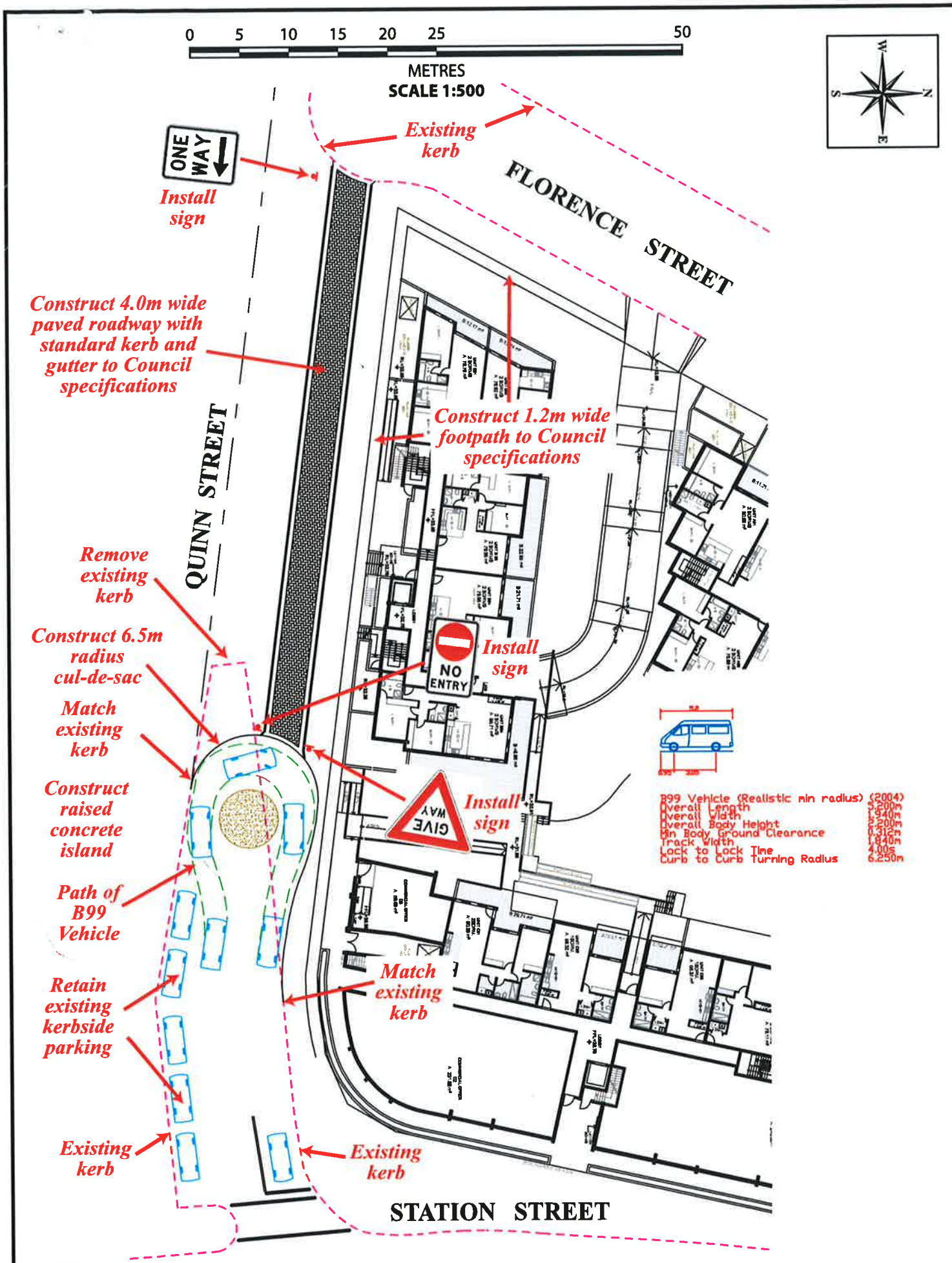
Projected PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Florence St											
1	L2	41	0.0	0.046	9.8	LOS A	0.2	1.3	0.45	0.68	44.3
Approach		41	0.0	0.046	9.8	LOS A	0.2	1.3	0.45	0.68	44.3
East: Great Western Hwy											
4	L2	47	0.0	0.257	10.9	LOS A	0.0	0.0	0.00	0.12	77.2
5	T1	1917	3.0	0.257	0.0	LOS A	0.0	0.0	0.00	0.03	79.3
Approach		1964	2.9	0.257	0.3	NA	0.0	0.0	0.00	0.03	79.2
All Vehicles		2005	2.9	0.257	0.5	NA	0.2	1.3	0.01	0.04	78.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

APPENDIX D

PROPOSED QUINN STREET ROADWAY EXTENSION



Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

PROPOSED QUINN STREET ROADWAY EXTENSION

PROPOSED MIXED USE DEVELOPMENT

1-9 FLORENCE STREET AND 19-23 QUINN STREET,

SOUTH WENTWORTHVILLE

Supplementary Traffic Assessment

25 May 2014

Ref: 13111

Prepared by

Terraffic Pty Ltd
Traffic and Parking Consultants

Suite 71, 23 MacMahon Street, Hurstville NSW 2220 – Tel : (02) 9570 5200 – Fax : (02) 9570 5300
Email: logan@terraffic.com.au Web: www.terraffic.com.au
Terraffic Pty Ltd ABN 83 078 415 871

TABLE OF CONTENTS

1. INTRODUCTION 1

2. TRAFFIC ASSESSMENT 7

APPENDICES

APPENDIX A — TRAFFIC COUNT DATA

APPENDIX B — SIDRA MOVEMENT SUMMARY SHEETS FOR THE STATION STREET/QUINN STREET INTERSECTION

APPENDIX C — SIDRA MOVEMENT SUMMARY SHEETS FOR THE GREAT WESTERN HIGHWAY/FLORENCE STREET INTERSECTION

LIST OF ILLUSTRATIONS

FIGURE 1 — LOCATION

FIGURE 2 — SITE

FIGURE 3 — ROAD HIERARCHY

FIGURE 4 — EXISTING TRAFFIC CONTROLS

FIGURE 5A — AM PEAK PERIOD TRAFFIC FLOWS

FIGURE 5B — PM PEAK PERIOD TRAFFIC FLOWS

FIGURE 6A — AM PEAK TRAFFIC ASSIGNMENT

FIGURE 6B — PM PEAK TRAFFIC ASSIGNMENT

FIGURE 7A — AM PEAK TRAFFIC ASSIGNMENT – ALL AREAS

FIGURE 7B — PM PEAK TRAFFIC ASSIGNMENT – ALL AREAS

1. INTRODUCTION

This report has been prepared to accompany a Development Application to Holroyd City Council for a mixed use commercial/residential development proposal to be located on a consolidated site at 1-9 Florence Street and 19-23 Quinn Street, South Wentworthville (Figures 1 and 2).

The subject site is located on the northern side of the Western (M4) Motorway and has a site area of 6,126.61m^2. The site has frontages of 82.31m to Florence Street, 77.31m to Quinn Street and 41.52m to Station Street. The existing site development comprises 8 residential lots with a single level dwelling on each lot.

The proposed development comprises the construction of 3 multi-level mixed use commercial/residential buildings as follows:

Building A	54 dwellings (6x1 bedroom and 48 x 2 bedroom units)
Building B	35 dwellings (35 x 2 bedroom units)
Building C	536.99m^2 commercial office (3 suites) and 65 dwellings (15 x 1 bedroom and 50 x 2 bedroom units)
Total Development	**536.99m^2 commercial office (3 suites) and 154 dwellings (21 x 1 bedroom and 133 x 2 bedroom units)**

Vehicular access to the proposed development is via a new 6.1m wide combined entry/exit driveway off Florence Street.

Clause 2.2 in Part N of Holroyd Council's Development Control Plan specifies the following Development Control that impacts on the development site:

> C2. A 15 metre connecting laneway between Florence Street and Quinn Street is required in accordance with Figure 14.

A copy of Figure 14 is reproduced below and shows a 15m wide extension of Quinn Street through to Rawson Street.

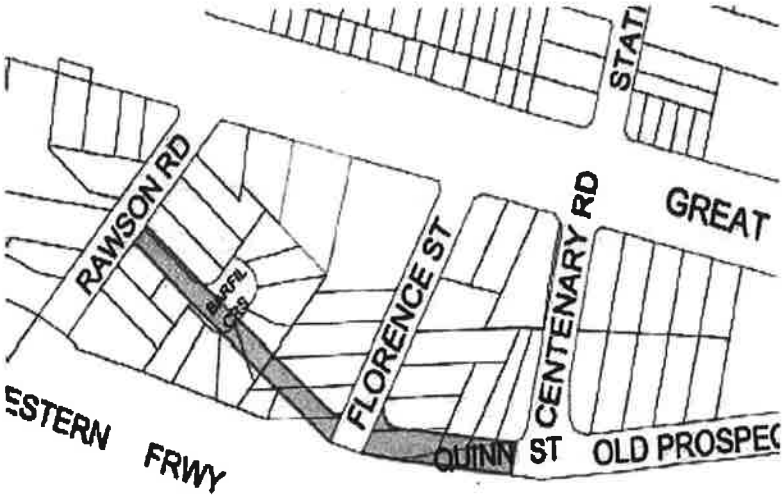


Figure 14- Proposed Laneways

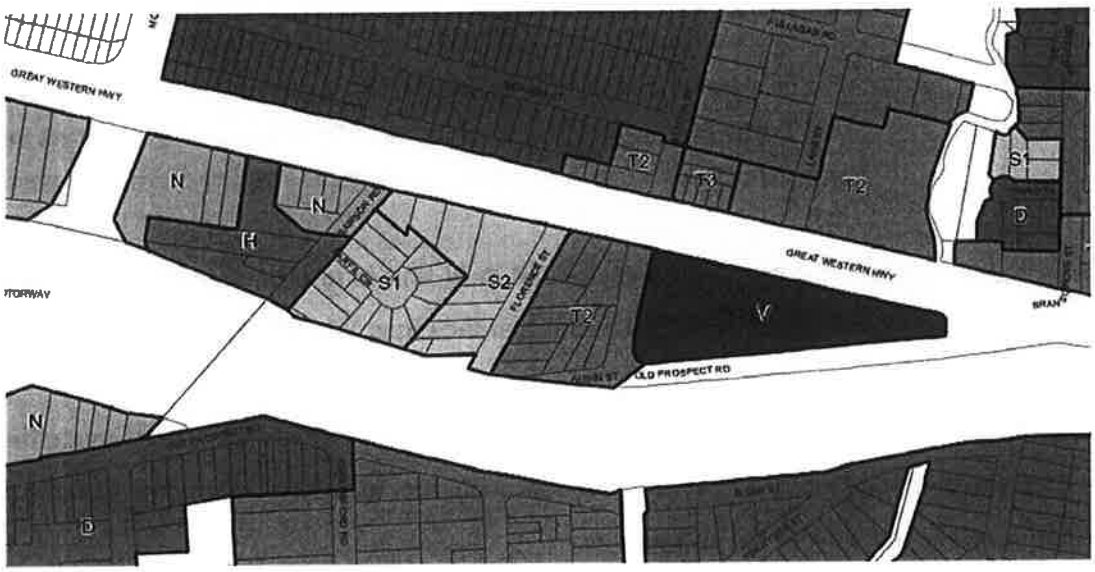
Figure 14 of Council's DCP showing the Quinn Street extension through to Rawson Street

The extension of Quinn Street is to enhance accessibility to future developments in the B6 Zoning to the west of the subject site. An extract of the Council LEP *"Floor Space Ratio Map"* for this area is reproduced below revealing the following:

- **Zone T2** incorporating the proposed development site (6,126m^2) and the Hungry Jacks site and joining the subject site to the north (approximately 3,008m^2). This area has a floor space ratio of 2:1

- **Zone S1** to the east of Rawson Road with an area of approximately 10,600m^2. This area has a floor space ratio of 1.5:1 which equates to 75% less than Zone T2

- **Zone S2** to the west of Florence Street with an area of approximately 10,200m^2.This area has a floor space ratio of 1.8:1 which equates to 90% less than Zone T2



Extract from Council's LEP Zoning Maps

The Quinn Street extension from Centenary Road to Florence Street was reviewed by Council's Local Traffic Committee at its meeting help on the 5th February 2014 (Item HT010-14). At this meeting, the Holroyd Traffic Committee recommended that:

i) The proposed eastbound roadway between the southern end of Florence Street and western end of Quinn Street be supported in principle, subject to the following being issues being addressed:

a. The proposed roadway shall be constructed as a road (i.e. kerb, gutter, and asphalt pavement – no contrasting pavement).

b. Angle on-street parking shall be provided on the southern side of the proposed roadway and Quinn Street.

c. Quinn Street shall be converted to one-way eastbound from the proposed roadway to Centenary Road. The signalised intersection of Quinn Street with Centenary Road shall be modified accordingly.

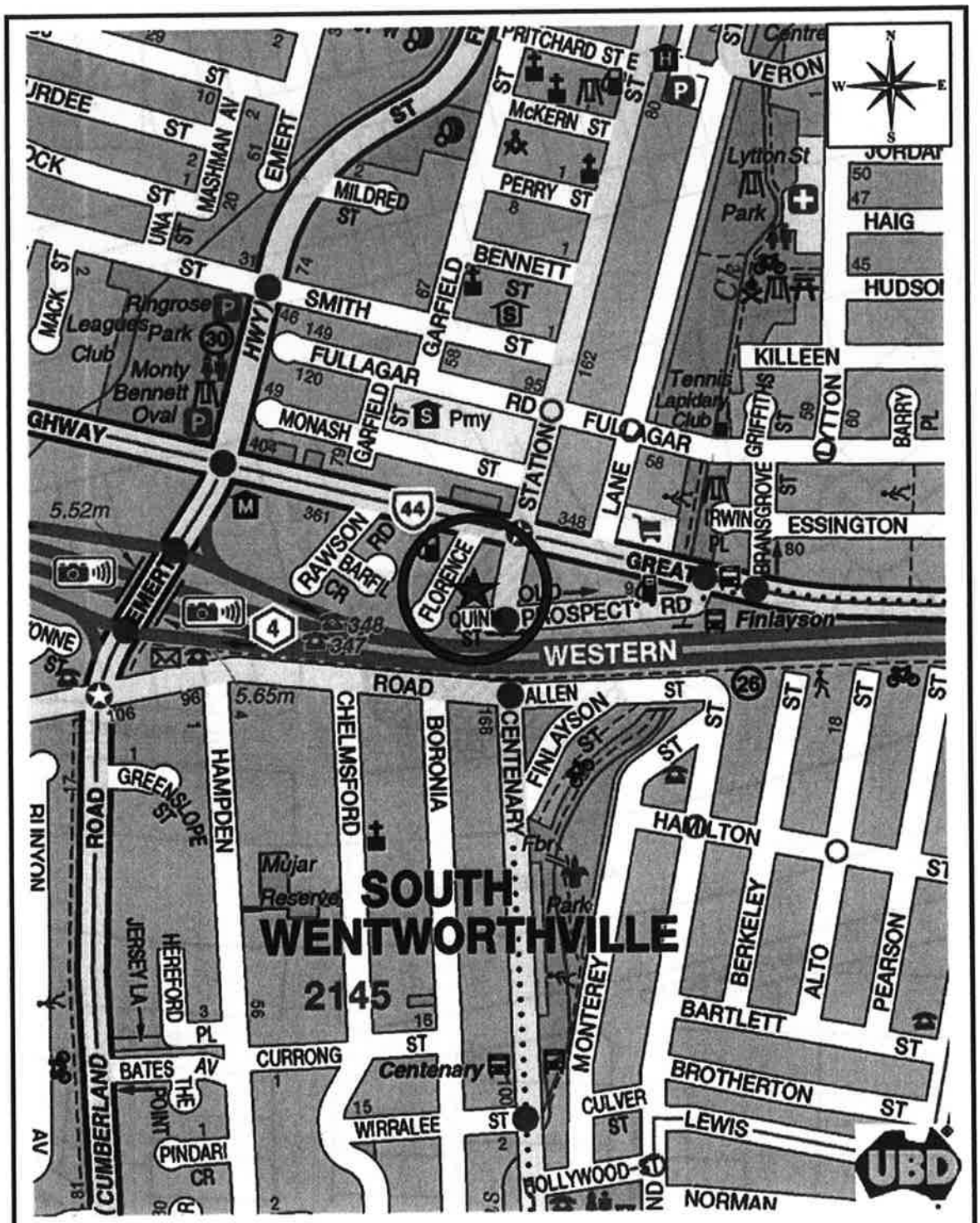
d. Additional modelling shall be undertaken to determine the ultimate layout of the intersection of Quinn Street with Centenary Road following full development of the Finlayson Transitway Precinct in accordance with Council's DCP and LEP. This includes the additional laneway between Rawson Road and Florence Street. The

traffic modelling, interim layout and ultimate layout of the intersection of Quinn Street with Centenary Road shall be reported to the Holroyd Traffic Committee.

e. Traffic signal design plans of the intersection of Quinn Street and Centenary Road and Traffic Management Plan for the proposed conversion of Quinn Street to one-way traffic flow shall be submitted to the Roads and Maritime Services for approval.

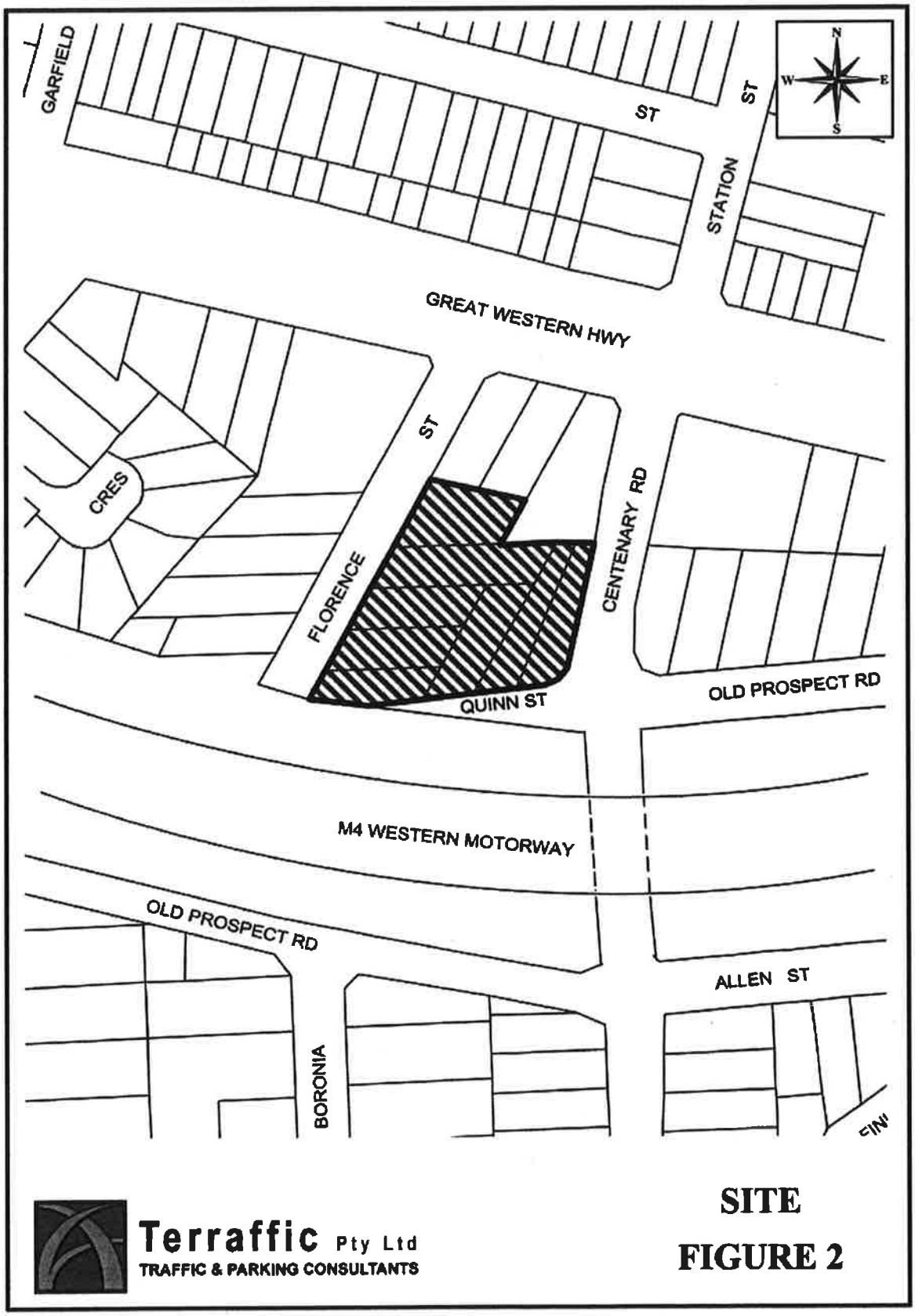
The primary purpose of providing an eastbound only link is to eliminate the potential for a "rat-run" for traffic that would typically turn left at the Great Western Highway.

The purpose of this report is to address issue "d" above and provide additional modelling of the Centenary Road/Quinn Street intersection with the inclusion of traffic generated by developments to the west of the subject site.



Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

LOCATION
FIGURE 1


GARFIELD
ST
ST
STATION
N
W
E
S
GREAT WESTERN HWY
CRES
FLORENCE
ST
CENTENARY RD
QUINN ST
OLD PROSPECT RD
M4 WESTERN MOTORWAY
OLD PROSPECT RD
ALLEN ST
BORONIA
Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS
SITE
FIGURE 2

2. TRAFFIC ASSESSMENT

Road Hierarchy

The classifications assigned to the road network serving the site by the RMS (Figure 3) identify the following classified State and Regional Roads:

State Road	**Regional Road**
Western Motorway (M4)	Station Street – Centenary Road
Great Western Highway	
Cumberland Highway	

As can be seen, the Great Western Highway is classified by the RMS as a *State Road* performing an arterial road function through the area. It generally carries three (3) travel lanes in each direction with additional turning lanes at key intersections and traffic signals. The median island on the Great Western Highway to the west of Station Street restricts traffic to left in and left out of side streets, including Florence Street.

The Station Street – Centenary Road link is a classified *Regional Road* and provides a key north-south road link through the area. The section of Centenary Road between the Great Western Highway and Quinn Street contains a narrow median island that restricts all right turn movements to/from Aldi on the eastern side of Station Street and to/from Hungary Jacks on the western side of Station Street.

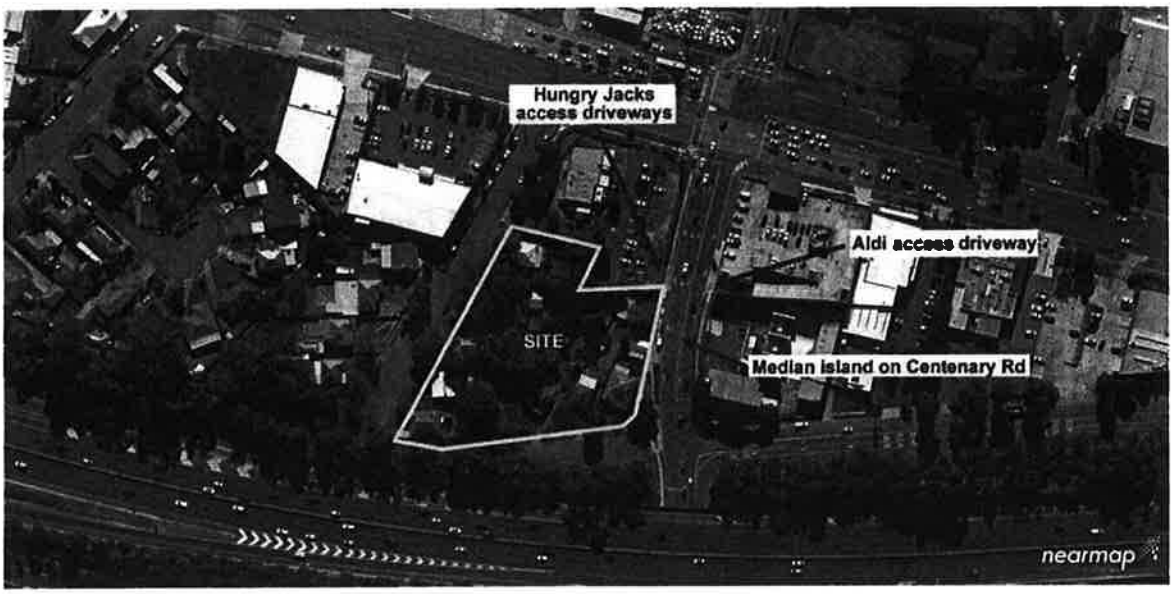
Florence Street is an unclassified *Local Road* with a primary function of providing access to properties along its 150m length. It carries a single traffic lane in each direction with kerbside parking permitted along both sides of the road. As noted above, all movements to/from the Great Western Highway are restricted to left in/left out only.

Quinn Street is also an unclassified local road that extends for a distance of 60m from the Centenary Road traffic signals. In addition to providing vehicular access to Nos 21 and 23 Quinn Street, the roadway is continually used by southbound traffic on Station Street to undertake a u-turn and head back towards the Great Western Highway or the Hungary Jacks

access driveway. To facilitate the u-turn movement in Quinn Street and minimise delays for traffic on Centenary Road, traffic turning left from Quinn Street into Centenary Road can *turn on red.*

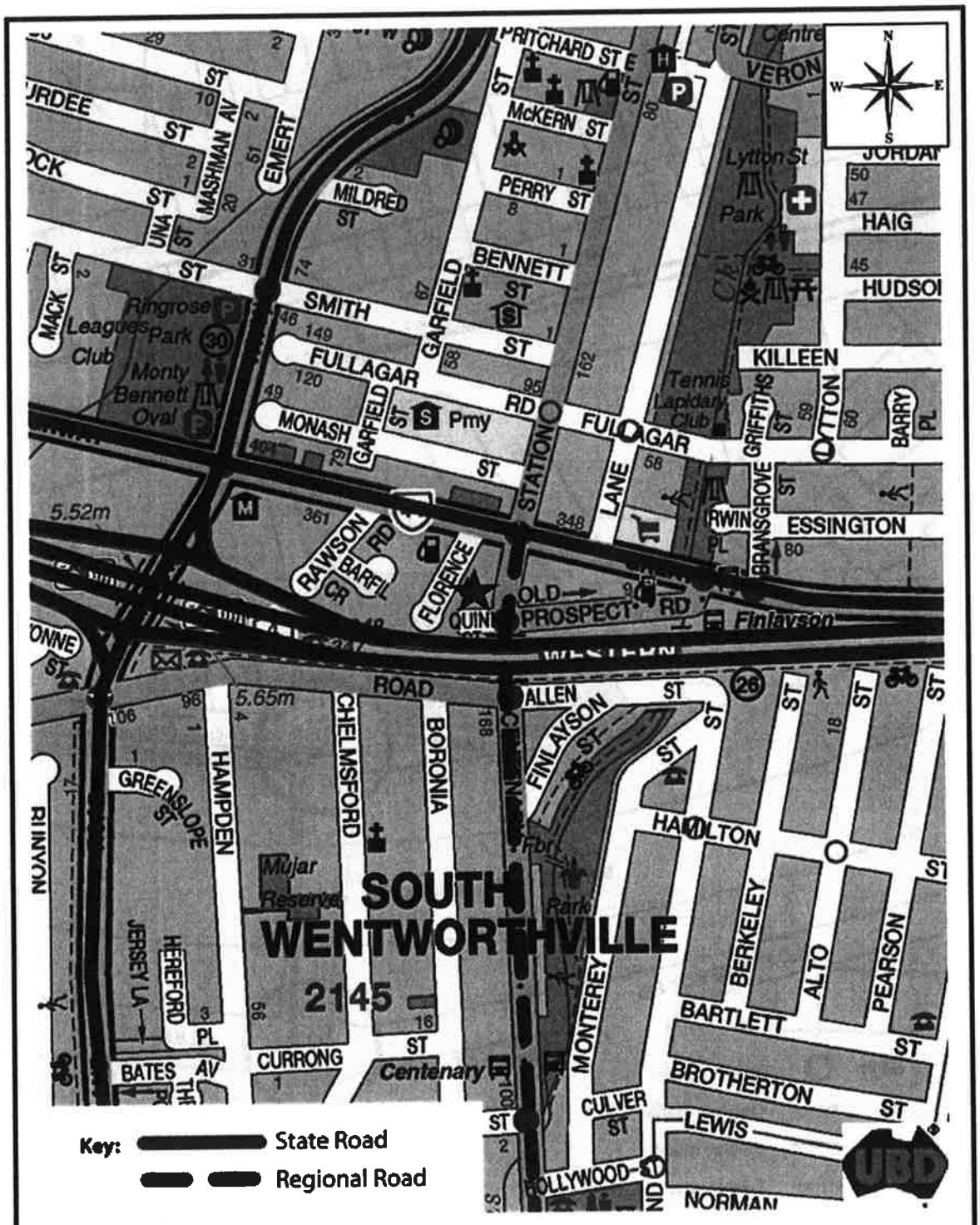
Old Prospect Road is also an unclassified *local road* that operates on a one-way eastbound basis from Centenary Road to the Great Western Highway. All eastbound traffic must turn left onto the Great Western Highway.

As can be seen in the aerial photograph below, Old Prospect Road incorporates a section of the *Parramatta to Liverpool T-way* (Route T80). During peak periods, buses generally travel on the T-way network every 5-10 minutes in each direction. The closest T-way bus stop to the site is located at the eastern end of Old Prospect Road, a walk of approximately 350m from the site.



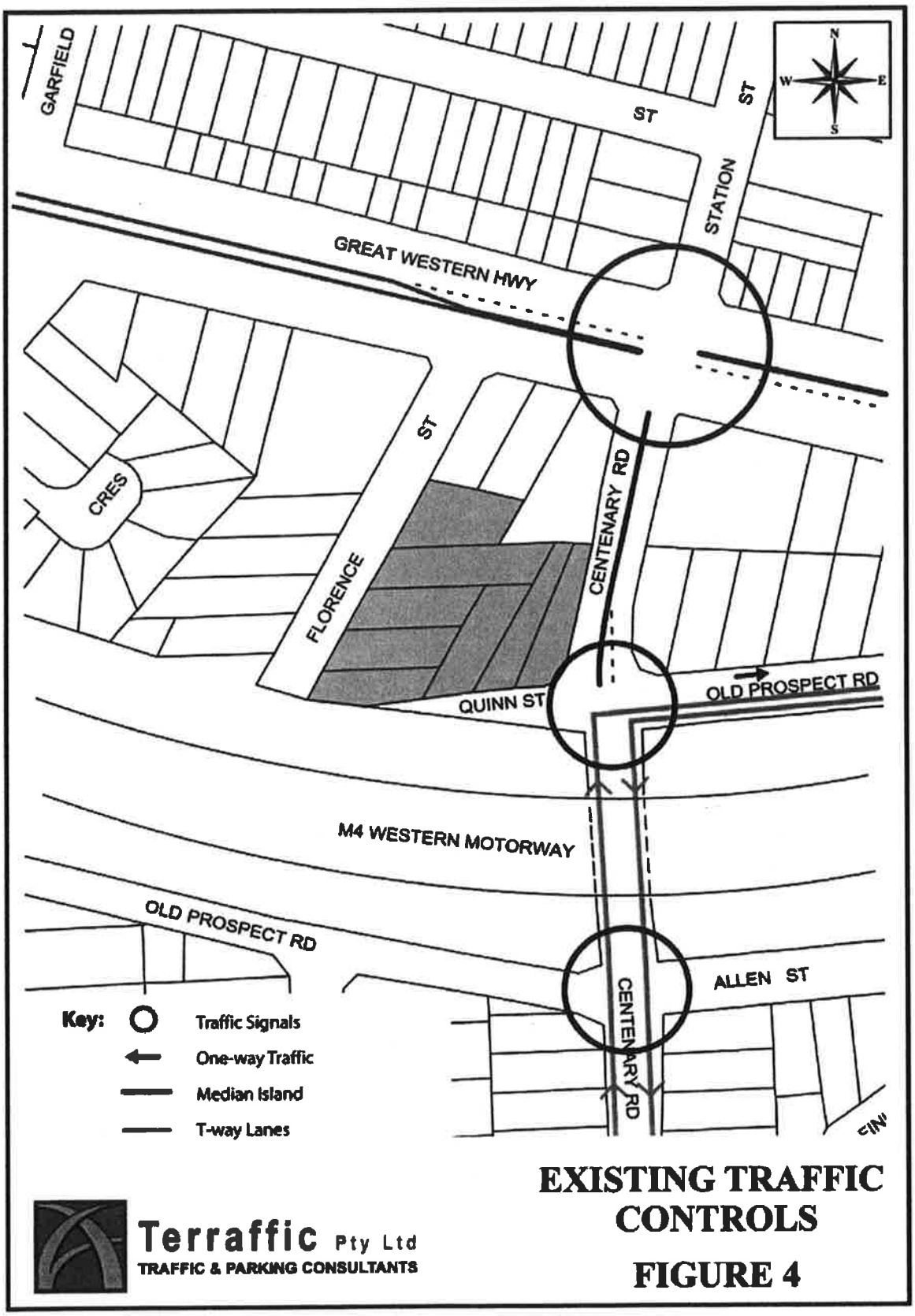
Aerial photograph of the site and surrounding road network

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4.



Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

ROAD HIERARCHY
FIGURE 3


GARFIELD
ST
ST
STATION
GREAT WESTERN HWY
CRES
FLORENCE
ST
CENTENARY RD
QUINN ST
OLD PROSPECT RD
M4 WESTERN MOTORWAY
OLD PROSPECT RD
ALLEN ST
CENTENARY RD
Key:
Traffic Signals
One-way Traffic
Median Island
T-way Lanes
Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS
EXISTING TRAFFIC CONTROLS
FIGURE 4

Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken at the following intersections:

1. The Great Western Highway and Florence Street
2. Centenary Road and Quinn Street/Old Prospect Road
3. Florence Street and the Hungry Jacks access driveway

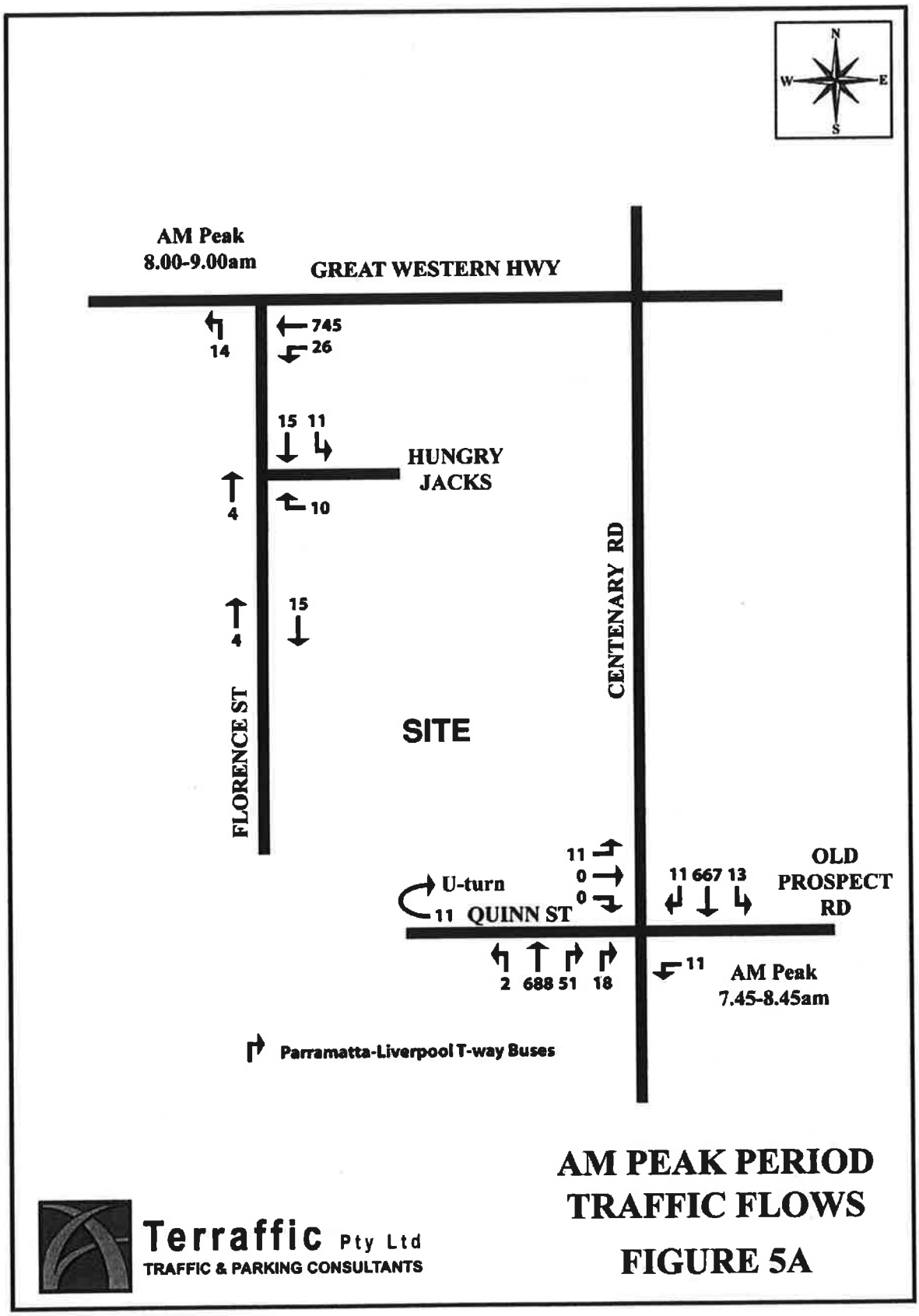
The surveys were carried out as part of this assignment between 7.00-9.00am and 4.00-6.00pm on Wednesday 23rd October 2013. The results of the traffic surveys are reproduced in full in Appendix A and illustrated on Figures 5A and 5B revealing that:

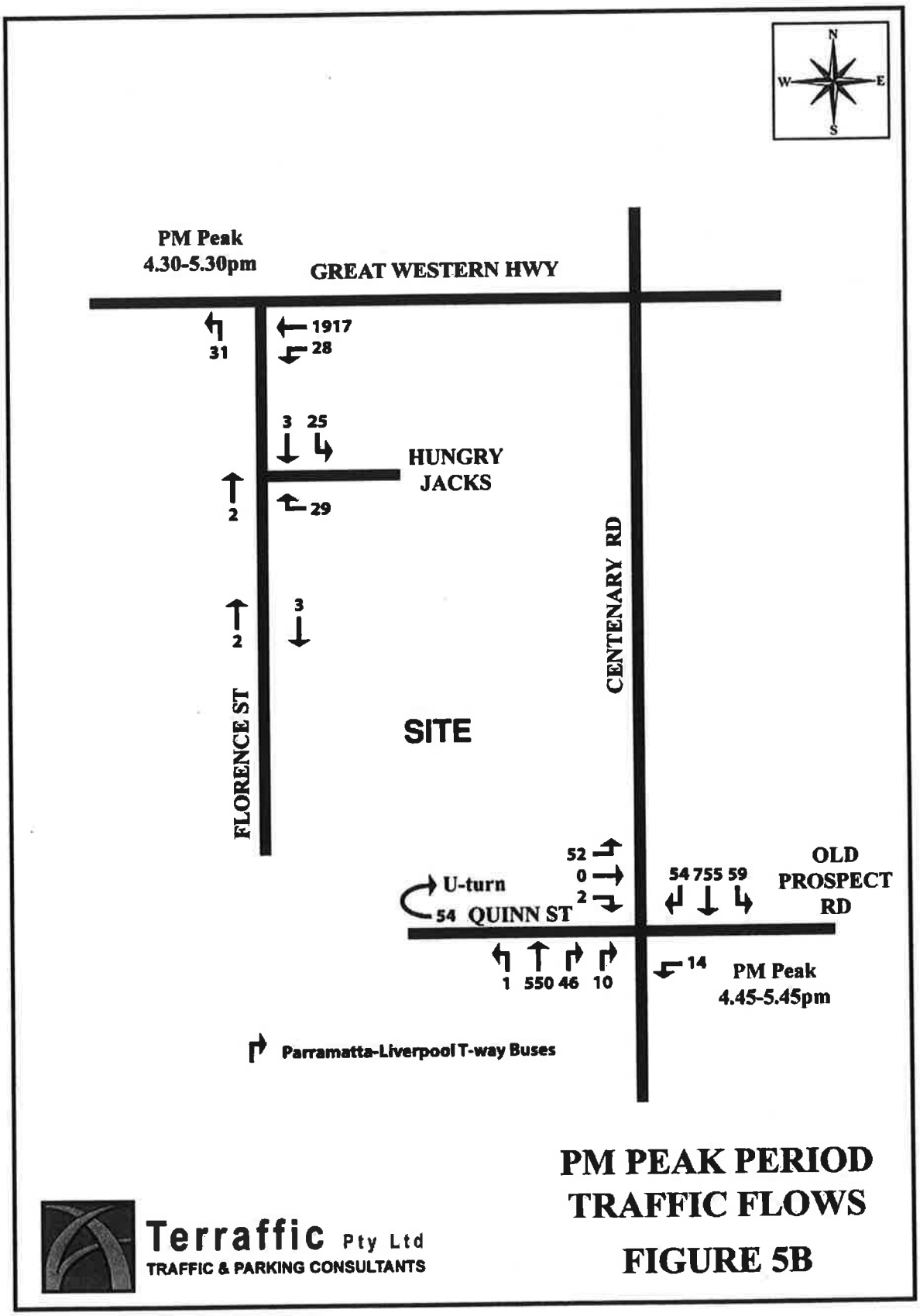
- the morning peak period occurs at the Centenary Road/Quinn Street intersection between 7.45-8.45am. At that time, 11 vehicles turned right into Quinn Street, performed the u-turn and then turned left back onto Centenary Road to head north

- the morning peak period occurs at the Great Western Highway/Florence Street intersection between 8.00-9.00am. At that time, there were 40 vehicles per hour (vph) on Florence Street comprising 26vph heading southbound and 14vph heading northbound. Of those 40 vehicles, 21 were generated by Hungry Jacks

- the evening peak period occurs at the Centenary Road /Quinn Street intersection between 4.45-5.45pm. At that time, 54 vehicles turned right into Quinn Street, performed the u-turn and then turned left back onto Centenary Road to head north. This equates to almost 1 car per minute making a u-turn in Quinn Street

- the evening peak period occurs at the Great Western Highway/Florence Street intersection between 4.30-5.30pm. At that time, there were 59vph on Florence Street comprising 28vph heading southbound and 31vph heading northbound. Of those 59 vehicles, 54 were generated by Hungry Jacks


N
W
E
S
AM Peak
8.00-9.00am
GREAT WESTERN HWY
14
745
26
15 11
HUNGRY
JACKS
4
10
4
15
FLORENCE ST
CENTENARY RD
SITE
11
0
0
U-turn
11 QUINN ST
11 667 13
OLD
PROSPECT
RD
2 688 51 18
11
AM Peak
7.45-8.45am
Parramatta-Liverpool T-way Buses
AM PEAK PERIOD
TRAFFIC FLOWS
FIGURE 5A
Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS



PM PEAK PERIOD TRAFFIC FLOWS

FIGURE 5B

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Projected Traffic Generation of Proposed Development

The Traffic and Parking Assessment Report that was prepared for the proposed development by Terraffic Pty Ltd in November 2013 established that the development proposal has traffic generation potential of approximately 56 vehicle trips per hour (vtph) during the AM and PM peak periods as follows:

AM Peak Period	56vtph (18 in/ 38 out)
PM Peak Period	56vtph (38 in/ 18 out)

The assignment of traffic generated by the proposed development is illustrated on Figures 6A and 6B.

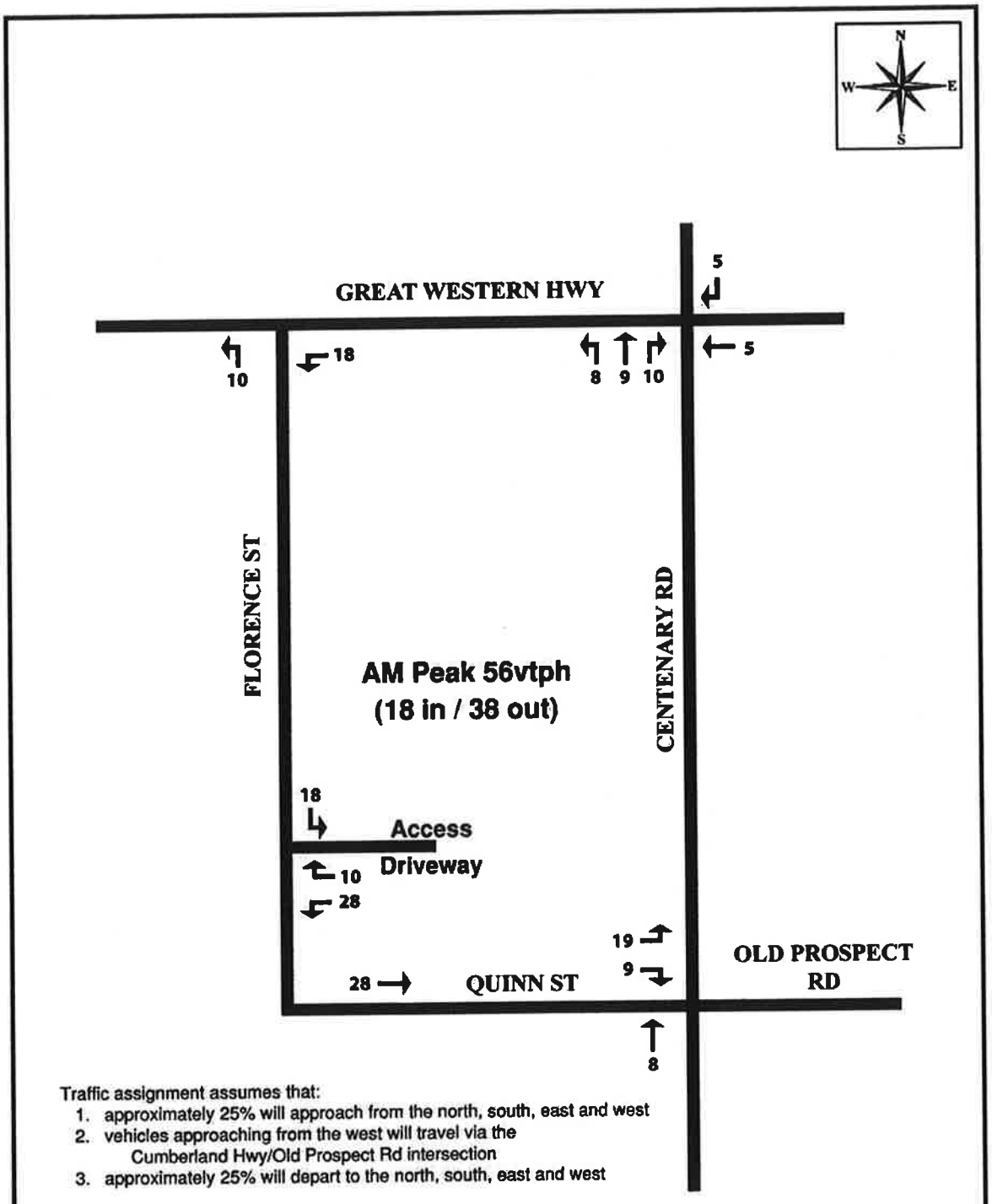
Projected Traffic Generation of Development to the West of Florence Street

It is understood that Council have not received any development applications for the area to the west of Florence Street. Furthermore, it is understood Council have not carried out a traffic study for this area in which this assessment can review and adopt traffic flow projections. To that end, this assessment will make the following assumptions to derive an applicable traffic generating rate for the area to the west of Florence Street:

1. Calculate a traffic generation rate for the proposed development site based on the site area. It should be noted that the subject site in Zone T2 has a floor space ratio of 2:1 whereas the sites to the west have lower ratios of 1.8:1 and 1.5:1

2. Apply this traffic generation rate to the Areas S1 and S2 with the reduction to take into account the lower floor space ratio. As noted in the Introduction of this report, Zone S1 has a floor space ratio that is 75% that of Zone T2 while Zone S2 is 90% of Zone T2.

3. Assign an appropriate amount of traffic generated by Areas S1 and S2 to Quinn Street and disperse this traffic at the Centenary Road traffic signals as per the assignments shown on Figures 6A and 6B.



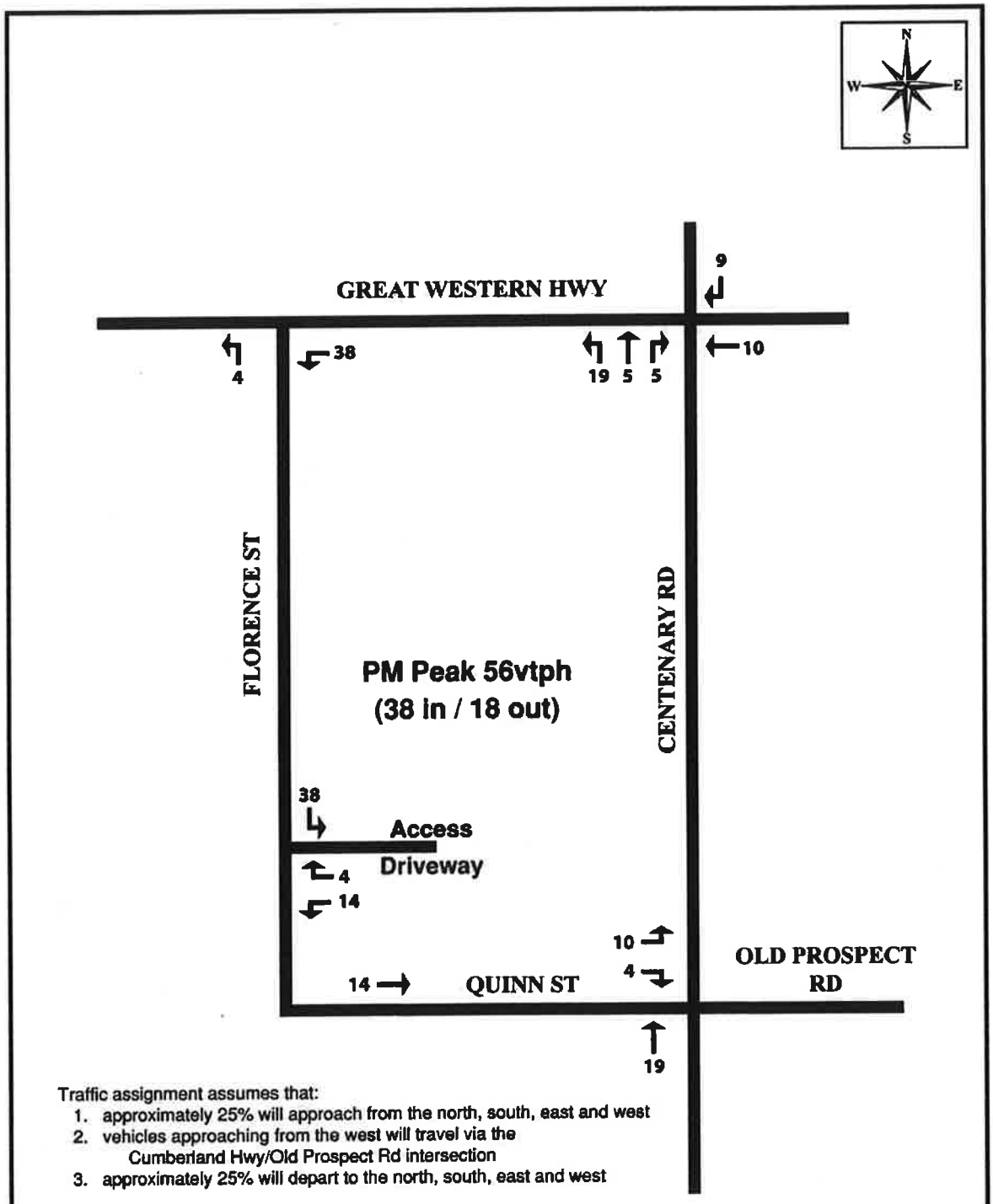
Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west

AM PEAK TRAFFIC ASSIGNMENT

FIGURE 6A

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS



Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west

PM PEAK TRAFFIC ASSIGNMENT

FIGURE 6B

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

As noted above, the development site has a site area of 6,126m^2 and generates in the order of 56vtph. To that end, the subject site generates 1vtph per 110m^2 calculated as follows:

Subject Site Traffic Generation Rate 6,126m^2 / 56vtph = 1vtph per 109.4m^2 (say 110m^2)

Based on this traffic generation rate and the reductions due to the floor space ratios, the overall area would generate in the order of 238vtph calculated as follows:

Zone T2 (Development site)	6,126m^2 @ 1vpth per 110m^2	56vtph
Zone T2 (Hungry Jacks site)	3,008m^2 @ 1vpth per 110m^2	27vtph
Zone S1	10,600m^2 @ 1vpth per 110m^2 x 75%	72vtph
Zone S2	10,200m^2 @ 1vpth per 110m^2 x 90%	83vtph
Total		**238vtph**

Assuming a 70/30 split for arrivals and departures, these development areas would have the following morning and evening peak period traffic generations:

Zone T2 (Development site)	56vtph	AM Peak 18 in / 38 out; PM peak 38 in / 18 out
Zone T2 (Hungry Jacks site)	27vtph	AM Peak 8 in / 19 out; PM peak 19 in / 8 out
Zone S1	72vtph	AM Peak 22 in / 50 out; PM peak 50 in / 22 out
Zone S2	83vtph	AM Peak 25 in / 58 out; PM peak 58 in / 25 out
Total	**238vtph**	**AM Peak 73 in / 165 out; PM peak 165 in / 73 out**

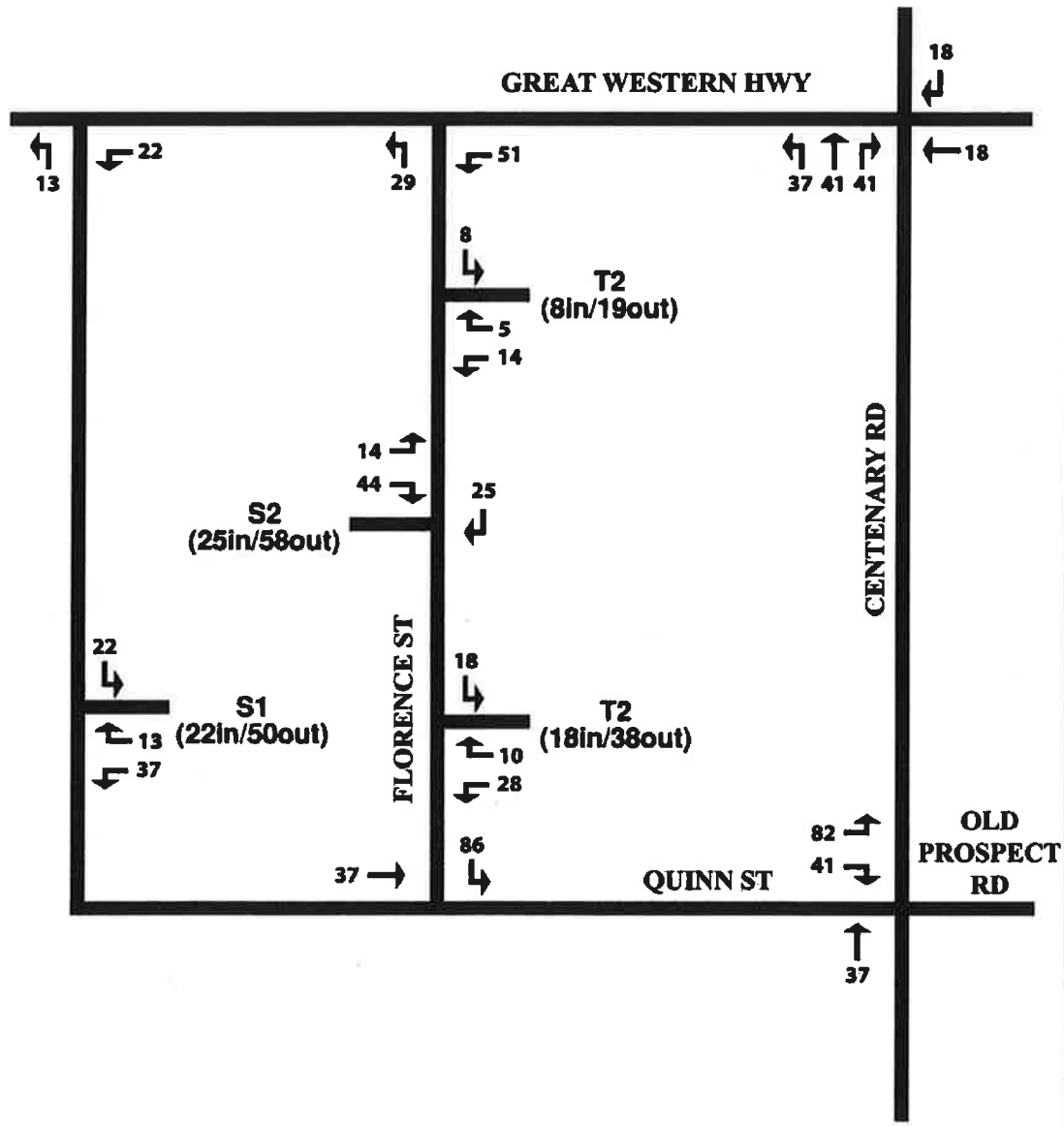
The assignment of traffic generated by ALL AREAS (ie the proposed development site and neighbouring sites) is illustrated on Figures 7A and 7B.

Traffic Implications – Road Network Capacity

The main traffic implications of the proposed development plus neighbouring sites in terms of road network capacity concern the effect of the additional traffic demand generated by these developments on the operating performance of the modified Centenary Road/Quinn Street traffic signals. That effect can be assessed using the SIDRA traffic model and criteria for interpreting the results of SIDRA analysis are set out on the schedule reproduced in the following pages.

Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west
4. no discount for traffic generated by existing site developments



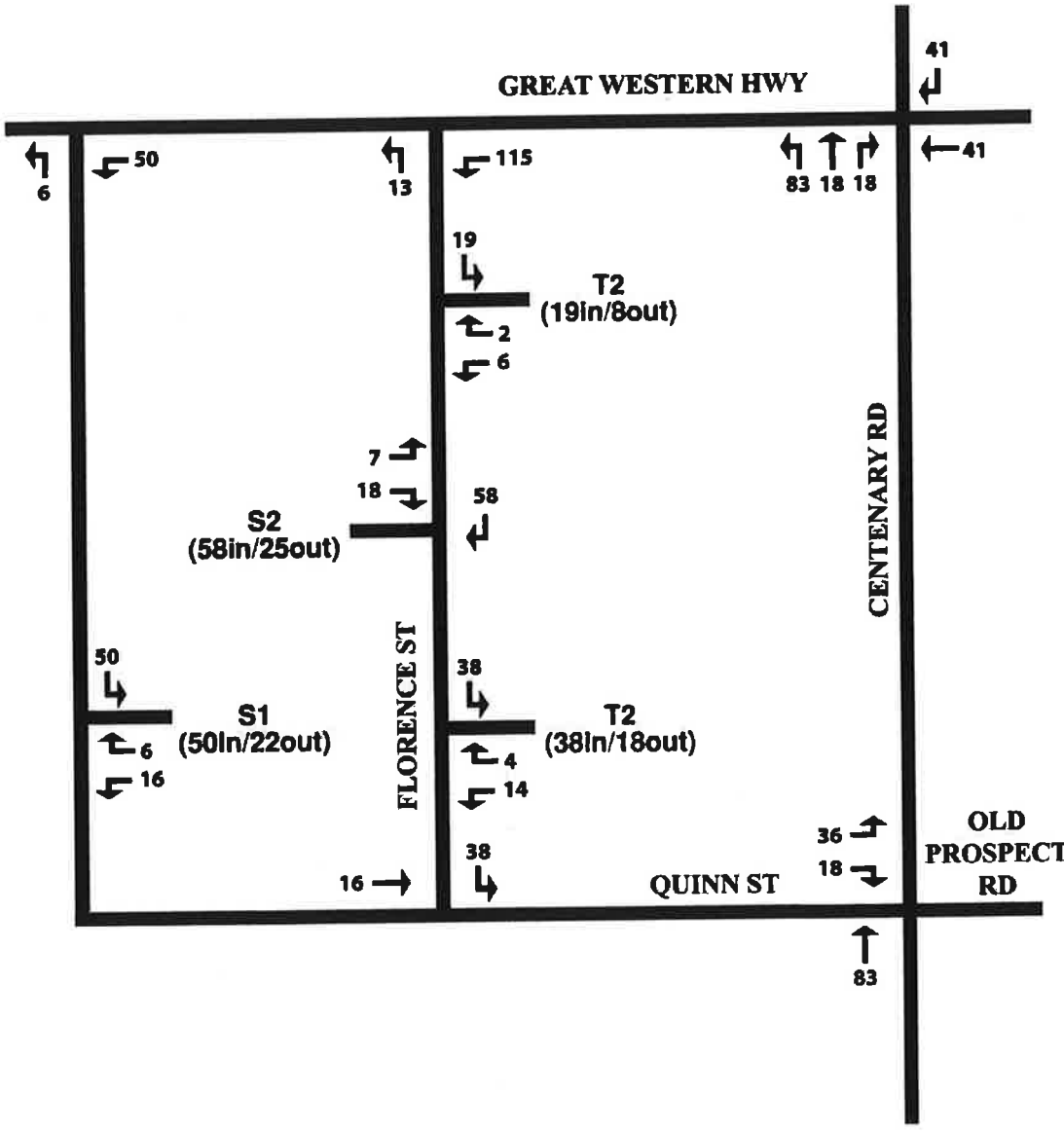
AM PEAK TRAFFIC ASSIGNMENT - ALL AREAS

FIGURE 7A

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

Traffic assignment assumes that:

1. approximately 25% will approach from the north, south, east and west
2. vehicles approaching from the west will travel via the Cumberland Hwy/Old Prospect Rd intersection
3. approximately 25% will depart to the north, south, east and west
4. no discount for traffic generated by existing site developments



PM PEAK TRAFFIC ASSIGNMENT - ALL AREAS

FIGURE 7B

Terraffic Pty Ltd
TRAFFIC & PARKING CONSULTANTS

The results of the SIDRA analysis of the operating performance of the Centenary Road/Quinn Street intersection under existing conditions and projected post-development traffic demand is set out in Table 3.1 and on the SIDRA MOVEMENT SUMMARY SHEETS reproduced in Appendix B. The SIDRA analysis reveals that the intersection operates satisfactorily under existing and projected post-development traffic demand.

While Council's Traffic Committee hasn't necessarily requested this analysis, the results of the SIDRA analysis of the operating performance of the Great Western Highway and Florence Street intersection under existing conditions and projected post-development traffic demand is set out in Table 3.2 and on the SIDRA MOVEMENT SUMMARY SHEETS reproduced in Appendix C. The SIDRA analysis reveals that the intersection will continue to operate at a satisfactory level of service with the injection of the projected post-development traffic demand.

In the circumstances, it can be concluded that the proposed development has no unacceptable traffic implications in terms of road network capacity.

Traffic-Related Environmental Effect

As the development site has direct vehicular access to the higher order road network, there is no need for traffic generated by the proposed development to travel on local residential streets. In the circumstances, the proposed development will not have any unacceptable traffic implications in terms of traffic-related environmental effect.

Proposed Quinn Street Extension and Modified Layout of Traffic Signals

A plan showing the layout of the Centenary Road/Quinn Street traffic signals prepared by the SIDRA software is reproduced in the following pages.

Should Council's Traffic Committee support the results of this assessment, a civil engineering plan of the Quinn Street roadway can be prepared as part of the development conditions. This plan can include the civil works at the traffic signals for RMS concurrence.

TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF CENTENARY RD AND QUINN ST / OLD PROSPECT RD, SOUTH WENTWORTHVILLE

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	PM	AM	PM
Level of Service		B	B	A	B
Degree of Saturation		0.772	0.904	0.758	0.806
Average Vehicle Delay (secs/veh)					
Centenary Rd (south)	L	22.4	19.2	n/a	n/a
	T	16.8	13.6	14.0	12.3
	R	15.6	19.2	14.1	18.7
Old Prospect Rd (east)	L	6.0	6.0	6.0	6.0
	T	n/a	n/a	n/a	n/a
	R	n/a	n/a	n/a	n/a
Centenary Rd (north)	L	20.6	38.9	18.4	23.0
	T	15.1	33.4	12.9	17.4
	R	29.0	25.2	n/a	n/a
Quinn Street (west)	L	11.4	8.8	19.5	18.7
	T	0.0	0.0	0.0	0.0
	R	11.4	8.8	19.5	18.7
TOTAL AVERAGE VEHICLE DELAY		**16.0**	**24.6**	**13.9**	**15.6**

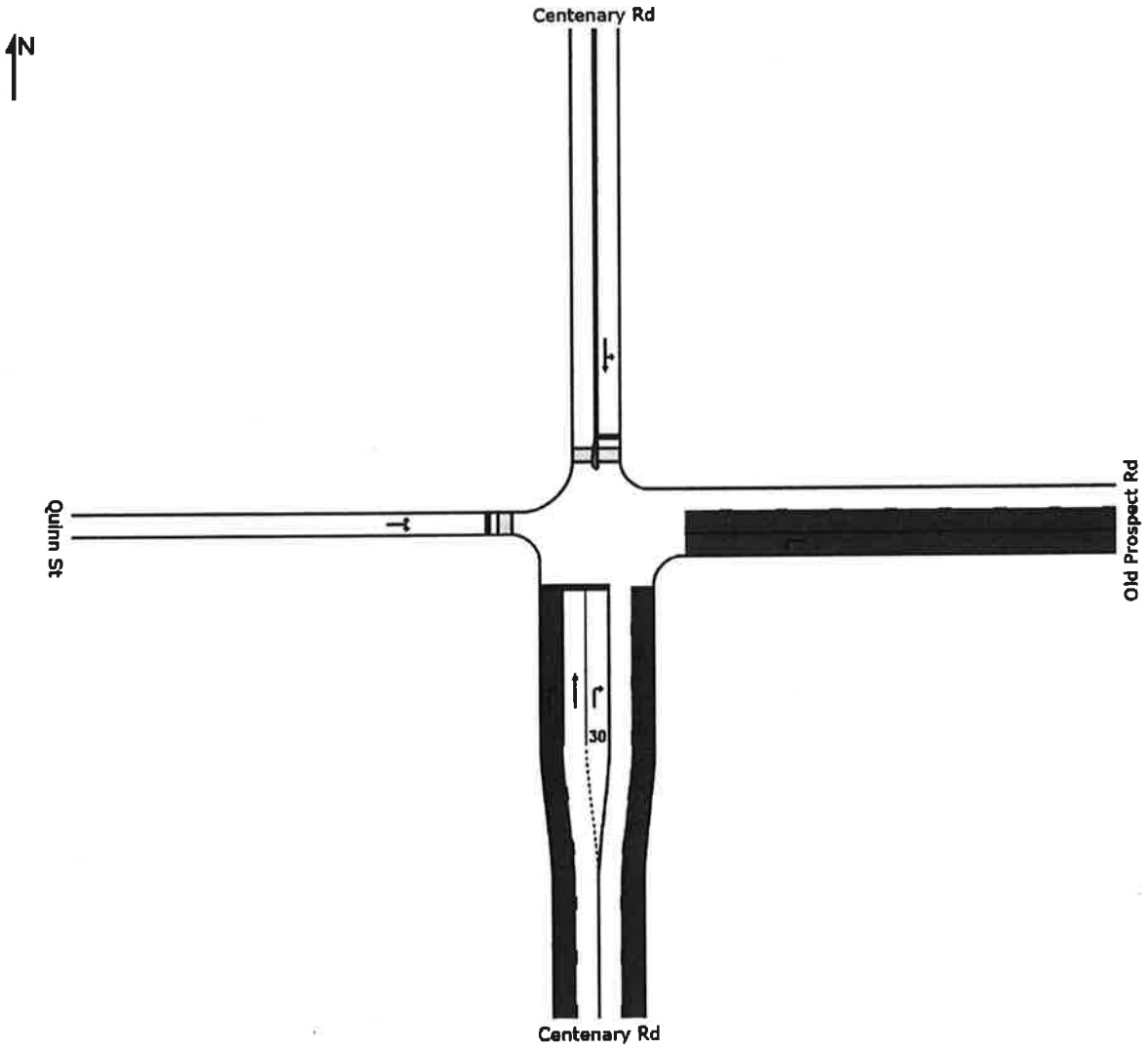
TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF GREAT WESTERN HWY AND FLORENCE ST, SOUTH WENTWORTHVILLE

Key Indicators		Existing Traffic Demand		Projected Development Traffic Demand	
		AM	PM	AM	PM
Level of Service		A	A	A	A
Degree of Saturation		0.101	0.254	0.108	0.270
Average Vehicle Delay (secs/veh)					
Florence Street (south)	L	5.2	6.7	5.0	6.2
Great Western Hwy (east)	L	7.0	7.0	7.0	7.0
	T	0.0	0.0	0.0	0.0
TOTAL AVERAGE VEHICLE DELAY		**0.3**	**0.2**	**0.9**	**0.6**

SITE LAYOUT

Site: Centenary Rd and Quinn St/Old Prospect Rd - Proposed PM Peak 2

Proposed PM Peak Period
One way eastbound only and traffic generated by proposed development PLUS neighbouring sites
Signals - Fixed Time



Criteria for Interpreting Results of SIDRA Analysis

1. *Level of Service (LOS)*

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good operation.	Good operation.
'B'	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
'C'	Satisfactory.	Satisfactory but accident study required.
'D'	Operating near capacity.	Near capacity and accident study required.
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode.	At capacity and requires other control mode.
'F'	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode.

2. *Average Vehicle Delay (AVD)*

The AVD provides a measure of the operational performance of an intersection as indicated on the table below which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

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

3. *Degree of Saturation (DS)*

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by traffic signals[1] both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a roundabout or GIVE WAY or STOP signs, satisfactory intersection operation is indicated by a DS of 0.8 or less.

1 *The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.*

APPENDIX A

TRAFFIC COUNT DATA

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	7	91	0	1	0	0	0	137	13	0	0	0	249
0715 - 0730	5	110	0	0	0	0	0	138	11	0	0	0	264
0730 - 0745	1	112	1	1	0	0	0	155	6	1	0	0	277
0745 - 0800	3	164	3	3	0	0	0	210	6	0	0	0	389
0800 - 0815	3	174	1	1	0	0	0	147	7	0	0	0	333
0815 - 0830	2	181	2	3	0	0	1	157	18	0	0	0	364
0830 - 0845	5	146	5	4	0	0	1	169	20	0	0	0	350
0845 - 0900	14	153	10	11	0	0	0	142	14	0	0	0	344
Period End	**40**	**1131**	**22**	**24**	**0**	**0**	**2**	**1255**	**95**	**1**	**0**	**0**	**2570**

Buses

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	0	0	0	0	0	0	0	1	3	3	0	0	7
0715 - 0730	0	0	0	0	0	0	0	0	4	1	0	0	5
0730 - 0745	0	1	0	0	0	0	0	0	5	4	0	0	10
0745 - 0800	0	0	0	0	0	0	0	1	5	3	0	0	9
0800 - 0815	0	1	0	0	0	0	0	1	2	1	0	0	5
0815 - 0830	0	0	0	0	0	0	0	1	7	5	0	0	13
0830 - 0845	0	1	0	0	0	0	0	2	4	2	0	0	9
0845 - 0900	0	1	0	0	0	0	0	0	1	4	0	0	6
Period End	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**6**	**31**	**23**	**0**	**0**	**64**

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	16	477	4	5	0	0	0	640	36	1	0	0	1179
0715 - 0815	12	560	5	5	0	0	0	650	30	1	0	0	1263
0730 - 0830	9	631	7	8	0	0	1	669	37	1	0	0	1363
0745 - 0845	13	665	11	11	0	0	2	683	51	0	0	0	1436
0800 - 0900	24	654	18	19	0	0	2	615	59	0	0	0	1391
PEAK HOUR	**13**	**665**	**11**	**11**	**0**	**0**	**2**	**683**	**51**	**0**	**0**	**0**	**1436**

Buses

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	0	1	0	0	0	0	0	2	17	11	0	0	31
0715 - 0815	0	2	0	0	0	0	0	2	16	9	0	0	29
0730 - 0830	0	2	0	0	0	0	0	3	19	13	0	0	37
0745 - 0845	0	2	0	0	0	0	0	5	18	11	0	0	36
0800 - 0900	0	3	0	0	0	0	0	4	14	12	0	0	33
PEAK HOUR	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**18**	**11**	**0**	**0**	**36**

Combined

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	7	91	0	1	0	0	0	138	16	3	0	0	256
0715 - 0730	5	110	0	0	0	0	0	138	15	1	0	0	269
0730 - 0745	1	113	1	1	0	0	0	155	11	5	0	0	287
0745 - 0800	3	164	3	3	0	0	0	211	11	3	0	0	398
0800 - 0815	3	175	1	1	0	0	0	148	9	1	0	0	338
0815 - 0830	2	181	2	3	0	0	1	158	25	5	0	0	377
0830 - 0845	5	147	5	4	0	0	1	171	24	2	0	0	359
0845 - 0900	14	154	10	11	0	0	0	142	15	4	0	0	350
Period End	**40**	**1135**	**22**	**24**	**0**	**0**	**2**	**1261**	**126**	**24**	**0**	**0**	**2634**

Peds

	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0715	0	0	0	0	0
0715 - 0730	0	0	0	0	0
0730 - 0745	5	2	0	0	7
0745 - 0800	0	3	0	1	4
0800 - 0815	1	2	0	1	4
0815 - 0830	2	5	0	0	7
0830 - 0845	1	10	0	1	12
0845 - 0900	1	18	0	0	19
Period End	**10**	**40**	**0**	**3**	**53**

Combined

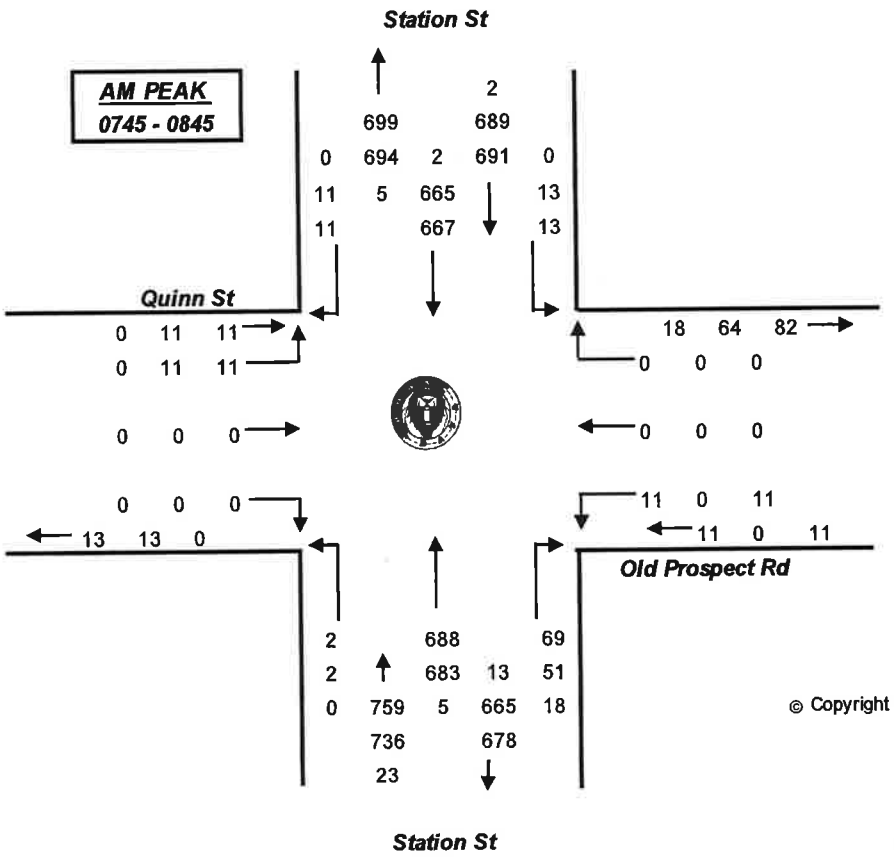
	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	16	478	4	5	0	0	0	642	53	12	0	0	1210
0715 - 0815	12	562	5	5	0	0	0	652	46	10	0	0	1292
0730 - 0830	9	633	7	8	0	0	1	672	56	14	0	0	1400
0745 - 0845	13	667	11	11	0	0	2	688	69	11	0	0	1472
0800 - 0900	24	657	18	19	0	0	2	619	73	12	0	0	1424
PEAK HOUR	**13**	**667**	**11**	**11**	**0**	**0**	**2**	**688**	**69**	**11**	**0**	**0**	**1472**

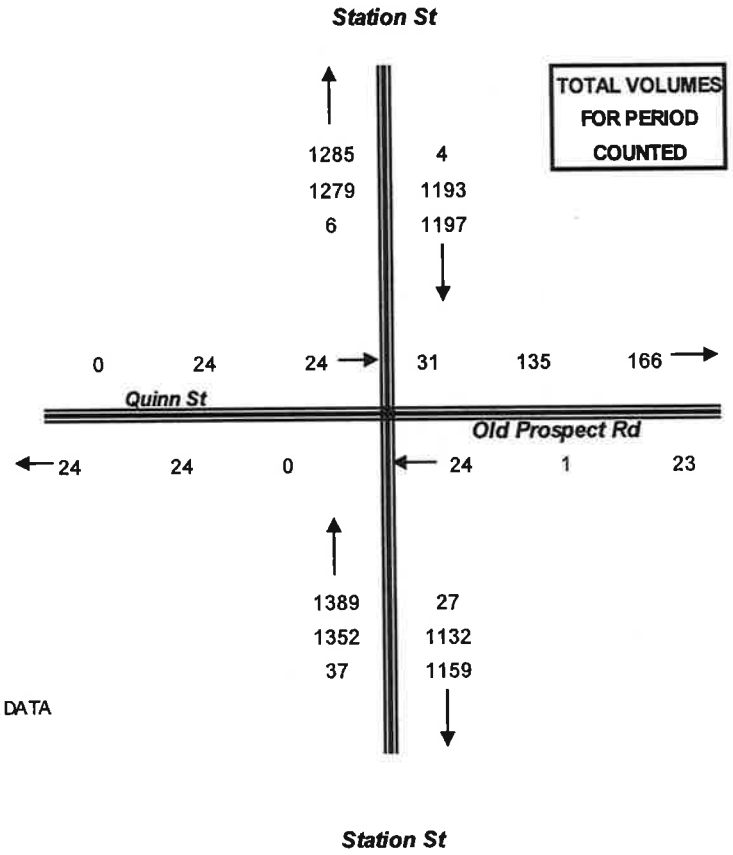
Peds

	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
0700 - 0800	5	5	0	1	11
0715 - 0815	6	7	0	2	15
0730 - 0830	8	12	0	2	22
0745 - 0845	4	20	0	3	27
0800 - 0900	5	35	0	2	42
PEAK HR	**4**	**20**	**0**	**3**	**27**

R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013





TERRAFFIC PTY LTD

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	10	182	21	21	0	0	0	125	15	0	0	0	374
1615 - 1630	12	216	9	9	0	0	0	125	16	0	0	0	387
1630 - 1645	13	173	12	12	0	0	0	126	12	0	0	0	348
1645 - 1700	12	186	15	13	0	1	0	125	15	0	0	0	367
1700 - 1715	11	182	11	10	0	1	0	156	9	0	0	0	380
1715 - 1730	19	175	14	14	0	0	0	144	11	0	0	0	377
1730 - 1745	17	211	14	15	0	0	1	124	11	0	0	0	393
1745 - 1800	14	172	16	16	0	0	0	122	18	1	0	0	359
Period End	108	1497	112	110	0	2	1	1047	107	1	0	0	2985

Buses

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	0	0	0	0	0	0	0	0	4	3	0	0	7
1615 - 1630	0	0	0	0	0	0	0	1	4	5	0	0	10
1630 - 1645	0	0	0	0	0	0	0	0	3	3	0	0	6
1645 - 1700	0	1	0	0	0	0	0	0	4	2	0	0	7
1700 - 1715	0	0	0	0	0	0	0	1	1	5	0	0	7
1715 - 1730	0	0	0	0	0	0	0	0	5	4	0	0	9
1730 - 1745	0	0	0	0	0	0	0	0	0	3	0	0	3
1745 - 1800	0	1	0	0	0	0	0	0	2	3	0	0	6
Period End	0	2	0	0	0	0	0	2	23	28	0	0	55

Lights

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	47	757	57	55	0	1	0	501	58	0	0	0	1476
1615 - 1715	48	757	47	44	0	2	0	532	52	0	0	0	1482
1630 - 1730	55	716	52	49	0	2	0	551	47	0	0	0	1472
1645 - 1745	59	754	54	52	0	2	1	549	46	0	0	0	1517
1700 - 1800	61	740	55	55	0	1	1	546	49	1	0	0	1509
PEAK HOUR	59	754	54	52	0	2	1	549	46	0	0	0	1517

Heavies

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	0	1	0	0	0	0	0	1	15	13	0	0	30
1615 - 1715	0	1	0	0	0	0	0	2	12	15	0	0	30
1630 - 1730	0	1	0	0	0	0	0	1	13	14	0	0	29
1645 - 1745	0	1	0	0	0	0	0	1	10	14	0	0	26
1700 - 1800	0	1	0	0	0	0	0	1	8	15	0	0	25
PEAK HOUR	0	1	0	0	0	0	0	1	10	14	0	0	26

Combined

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	10	182	21	21	0	0	0	125	19	3	0	0	381
1615 - 1630	12	216	9	9	0	0	0	126	20	5	0	0	397
1630 - 1645	13	173	12	12	0	0	0	126	15	3	0	0	354
1645 - 1700	12	187	15	13	0	1	0	125	19	2	0	0	374
1700 - 1715	11	182	11	10	0	1	0	157	10	5	0	0	387
1715 - 1730	19	175	14	14	0	0	0	144	16	4	0	0	386
1730 - 1745	17	211	14	15	0	0	1	124	11	3	0	0	396
1745 - 1800	14	173	16	16	0	0	0	122	20	4	0	0	365
Period End	108	1499	112	110	0	2	1	1049	130	29	0	0	3040

Buses

	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Time Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1615	3	1	0	0	4
1615 - 1630	0	3	0	1	4
1630 - 1645	1	1	0	1	3
1645 - 1700	1	0	0	0	1
1700 - 1715	3	3	0	1	7
1715 - 1730	2	2	0	0	4
1730 - 1745	0	1	0	0	1
1745 - 1800	2	4	0	2	8
Period End	12	15	0	5	32

Combined

	NORTH			WEST			SOUTH			EAST			
	Station St			*Quinn St*			*Station St*			*Old Prospect Rd*			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	47	758	57	55	0	1	0	502	73	13	0	0	1506
1615 - 1715	48	758	47	44	0	2	0	534	64	15	0	0	1512
1630 - 1730	55	717	52	49	0	2	0	552	60	14	0	0	1501
1645 - 1745	59	755	54	52	0	2	1	550	56	14	0	0	1543
1700 - 1800	61	741	55	55	0	1	1	547	57	16	0	0	1534
PEAK HOUR	59	755	54	52	0	2	1	550	56	14	0	0	1543

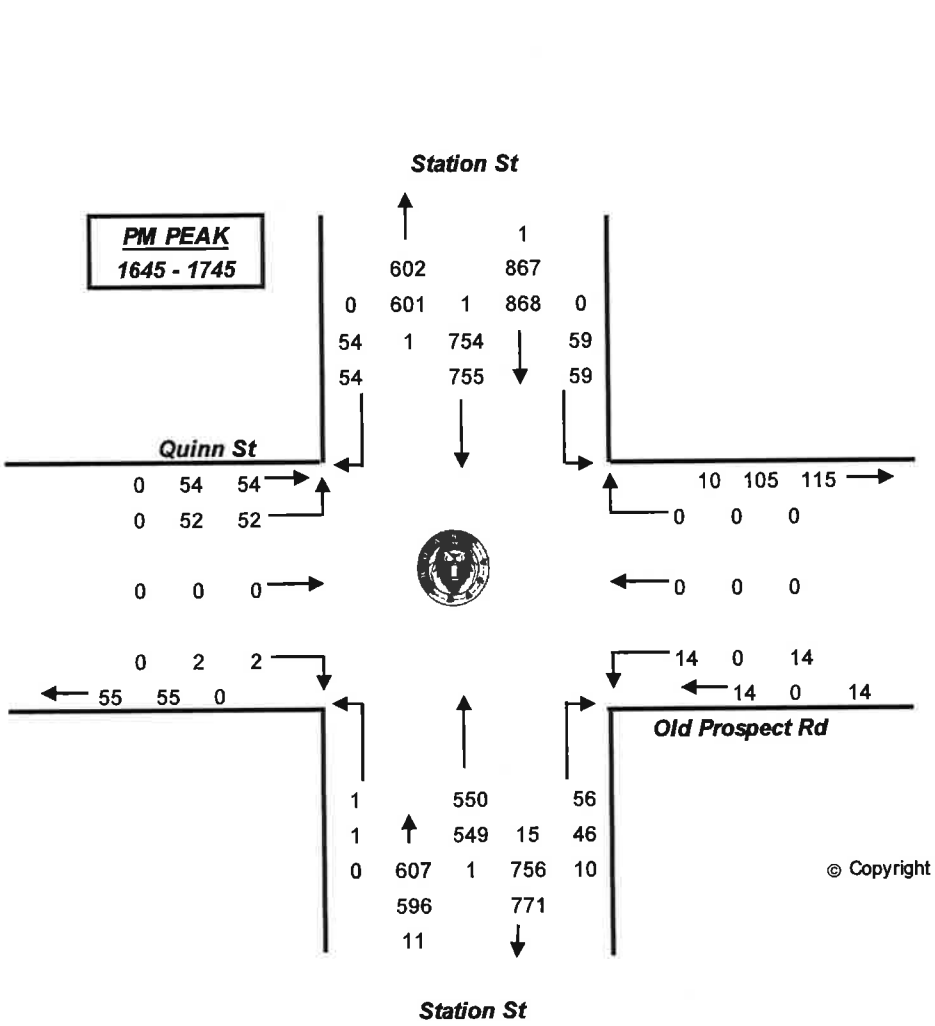
Peds

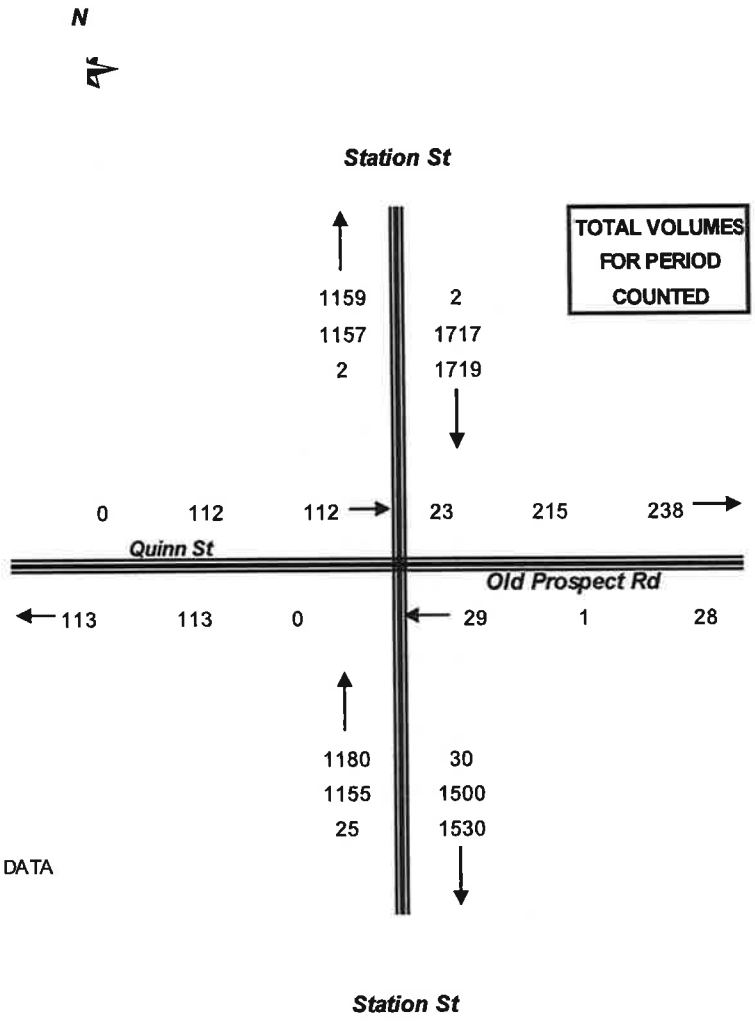
	NORTH	WEST	SOUTH	EAST	
	Station St	*Quinn St*	*Station St*	*Old Prospect Rd*	
Peak Per	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	TOT
1600 - 1700	5	5	0	2	12
1615 - 1715	5	7	0	3	15
1630 - 1730	7	6	0	2	15
1645 - 1745	6	6	0	1	13
1700 - 1800	7	10	0	3	20
PEAK HR	6	6	0	1	13

TERRAFFIC PTY LTD

R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob. 0418 239019

Client : Terraffic Pty. Ltd.
Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St
Day/Date : Wednesday 23rd October 2013





TERRAFFIC PTY LTD

R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Terraffic Pty. Ltd.

Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St

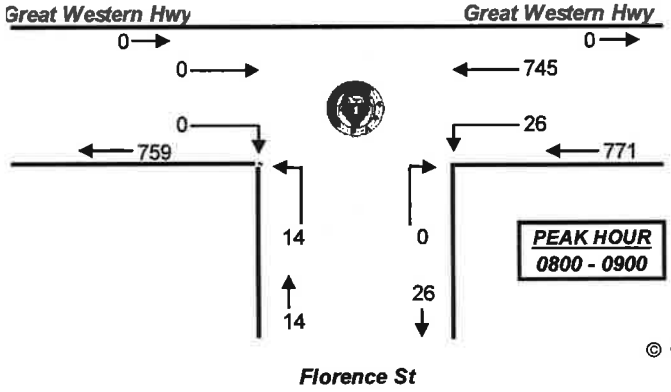
Day/Date : Wednesday 23rd October 2013

All Vehicles

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Time Per	T	R	L	R	L	T	TOTAL
0700 - 0715			3		5	134	**142**
0715 - 0730			0		0	128	**128**
0730 - 0745			0		2	219	**221**
0745 - 0800			0		1	191	**192**
0800 - 0815			4		3	155	**162**
0815 - 0830			2		8	198	**208**
0830 - 0845			4		7	161	**172**
0845 - 0900			4		8	231	**243**
Period End	**0**	**0**	**17**	**0**	**34**	**1417**	**1468**

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Peak Per	T	R	L	R	L	T	TOTAL
0700 - 0800	0	0	3	0	8	672	**683**
0715 - 0815	0	0	4	0	6	693	**703**
0730 - 0830	0	0	6	0	14	763	**783**
0745 - 0845	0	0	10	0	19	705	**734**
0800 - 0900	0	0	14	0	26	745	**786**

PEAK HR	**0**	**0**	**14**	**0**	**26**	**745**	**785**

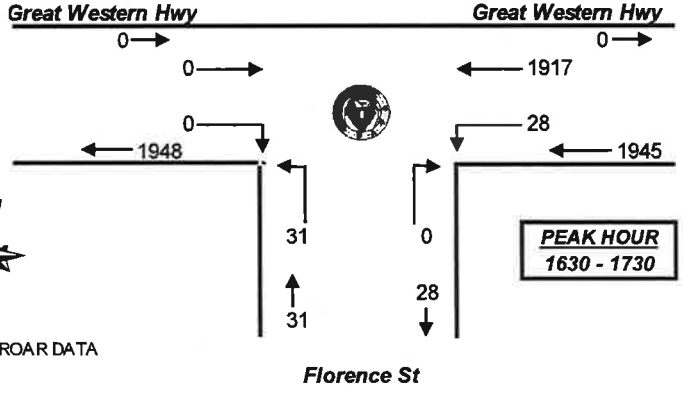


All Vehicles

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Time Per	T	R	L	R	L	T	TOTAL
1600 - 1615			10		5	478	**493**
1615 - 1630			18		10	367	**395**
1630 - 1645			7		8	462	**477**
1645 - 1700			2		9	480	**491**
1700 - 1715			13		5	452	**470**
1715 - 1730			9		6	523	**538**
1730 - 1745			12		7	416	**435**
1745 - 1800			10		6	398	**414**
Period End	**0**	**0**	**81**	**0**	**56**	**3576**	**3713**

	WEST		SOUTH		EAST		
	Great		*Florence St*		*Great*		
Peak Per	T	R	L	R	L	T	TOTAL
1600 - 1700	0	0	37	0	32	1787	**1856**
1615 - 1715	0	0	40	0	32	1761	**1833**
1630 - 1730	0	0	31	0	28	1917	**1976**
1645 - 1745	0	0	36	0	27	1871	**1934**
1700 - 1800	0	0	44	0	24	1789	**1857**

PEAK HR	**0**	**0**	**31**	**0**	**28**	**1917**	**1976**



R.O.A.R. DATA

Reliable, Original & Authentic Results

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

Client : Terraffic Pty. Ltd.

Job No/Name : 4854 STH. WENTWORTHVILLE Centenary St

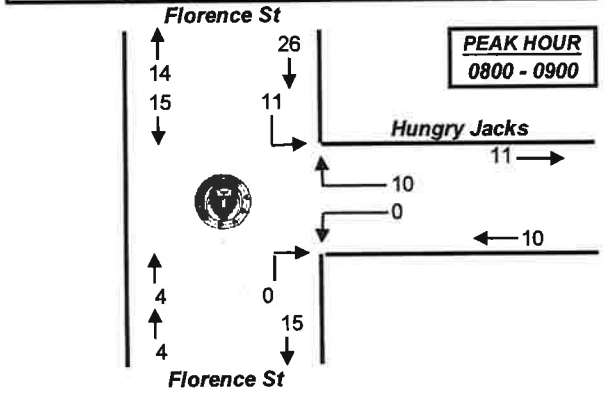
Day/Date : Wednesday 23rd October 2013

All Vehicles

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Time Per	T	L	R	L	R	T	TOTAL
0700 - 0715	4	1	3	0	0	0	8
0715 - 0730	0	0	0	0	0	0	0
0730 - 0745	1	1	0	0	0	0	2
0745 - 0800	1	0	0	0	0	0	1
0800 - 0815	1	2	2	0	0	2	7
0815 - 0830	3	5	2	0	0	0	10
0830 - 0845	5	2	3	0	0	1	11
0845 - 0900	6	2	3	0	0	1	12
Period End	21	13	13	0	0	4	51

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Peak Per	T	L	R	L	R	T	TOTAL
0700 - 0800	6	2	3	0	0	0	11
0715 - 0815	3	3	2	0	0	2	10
0730 - 0830	6	8	4	0	0	2	20
0745 - 0845	10	9	7	0	0	3	29
0800 - 0900	15	11	10	0	0	4	40

PEAK HR	15	11	10	0	0	4	40

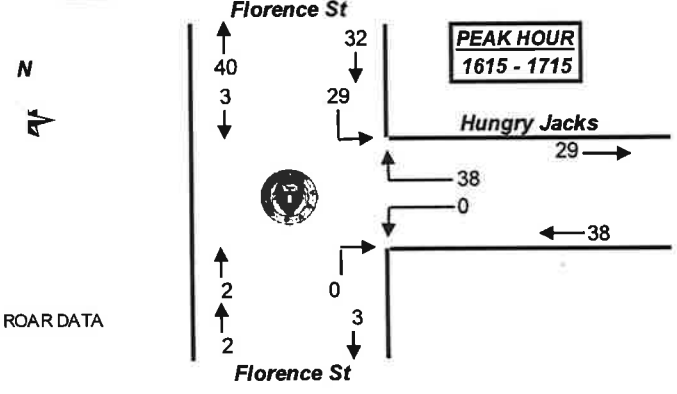


All Vehicles

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Time Per	T	L	R	L	R	T	TOTAL
1600 - 1615	1	4	10	0	0	0	15
1615 - 1630	0	8	17	0	0	1	26
1630 - 1645	0	10	7	0	0	0	17
1645 - 1700	1	8	2	0	0	0	11
1700 - 1715	2	3	12	0	0	1	18
1715 - 1730	2	4	8	0	0	1	15
1730 - 1745	1	6	11	0	0	1	19
1745 - 1800	3	3	9	0	0	1	16
Period End	10	46	76	0	0	5	137

	NORTH		EAST		SOUTH		
	Florence St		*Hungry*		*Florence St*		
Peak Per	T	L	R	L	R	T	TOTAL
1600 - 1700	2	30	36	0	0	1	69
1615 - 1715	3	29	38	0	0	2	72
1630 - 1730	5	25	29	0	0	2	61
1645 - 1745	6	21	33	0	0	3	63
1700 - 1800	8	16	40	0	0	4	68

PEAK HR	3	29	38	0	0	2	72



TERRAFFIC PTY LTD

APPENDIX B

SIDRA MOVEMENT SUMMARY SHEETS

FOR THE

CENTENARY ROAD/QUINN STREET INTERSECTION

MOVEMENT SUMMARY

Site: Centenary Rd and Quinn St/Old Prospect Rd - Existing AM Peak

Existing AM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Centenary Rd											
1	L2	2	0.0	0.772	22.4	LOS B	21.1	151.1	0.80	0.75	46.0
2	T1	688	2.9	0.772	16.8	LOS B	21.1	151.1	0.80	0.75	47.0
3	R2	69	26.1	0.132	15.6	LOS B	0.7	5.0	0.70	0.71	46.5
Approach		759	5.0	0.772	16.8	LOS B	21.1	151.1	0.79	0.75	46.9
East: Old Prospect Rd											
4	L2	11	100.0	0.010	6.0	LOS A	0.0	0.0	0.00	0.58	53.2
Approach		11	100.0	0.010	6.0	NA	0.0	0.0	0.00	0.58	53.2
North: Centenary Rd											
7	L2	13	0.0	0.698	20.6	LOS B	19.6	140.4	0.79	0.72	47.0
8	T1	667	3.0	0.698	15.1	LOS B	19.6	140.4	0.79	0.72	48.0
9	R2	11	0.0	0.045	29.0	LOS C	0.3	2.3	0.77	0.68	37.1
Approach		691	2.9	0.698	15.4	LOS B	19.6	140.4	0.79	0.72	47.8
West: Quinn St											
10	L2	11	0.0	0.020	11.4	LOS A	0.2	1.2	0.56	0.63	45.6
12	R2	1	0.0	0.020	11.4	LOS A	0.2	1.2	0.56	0.63	45.6
Approach		12	0.0	0.020	11.4	LOS A	0.2	1.2	0.56	0.63	45.6
All Vehicles		1473	4.7	0.772	16.0	LOS B	21.1	151.1	0.79	0.73	47.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians							
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		24	15.3	LOS B			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Centenary Rd and Quinn St/Old Prospect Rd - Existing PM Peak

Existing PM Peak Period
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Centenary Rd											
1	L2	1	0.0	0.621	19.2	LOS B	14.4	103.6	0.72	0.64	47.9
2	T1	550	3.6	0.621	13.6	LOS A	14.4	103.6	0.72	0.64	49.0
3	R2	56	17.9	0.148	19.2	LOS B	0.9	6.0	0.81	0.72	44.5
Approach		607	4.9	0.621	14.2	LOS A	14.4	103.6	0.73	0.64	48.5
East: Old Prospect Rd											
4	L2	14	100.0	0.013	6.0	LOS A	0.0	0.0	0.00	0.58	53.2
Approach		14	100.0	0.013	6.0	NA	0.0	0.0	0.00	0.58	53.2
North: Centenary Rd											
7	L2	59	0.0	0.904	38.9	LOS C	36.4	260.1	0.89	1.03	37.9
8	T1	755	2.6	0.904	33.4	LOS C	36.4	260.1	0.89	1.03	38.6
9	R2	54	0.0	0.162	25.2	LOS B	1.5	10.7	0.73	0.73	38.6
Approach		868	2.3	0.904	33.2	LOS C	36.4	260.1	0.88	1.01	38.5
West: Quinn St											
10	L2	52	0.0	0.077	8.8	LOS A	0.6	4.2	0.45	0.64	47.1
12	R2	2	0.0	0.077	8.8	LOS A	0.6	4.2	0.45	0.64	47.1
Approach		54	0.0	0.077	8.8	LOS A	0.6	4.2	0.45	0.64	47.1
All Vehicles		1543	4.1	0.904	24.6	LOS B	36.4	260.1	0.80	0.85	42.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians							
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	11.6	LOS B	0.0	0.0	0.54	0.54
All Pedestrians		24	15.3	LOS B			0.60	0.60

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Centenary Rd and Quinn St/Old Prospect Rd - Proposed AM Peak 2

Proposed AM Peak Period
One way eastbound only and traffic generated by proposed development PLUS neighbouring sites
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Centenary Rd											
2	T1	725	2.8	0.758	14.0	LOS A	20.4	146.1	0.76	0.70	48.8
3	R2	69	26.1	0.122	14.1	LOS A	0.7	4.8	0.65	0.70	47.4
Approach		794	4.8	0.758	14.0	LOS A	20.4	146.1	0.75	0.70	48.7
East: Old Prospect Rd											
4	L2	11	100.0	0.010	6.0	LOS A	0.0	0.0	0.00	0.58	53.2
Approach		11	100.0	0.010	6.0	NA	0.0	0.0	0.00	0.58	53.2
North: Centenary Rd											
7	L2	13	0.0	0.642	18.4	LOS B	18.4	132.3	0.74	0.67	48.3
8	T1	678	2.9	0.642	12.9	LOS A	18.4	132.3	0.74	0.67	49.4
Approach		691	2.9	0.642	13.0	LOS A	18.4	132.3	0.74	0.67	49.4
West: Quinn St											
10	L2	82	0.0	0.359	19.5	LOS B	2.2	15.6	0.89	0.77	41.4
12	R2	41	0.0	0.359	19.5	LOS B	2.2	15.6	0.89	0.77	41.3
Approach		123	0.0	0.359	19.5	LOS B	2.2	15.6	0.89	0.77	41.4
All Vehicles		1619	4.3	0.758	13.9	LOS A	20.4	146.1	0.75	0.69	48.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians							
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	8.6	LOS A	0.0	0.0	0.46	0.46
All Pedestrians		24	12.8	LOS B			0.54	0.54

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: Centenary Rd and Quinn St/Old Prospect Rd - Proposed PM Peak 2

Proposed PM Peak Period
One way eastbound only and traffic generated by proposed development PLUS neighbouring sites
Signals - Fixed Time Cycle Time = 80 seconds (User-Given Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total 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: Centenary Rd											
2	T1	633	3.2	0.663	12.3	LOS A	16.1	115.9	0.70	0.63	49.9
3	R2	56	17.9	0.145	18.7	LOS B	0.9	6.2	0.78	0.72	44.8
Approach		689	4.4	0.663	12.8	LOS A	16.1	115.9	0.71	0.64	49.4
East: Old Prospect Rd											
4	L2	14	100.0	0.013	6.0	LOS A	0.0	0.0	0.00	0.58	53.2
Approach		14	100.0	0.013	6.0	NA	0.0	0.0	0.00	0.58	53.2
North: Centenary Rd											
7	L2	59	0.0	0.806	23.0	LOS B	28.9	206.6	0.87	0.83	45.4
8	T1	809	2.5	0.806	17.4	LOS B	28.9	206.6	0.87	0.83	46.4
Approach		868	2.3	0.806	17.8	LOS B	28.9	206.6	0.87	0.83	46.3
West: Quinn St											
10	L2	36	0.0	0.157	18.7	LOS B	1.0	7.3	0.82	0.72	41.8
12	R2	18	0.0	0.157	18.7	LOS B	1.0	7.3	0.82	0.72	41.7
Approach		54	0.0	0.157	18.7	LOS B	1.0	7.3	0.82	0.72	41.7
All Vehicles		1625	3.9	0.806	15.6	LOS B	28.9	206.6	0.79	0.74	47.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P3	North Full Crossing	4	34.2	LOS D	0.0	0.0	0.93	0.93
P4	West Full Crossing	20	8.6	LOS A	0.0	0.0	0.46	0.46
All Pedestrians		24	12.8	LOS B			0.54	0.54

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

APPENDIX C

SIDRA MOVEMENT SUMMARY SHEETS FOR THE GREAT WESTERN HIGHWAY/FLORENCE STREET INTERSECTION

MOVEMENT SUMMARY

∇ Site: Great Western Hwy and Florence St - Existing AM Peak

Existing AM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Florence St											
1	L2	14	0.0	0.012	5.2	LOS A	0.0	0.3	0.25	0.50	53.4
Approach		14	0.0	0.012	5.2	LOS A	0.0	0.3	0.25	0.50	53.4
East: Great Western Hwy											
4	L2	26	0.0	0.101	7.0	LOS A	0.0	0.0	0.00	0.09	73.2
5	T1	745	3.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.02	79.6
Approach		771	2.9	0.101	0.2	NA	0.0	0.0	0.00	0.02	79.4
All Vehicles		785	2.8	0.101	0.3	NA	0.0	0.3	0.00	0.03	78.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

∇ Site: Great Western Hwy and Florence St - Existing PM Peak

Existing PM Peak
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Florence St											
1	L2	31	0.0	0.036	6.7	LOS A	0.1	1.0	0.45	0.60	52.5
Approach		31	0.0	0.036	6.7	LOS A	0.1	1.0	0.45	0.60	52.5
East: Great Western Hwy											
4	L2	28	0.0	0.254	7.0	LOS A	0.0	0.0	0.00	0.04	73.9
5	T1	1917	3.0	0.254	0.0	LOS A	0.0	0.0	0.00	0.01	79.7
Approach		1945	3.0	0.254	0.1	NA	0.0	0.0	0.00	0.01	79.6
All Vehicles		1976	2.9	0.254	0.2	NA	0.1	1.0	0.01	0.02	79.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▽ Site: Great Western Hwy and Florence St - Projected AM Peak

Projected AM Peak - Includes traffic generated by proposed development PLUS neighbouring sites
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Florence St											
1	L2	43	0.0	0.036	5.0	LOS A	0.2	1.1	0.22	0.50	53.5
Approach		43	0.0	0.036	5.0	LOS A	0.2	1.1	0.22	0.50	53.5
East: Great Western Hwy											
4	L2	77	0.0	0.108	7.0	LOS A	0.0	0.0	0.00	0.25	70.8
5	T1	745	3.0	0.108	0.0	LOS A	0.0	0.0	0.00	0.04	79.2
Approach		822	2.7	0.108	0.7	NA	0.0	0.0	0.00	0.06	78.3
All Vehicles		865	2.6	0.108	0.9	NA	0.2	1.1	0.01	0.08	76.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

∇ Site: Great Western Hwy and Florence St - Projected PM Peak

Projected PM Peak - Includes traffic generated by proposed development PLUS neighbouring sites
Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total 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: Florence St											
1	L2	44	0.0	0.046	6.2	LOS A	0.2	1.3	0.41	0.58	52.9
Approach		44	0.0	0.046	6.2	LOS A	0.2	1.3	0.41	0.58	52.9
East: Great Western Hwy											
4	L2	143	0.0	0.270	7.0	LOS A	0.0	0.0	0.00	0.18	71.7
5	T1	1917	3.0	0.270	0.0	LOS A	0.0	0.0	0.00	0.04	79.2
Approach		2060	2.8	0.270	0.5	NA	0.0	0.0	0.00	0.05	78.7
All Vehicles		2104	2.7	0.270	0.6	NA	0.2	1.3	0.01	0.06	77.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.