The University of Sydney - Centre for Obesity, Diabetes and Cardiovascular Disease

Part 3A Project Application

Traffic and Transport Report

24 November 2009
Final

Prepared for
The University of Sydney

Halcrow MWT

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This report has been issued and amended as follows:

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V01	Draft for Client review	16/11/2009	PT	JR
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Contents

1 Introduction

This traffic and transport report has been prepared on behalf of The University of Sydney (University) to present the findings of traffic and transport investigations undertaken by Halcrow MWT (formerly Masson Wilson Twiney) for the proposed Centre for Obesity, Diabetes and Cardiovascular Disease (CODCD) development within the University.

This traffic and transport report has been prepared to accompany a Part 3A Project Application to the NSW Department of Planning (DoP).

The site of the proposed CODCD will be occupied by a new facility to be built within the University campus adjacent to the Royal Prince Alfred (RPA) Hospital campus and St John College.

The location of the CODCD site within the context of the University and the broader surrounding locality is shown in **Figure 1** and **Figure 2**.

The CODCD represents the first stage of a wider Life Science Research Precinct (previously referred to as the ARC Precinct) identified in the University's Campus 2020 Master Plan[1]. Further details of the site's location within the University's Life Sciences Research Precinct are provided in **Appendix A**.

The CODCD project will provide much needed space for existing and future University teaching and research in the biomedical sciences and improve collaborative links between the University and RPA Hospital.

It is proposed that the CODCD building will have a total population of some 2175 people, comprising:

- 1,140 staff (including researchers, academic and teaching staff and support staff)
- 980 students
- 55 volunteers involved in clinical trials

[1] The University of Sydney Campus 2020 Masterplan, (March 2008)

SITE LOCATION

THE UNIVERSITY OF SYDNEY - CODCD PROJECT

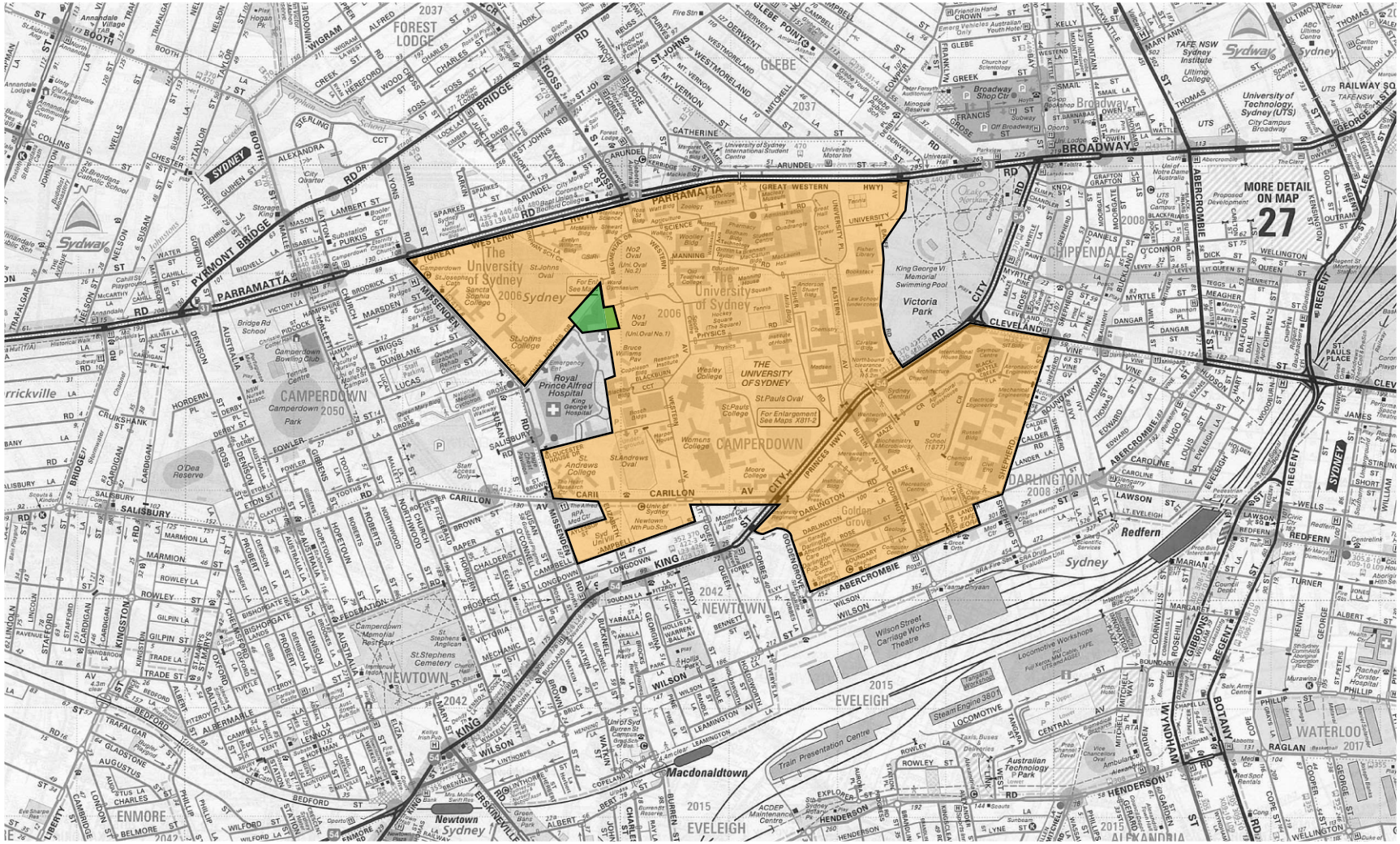

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Figure 1

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Date: 17 November 2009

SITE LOCATION

THE UNIVERSITY OF SYDNEY - CODCD PROJECT

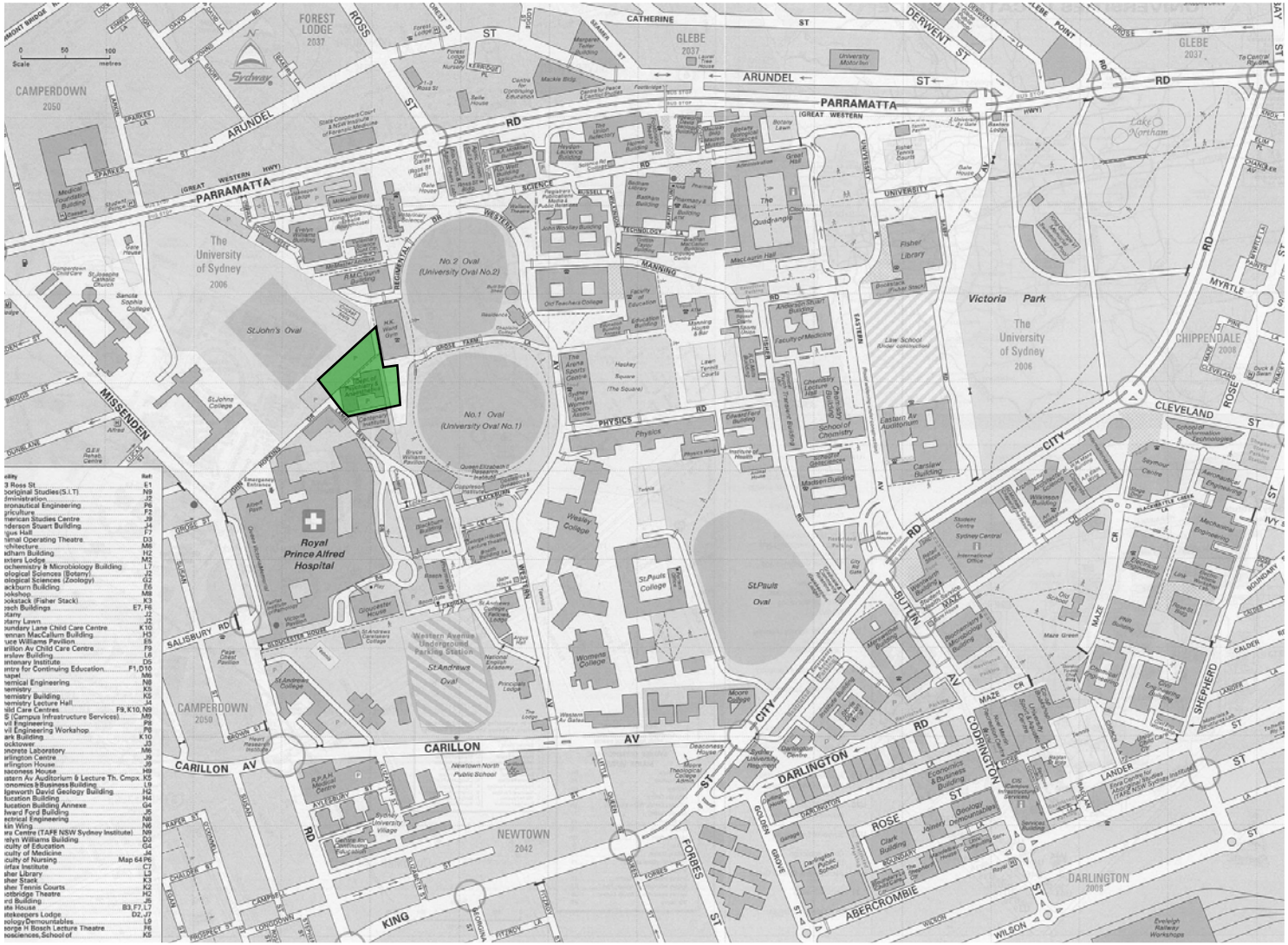

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Figure 2

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Date: 17 November 2009

The CODCD building will provide some 200 car parking spaces, 125 bicycle parking spaces and a loading dock within a basement parking area.

Additional at grade drop off / short stay visitor parking facilities will also be provided. Access to parking is proposed via:

- Western Avenue (Parramatta Road / Ross Street) access;
- Veterinary School access (Parramatta Road); and
- John Hopkins Drive.

This report presents the findings of the traffic and transport assessment in the following sections:

- Chapter 2: provides an overview of the relevant traffic and transport objectives for the University as defined by the Campus 2020 Masterplan;
- Chapter 3: describes the existing traffic, parking and transport conditions;
- Chapter 4: provides an overview of the proposed CODCD development and presents the findings of the traffic and transport assessment; and
- Chapter 5: presents the conclusions of study.

2 Campus 2020 Masterplan

2.1 Background

The Campus 2020 Masterplan (Masterplan) provides the outcomes of a comprehensive planning review of the University's Camperdown and Darlington campuses.

The Masterplan is intended to provide a blueprint for future development of the Darlington and Camperdown campuses and a reference point for assessment of future building proposals. The Masterpan establishes underlying principles which will be used to guide future development.

In establishing the principle of future development, the Masterplan seeks to address key challenges including:

- provision of sufficient accommodation for the needs of research and teaching;
- motor vehicle access, parking and traffic management;
- restoration and adaptive reuse of heritage buildings; and
- restoration and enhancement of pedestrian linkages across the campuses.

2.2 Masterplan Transport Objectives and Strategies

The Masterplan recognises the University's good access to a number of different public transport modes and various transport routes.

Facilitating and improving internal access to public transport (ie. pedestrian routes to bus stops and railway stations) has the potential to improve public transport use for travel to and from the University. The pedestrian framework established in the Masterplan seeks to address this issue.

The Masterplan also recognises the University's objective of reducing the extent of vehicle intrusions into and across the campuses with its associated impacts on pedestrian / vehicles conflicts and car parking demand.

The Masterplan enhances the University's strategy of providing basement parking facilities on the periphery of the Campus thereby allowing the elimination of at grade parking. The use of periphery parking areas will reduce the impacts of vehicle intrusions into the University.

This car parking strategy has been successfully implemented with the recent Faculty of Law building car park and the pedestrianisation of Eastern Avenue.

Extracts from the Masterplan depicting the public transport access, car parking strategy and pedestrian linkages are provided in **Appendix B**.

3 Existing Traffic and Transport Conditions

3.1 Surrounding Road and Transport Networks

3.1.1 Public Transport

The extracts from the Masterplan shown in **Appendix B** illustrate the University's proximity to good public transport facilities.

The University is within walking distance of Redfern and MacDonaldtown railway stations, bus services run along the University's frontages to Parramatta Road, City Road, Missenden Road and Carillon Avenue.

Stage 2 of the proposed Sydney Metro also reflects the potential travel demand generated by the University with Metro stations identified for Camperdown and Broadway.

3.1.2 Road Network

The road network surrounding the University is shown in **Figure 1**. Both Parramatta Road and City Road function as major arterial roads leading to and from the CBD. Access to the University is provided from both of these arterial roads.

Missenden Road and Carrillon Avenue provide a road link between Parramatta Road and City Road. These roads also provide access to sensitive land uses such as the RPA Hospital and the University.

The site of the proposed CODCD building can be accessed from Missenden Road via John Hopkins Drive. John Hopkins Drive functions as a shared vehicle, bicycle and pedestrian link providing access between the Missenden Road, the University and RPA Hospital.

The function of John Hopkins Drive as a shared route combined with the adjacent St Johns public car park access and high activity along Missenden Road makes this a sensitive link with respect to further intensification associated with the CODCD project.

It is understood from discussions with the City of Sydney that traffic signals are proposed for the Missenden Road / John Hopkins Drive intersection and a formal cycleway will be provided along Missenden Road.

3.2 Surveyed Traffic Flows

Peak hour vehicle turning movements were surveyed at three intersections. The surveys were conducted in October and November 2009 at the following locations:

- Parramatta Road / Ross Street / Western Avenue (signalised intersection);
- Missenden Road / John Hopkins Drive / Grose Street (priority controlled 4-way intersection); and
- Carillon Avenue / Western Avenue (priority T-intersection).

These locations were surveyed as they represent the potential access intersections to the proposed CODCD building. The surveys were conducted during the morning (7-10am) and evening (3-6pm) peak period on a weekday.

The surveys indicated that:

- The morning peak hour period on the surrounding road network is between 8.15-9.15am;
- The afternoon/evening peak hour period on the surrounding road network is between 4.30-5.30pm.

The midblock two-way flows for these peak hours are summarised in Table 3.1 and intersection turning movement flows are presented on **Figures C.1** and **C.2** in **Appendix C,** for the morning and evening peak periods respectively. The detailed survey data is attached at **Appendix D**.

From the traffic flows presented in Table 3.1 it can be concluded that the evening peak period is the heaviest for traffic on the local road network, in particular on Parramatta Road and Ross Street.

Table 3.1 – Surveyed Average Two-way Peak Hour Flows

Locations	Morning Peak Hour (veh/hr)	Evening Peak Hour (veh/hr)
Parramatta Road	3135	3554
Ross Street	791	957
Western Avenue	256	290
Orphan School Creek Lane	36	37
Missenden Road	947	1000
John Hopkins Drive	122	125
Carillon Avenue	1059	1098

Surveys undertaken October / November 2009

3.3 Existing Intersection Operation

3.3.1 Summary of SIDRA Intersection Analysis

The existing operation of the surveyed intersections was analysed using the SIDRA intersection analysis programme.

SIDRA determines the average delay that vehicles encounter and the corresponding level of service. For priority controlled intersections (i.e. Stop and Give-Way signed), the assessed intersection delay is the delay for the worst affected movement at the intersection.

SIDRA provides intersection performance measures which can be compared to the performance criteria set out in the following Table 3.2.

The results of the existing intersection performances are presented in Table 3.3.

Table 3.2 – Level of Service Criteria

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

Adapted from RTA Guide to Traffic Generating Developments, 2002.

Table 3.3 – Existing Intersection Performance

Intersection	Control Type	Morning Peak		Evening Peak	
		Ave. Delay (sec/veh)	Level of Service	Ave. Delay (sec/veh)	Level of Service
Parramatta Rd / Ross St / Western Ave (north)	Signal	15.7	B	16.1	B
Parramatta Rd / Orphan School Creek Lane	Priority	13.4	A	57.8	E
Carillon Ave / Western Ave (south)	Priority	30.4	C	32.2	C

Average Delay is for the worst movement at priority and roundabouts.

3.3.2 Parramatta Road / Ross Street / Western Avenue Intersection

From Table 3.3, it can be seen that the Parramatta Road intersection with Ross Street and Western Avenue currently operates at a 'Good' level with average delays of

approximately 16 seconds per vehicle and a corresponding Level of Service (LoS) of B for both peak periods.

For the purpose of later discussion within this report, the SIDRA analysis of the Parramatta Road signalised intersection with Ross Street and Western Avenue, has been based on a three-phase signal operation. The phases used in the SIDRA analysis accord with the RTA's TCS (signal) plan and observed phasing operations for the intersection and can be summarised as follows:

- PHASE A – West and East approaches of Parramatta Road, with filtered right-turn into Ross Street and pedestrians across Ross Street and Western Avenue approaches;
- PHASE B – Full East approach of Parramatta Road (including right-turn into Ross Street), with left-turn from Ross Street;
- PHASE C – North approach of Ross Street and South approach of Western Avenue with right-turn filters and pedestrians across Parramatta Road East approach.

The signal plan is provided at **Appendix E**.

The Ross Street / Western Avenue intersection is part of a co-ordinated series of signalised intersections. Based on traffic signal data (including oberservations) Parramatta Road signalised intersections typically operate with a 150 second cycle time. Using the 150 second cycle time, SIDRA has calculated that the optimum phase times for the intersection are:

- PHASE A – 98 seconds during the morning peak period and 93 seconds during the evening peak;
- PHASE B – 12 seconds during the morning peak period and 14 seconds during the evening peak; and
- PHASE C – 40 seconds during the morning peak period and 43 seconds during the evening peak.

3.3.3 Carrillon Avenue / Western Avenue Intersection

The 'critical' approach for the Carillon Avenue priority intersection with Western Avenue is the southbound approach of Western Avenue. However, the intersection still

operates to a 'satisfactory' level with vehicles exiting Western Avenue experiencing average delays of 30-32 seconds per vehicles and a corresponding Level of Service (LoS) of C for both peak periods.

3.3.4 Parramatta Road / Orphan School Creek Lane Intersection

Critical approach for the Parramatta Road left-in, left-out priority intersection with Orphan School Creek Lane, is the left-out exit of Orphan School Creek Lane. During the morning peak period, when the majority of traffic is entering via the left-in movement, the intersection operates to a 'Good' LoS of A. However, during the evening peak period when the majority of traffic on Orphan School Creek Lane is exiting via the left-out, average delays to vehicles attempting to enter the westbound stream on Parramatta Road are approximately 58 seconds per vehicle and therefore achieves a corresponding LoS of E.

SIDRA analysis for the priority intersection has assumed that the intersection operates is in isolation and that westbound traffic on Parramatta Road arrives 'randomly'. However, consideration should be given to the proximity of the upstream intersection of Ross Street and Western Avenue with Parramatta Road. These traffic signals 'bunch' traffic together in what are referred to as 'Platoons' and means that the traffic does not arrive randomly but in periods of heavy traffic flow, followed by periods of significantly lighter traffic flow. It is this characteristic of traffic signal operation, combined with the Orphan School Creek Lane intersection's proximity to the traffic signals that enables the intersection to operate satisfactorily.

Furthermore, traffic flows exiting to Parramatta Road via Orphan School Creek Lane are relatively low (less than 40 vehicles per hour) and hence queuing within the University is minimal (1-2 vehicles).

3.4 University Car Parking Facilities

3.4.1 University Car Parking Strategy

As described in Section 2 of this report, the University's strategy for car parking is to provide basement car parking areas located on the periphery of the various campus precincts.

The objective of this strategy is to allow for the removal of existing at grade parking scattered throughout the University and to reduce the extent of vehicle intrusions into the Campus enabling the creation of more pedestrian orientated links.
Parking within the University is generally controlled via allocated parking or authorised parking passes. For example the new Faculty of Law building car park is restricted during normal hours to authorised staff parking only.

In this regard demand for on site car parking is dampened.

3.4.2 University Car Park Traffic Generation Rates

To determine the traffic generation characteristic of on site parking, surveys were undertaken of the new Faculty of Law building car park.

The detailed survey results are provided in **Appendix D**.

These surveys show that there is a generation of:

- AM Peak (8:45am-9:45am) - 0.61 vehicles / hour / parking space
- PM Peak (16:45-17:45) - 0.38 vehicles / hour / parking space

The distribution of vehicle trips was found to be 90% inbound and 10% outbound in the AM Peak and vice versa for the PM Peak.

4 Assessment of CODCD Development Proposal

4.1 Overview of Proposed CODCD Development

With regard to traffic and transport the proposed CODCD development will include the following key features:

- CODCD Building Uses:
  - Building population of approximately 2,175 people, comprising staff, students and clinic patients:
  - Wet research laboratories;
  - Dry research laboratories;
  - Tertiary Units, including clinical research and clinical trial facilities;
  - Educational areas, including teaching labs, auditorium, academic and support staff offices;
  - Support areas and amenities;
  - Basement Car Parking area for approximately 200 cars (including 5 disabled spaces);
  - Bicycle parking for 125 spaces;
  - Loading Dock Facility to be located with the basement parking area; and
  - Drop Off / pick up reception areas at ground level.

- Site Access (Vehicle)
  - New access road via Orphan Creek Road alignment providing access to new basement car park and loading dock. Intersection at Parramatta Road;
  - New access road from Western Avenue at the rear of the No. 1 Oval Grand Stand. This access can be accessed from Parramatta Road (at Ross Street intersection and Carillon Avenue. This new road will provide access to the new basement car park;
  - John Hopkins Drive – access to drop off / pick up facility and at grade visitor parking for people attending the clinics. No direct vehicle access to basement parking is provided via John Hopkins Drive; and

- Regimental Drive – formalisation of an existing access to facilitate drop off / pick up facilities. No direct vehicle access to basement parking is provided via Regimental Drive.

The proposed vehicle access arrangements are shown in Figure 3. It is noted that the new road along the Orphans Creek Road alignment is proposed to be constructed such that it can be utilised for construction vehicle access (trucks) during the construction stages of the project.

The proposed access arrangements have been developed with consideration to a number of factors, including:

- Avoiding significant intensification of vehicle movements along John Hopkins Drive;
- Providing direct vehicle access to basement car parking and loading areas minimising interaction with pedestrian links;
- Access to facilitate future development of the Life Sciences precinct; and
- Access to be consistent with the Masterplan traffic management strategy.

As is documented further in this section of the report, the proposed CODCD project is considered to be consistent with the Campus 2020 Masterplan with regard to the masterplan's transport objectives and the vehicle and pedestrian access arrangements.

4.2 Consultation with Authorities

As part of the Project Application traffic and transport assessment for the CODCD project, consultation was undertaken with:

- City of Sydney (Council); and
- NSW Roads and Traffic Authority (RTA).

Key issues identified through the consultations were:

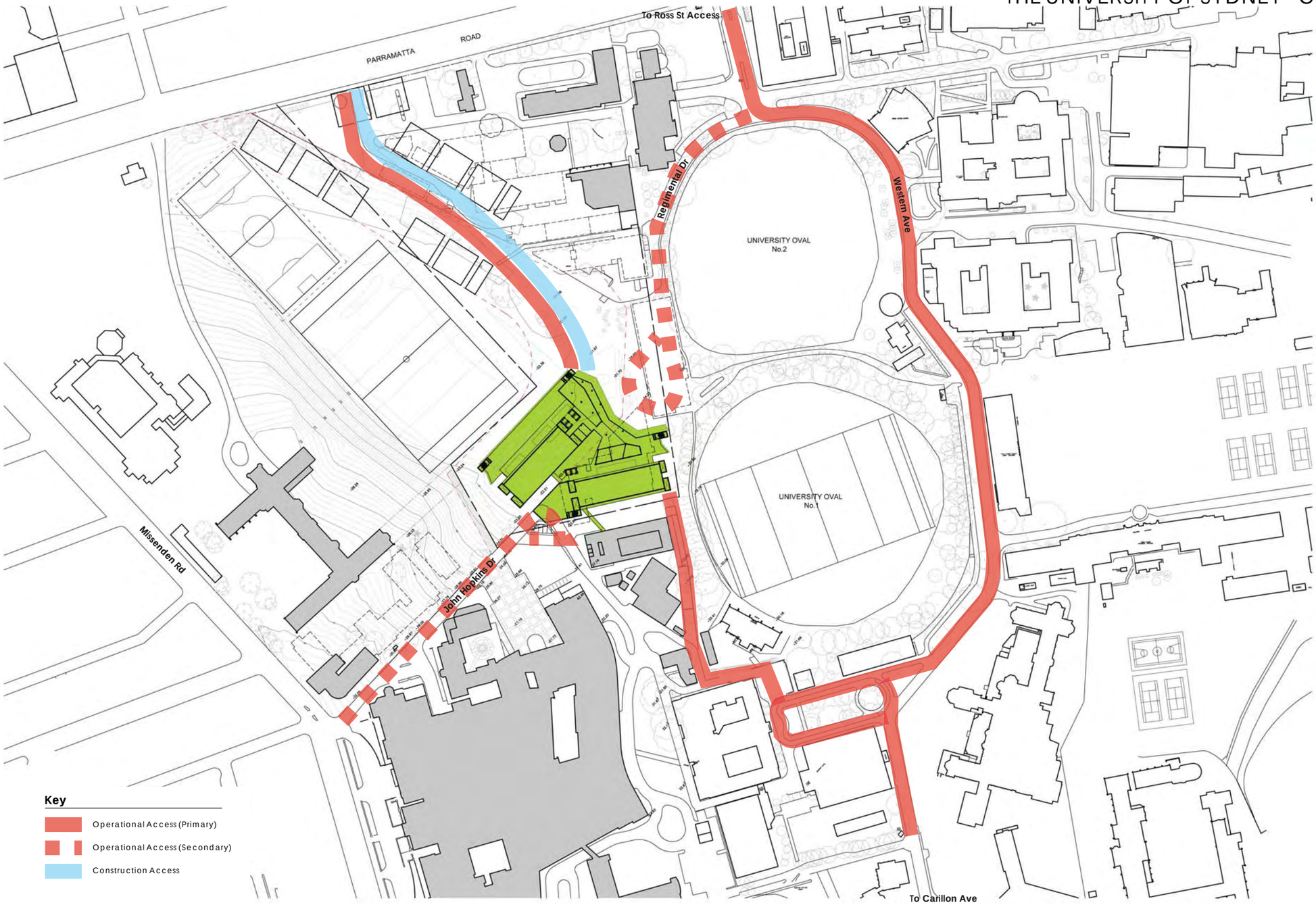
- Operation of the surrounding road network, particularly University access intersections;
- Potential implications of intensification of activity along John Hopkins Drive;
- Service vehicle activity and loading arrangements; and
- Consistency with Masterplan transport objectives.

PROPOSED SITE ACCESS

THE UNIVERSITY OF SYDNEY - CODCD PROJECT

HASSELL

North



Client	Project	Filename	Drawing	Drawing No	Project No	Scale	Drawn By
The University of Sydney	CODCD	CTLRDEdi01	SITE PLAN	SK-011_01	AX001942	NTS	MC

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Figure 3

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Date: 19 November 2009

Each of these issues is discussed below.

4.3 Estimated Traffic Generation and Distribution

The traffic generation potential of the proposed CODCD development has been based on surveyed car park traffic generation rates for the Faculty of Law building as set out in Section 3.4.2.

By applying these traffic generation rates to the proposed 200 space car park, the likely peak hour traffic generation of the CODCD development has been calculated, as shown in the following Table 4.1.

Table 4.1 – Predicted Peak Hour Traffic Generation

	Surveyed Trip Rate (per parking space)	Proposed Parking Spaces	Estimated CODCD Trips (veh/hr)
Morning Peak Hour			
In	0.55	200	110
Out	0.06	200	12
Total	0.61	200	122
Evening Peak Hour			
In	0.04	200	8
Out	0.34	200	68
Total	0.38	200	76

The distribution assumptions for the development traffic to the local road network have been derived from the car park survey data and the existing (2009) traffic survey data.

In addition, consideration has been given to the access options available to potential staff of the CODCD; for instance, it is more likely that traffic approaching on Parramatta Road from the east would prefer to left-turn in at Orphans School Creek Lane as opposed to accessing the site from Western Avenue due to convenience of access.

Similarly, traffic approaching the site from the west on Parramatta Road would most likely right-turn at the Missenden Road intersection and access the site from Carillon Avenue due to the right-turn restriction at the Ross Street / Western Avenue intersection.

Figure C.3 contained in **Appendix C** presents the traffic distribution that has been assumed for the CODCD development traffic.

By applying these percentage splits to the traffic generation presented in Table 4.1, the likely trip assignment of development traffic on the local road network has been calculated; these traffic flows are presented on **Figures C.4** and **C.5**.

By adding these development flows to the surveyed background traffic flows, the Future Design Year (Base + Development) traffic flows on the local road network have been calculated and are presented on **Figures C.6** and **C.7** for the morning and evening peak periods respectively.

4.4 Link Flow Assessment

The midblock two-way flows with the proposed CODCD development during the peak hours are summarised in Table 4.2 along with the percentage increase in base traffic flows attributed to the CODCD development.

Table 4.2 – Proposed Two-way Peak Hour Flows (with CODCD) and Percentage Increase to Base Traffic

Locations	Morning Peak Hour		Evening Peak Hour	
	Two-way Flow (veh/hr)	% Increase	Two-way Flow (veh/hr)	% Increase
Parramatta Road	3147	0%	3557	0%
Ross Street	839	6%	989	3%
Western Avenue	310	21%	322	11%
Orphan School Creek Lane	49	36%	52	41%
Missenden Road	969	2%	1002	0%
John Hopkins Drive	122	0%	125	0%
Carillon Avenue	1088	3%	1111	1%

The CODCD development would generate the greatest percentage increase to midblock flows on Western Avenue and Orphan School Creek Lane. The percentage increases on the remaining links within the study road network are between 0-6%.

Based on these estimated link flows, Western Avenue and Orphan School Creek Lane would have sufficient road capacity to accommodate the additional traffic from the CODCD project. The other nearby roads are also expected to continue to operate satisfactorily.

4.5 Site Access Intersection Operation with CODCD

4.5.1 Study Network Overview

The "with CODCD Development" traffic flows have been analysed using SIDRA and the results are presented in Table 4.3.

Table 4.3 – "With CODCD Development" Intersection Performance

Intersection	Control Type	Morning Peak		Evening Peak	
		Ave. Delay (sec/veh)	Level of Service	Ave. Delay (sec/veh)	Level of Service
Parramatta Rd / Ross St / Western Ave (north)	Signal	17	B	17	B
Parramatta Rd / Orphan School Creek Lane	Priority	14	A	68	E
Carillon Ave / Western Ave (south)	Priority	34	C	38	C

Average Delay is for the worst movement at priority and roundabouts.

By comparing the results above with the results in Table 3.3, the following can be concluded:

- All intersections are anticipated to maintain existing levels of service with the additional CODCD development traffic flows;

- Average delays at the Parramatta Road intersection with Ross Street and Western Avenue are anticipated to increase by only 1 second per vehicle during the morning peak period and only 1.3 seconds during the evening peak;
- Average delays on the Western Avenue southbound approach to the Carillon Avenue intersection are anticipated to increase by only 4.0 seconds per vehicle during the morning peak period and only 5.3 seconds during the evening peak;
- Average delays on the Orphan School Creek Lane approach to the Parramatta Road intersection are anticipated to increase by only 0.1 seconds per vehicle during the morning peak period and 10.2 seconds during the evening peak.

The analysis predicts that the greatest impact would occur during the evening peak period for traffic exiting Orphan School Creek Lane on to Parramatta Road. However, for the reasons set out in Section 3.3.4, namely the interaction with the upstream signalised intersection at Ross Street and Western Avenue, the SIDRA analysis can be considered a conservative assessment of the likely operation of this intersection.

4.5.2 Parramatta Road Signalised Intersection with Ross Street and Western Avenue

The results above conclude that the impact of the CODCD development would have a negligible impact on the operation of the Parramatta Road signalised intersection with Ross Street and Western Avenue.

However, it is anticipated that the impact on this intersection would be of greatest significance to the RTA; therefore, the SIDRA analysis of this intersection is presented here in greater detail.

Firstly, it is worth noting that the phase times used for the with-development SIDRA analysis have not been allowed to re-optimise, but have been fixed to the phase times for the current operation as set out in Section 3.3.2. By doing this, the analysis maintains the 'green time' on Parramatta Road without potentially shifting green time to the side approaches of Western Avenue and Ross Street.

The following Table 4.4 provides a detailed summary of the SIDRA analysis by approach for the current operation (Base) and predicted with-development operation. Table 4.4 also includes the impact or change in performance measure for each approach attributed to the development traffic.

The analysis concludes that the CODCD development would have negligible impact on the Parramatta Road intersection with Ross Street and Western Avenue, even when considered by approach. The results conclude that the major East-West approaches of Parramatta Road would experience no material impact with average delays per vehicle anticipated to remain the same after development.

The greatest impact is anticipated to occur on Ross Street during the evening peak periods; however, this amounts to only an increase in delays of 7 seconds per vehicle.

Table 4.4 – Detailed SIDRA Results Summary

Movement	Base		"With CODCD Development"		Impact	
	Ave. Delay (sec/veh)	Level of Service	Ave. Delay (sec/veh)	Level of Service	Ave. Delay (sec/veh)	Level of Service
Morning Peak						
Western Ave (South)	54.1	D	54.3	D	0.2	-
Parramatta Rd (East)	5.8	A	5.8	A	-	-
Ross St (North)	70.0	E	73.4	F	3.4	E -> F
Parramatta Rd (West)	5.8	A	5.8	A	-	-
INTERSECTION	15.7	B	16.8	B	1.1	-
Evening Peak						
Western Ave (South)	54.6	D	55.8	D	1.2	-
Parramatta Rd (East)	7.8	A	7.8	A	-	-
Ross St (North)	71.3	F	78.3	F	7.0	-
Parramatta Rd (West)	3.5	A	3.5	A	-	-
INTERSECTION	16.1	B	17.4	B	1.3	-

4.5.3 Summary of Site Access Assessment

The site access intersection assessment indicates that the proposed site access arrangements would satisfactorily accommodate additional traffic demands associated with the CODCD project.

Furthermore the proposed site access arrangements is consistent with the Campus 2020 Masterplan and will facilitate the future development of the masterplan's long term access strategy.

It is noted that, while not part of this project application, future development of the Life Sciences Research precinct is likely to require upgrades to the capacity of the University accesses along Parramatta Road, with either:

- additional capacity for Western Avenue (additional lanes at exit);
- modifications to the signal phases at the Parramatta Road / Ross Street / Western Avenue intersection; and /or
- signalisation of the Orphan School Creek Lane intersection.

4.6 On Site Parking Arrangements

4.6.1 Parking Provision

It is proposed to provide approximately 200 car parking spaces within a basement car park below the CODCD building. These spaces will be restricted to allocated staff parking.

In addition approximately 15 visitor parking spaces will be provided for drop off / pick up and short stay parking for clinical research patients. These at grade spaces will be accessed via John Hopkins Drive.

South Sydney DCP 11 provides guideline rates for the provision of on site car parking. For tertiary education establishments DCP 11 specifies the following rates:

- 1 car space / 2 staff;
- 1 car space / 20 students (full time equivalents);
- 2 car spaces / consulting doctor (for clinical research trial patients); and
- 1 bicycle parking space / 20 student and staff member.

Applications of DCP 11 rates to the proposed CODCD project would require some 640 car parking spaces, comprising:

- 570 staff car parking spaces;
- 49 student car parking spaces; and
- 10-20 car parking spaces for clinical visitors.

The provision of 640 car parking spaces is not consistent with the transport objectives of Campus 2020 which seeks to minimise the intrusions of vehicles into the campus and to encourage alternate modes of transport.

The provision of 200 basement car parking spaces and 15 clinic visitor spaces is considered to be an appropriate balance between satisfying staff parking demands, encouraging alternate transport modes and maintaining consistency with the Campus 2020 transport objectives.

The provision of 125 bicycle parking spaces is in excess of DCP 11 minimum requirements and is considered to be appropriate for the development and consistent with the transport objectives of the University.

4.6.2 Design of Car Parking

The proposed basement car park access and layout has been designed to comply with AS2890.1/2/6 design requirements.

It is anticipated that compliance with these car park / loading dock design specifications will be included as a consent condition to be considered during detailed design prior to the issue of construction certification.

4.7 Vehicle / Pedestrian Interaction

The construction of a new access road along the Orphan School Creek Lane alignment for access to the basement car park will provide an access road separated from the major pedestrian linkages within the University. The proposed tunnel access will enable the provision of at grade pedestrianised areas with vehicle free links to RPA Hospital and the University.

Ultimately, as the Life Sciences precinct develops and the Campus 2020 traffic management plan develops increased separation of vehicles and pedestrians will occur along the Western Avenue access route to the CODCD basement car park.

4.8 Service Vehicle Arrangements

It is proposed to provide a loading dock facility within the basement car parking area of the CODCD building.

The loading dock and associated manoeuvring area will be separated from the car parking spaces. However service vehicles and cars accessing the car park will utilise the same access roads. These are shown as the "primary operational access" routes in **Figure 3**.

While access to the loading dock will be available via Western Avenue, it is expected that the majority of the service vehicle access will be via the new Orphan School Creek Lane access road.

The loading dock and manoeuvring area has been designed to accommodate vehicles up to and including a heavy rigid vehicle (HRV) as defined by AS2890.2.

The layout of the loading dock will accommodate 3 vehicles simultaneously (includes 1 service bay in a stacked arrangement).

While the stacked bay provides additional capacity, this arrangement is principally provided to accommodate refrigerated deliveries and materials requiring special handling procedures.

Service vehicles accessing the basement loading facility will include:

- Waste collection vehicles;
- Delivery of laboratory equipment and materials;
    - Dangerous goods such as liquid gases (eg. nitrogen and carbon dioxide)
    - Non dangerous laboratory goods
    - Sterile goods
    - Linen and laundry
    - Live animals
- Delivery of food and beverages for proposed café / eatery; and
- General office and amenity supplies.

The sizes of delivery vehicles will vary from small vans to heavy rigid vehicles (12.5m long). No articulated vehicle access to the loading area is proposed or designed for.

It is anticipated that up to 40 service vehicles per day will access the proposed loading dock.

The provision of 2-3 loading spaces is expected to adequately accommodate the proposed loading and delivery requirements of the CODCD building.

Notwithstanding the above, it is recommended that a loading dock management plan be implemented to maintain safe and efficient operation of the loading area. This would include dock handling procedures as well as measure to minimise and manage simultaneous demand for the dock (ie. appropriate queuing or holding areas).

4.9 Construction Traffic Impacts and Management

4.9.1 Overview of Construction Methodology

Details of the construction methodology for the CODCD project are yet to be determined. The methodology would be finalised once a contractor is appointed prior to construction certification.

Initial investigations indicate that there will be a surplus of earthwork material associated with the construction of the basement car park and ramps. This is estimated to be in the order of 50,000m3. The removal of excavated material is expected to occur over a 3 month period.

Access to the proposed construction site would be via the new access road from Parramatta Road along the Orphan School Creek Lane alignment.

Construction Traffic Management Plans will be prepared for each stage of construction activity on the proposed development site. Such plans will need to detail traffic generation, site access arrangements and implications on the operation and safety of the surrounding road network.

This section of the report outlines the potential impacts of construction traffic and principles of construction traffic management to be implemented with regard to construction activities associated with the CODCD project.

4.9.2 Potential Construction Traffic Impacts

The potential impacts of construction activities and construction traffic with regard to traffic and parking include:

- Construction vehicle access arrangements:
  - Impact on adjacent properties and land uses:
  - Access to the University ;
- Degradation of amenity via construction traffic noise;
- Road network operation – loss of intersection capacity with additional construction vehicles; and
- Safety implications for all road users as a result of additional heavy vehicle flows and new construction vehicle access arrangements.
- Potential loss of available on street parking:
  - Additional parking demand by construction workers;
  - Loss of on street parking to accommodate construction vehicle access.

4.9.3 Detailed Construction Traffic Management Plan

A detailed construction traffic management plan (CTMP) will need to be prepared and approved prior to construction works to address the potential impacts identified above. Essentially the CTMP sets out a plan to manage construction activities such that the potential implications are mitigated or appropriately managed.

This CTMP will need to include:

- Details of proposed works;
- Timing of proposed works;
- Hours of construction activities;
- Number of construction vehicles, particularly heavy vehicles to be used;
- Mitigation and management measures including use of stop / go signals, construction vehicle access arrangements and circulation; and
- Contact details for on site construction personnel.

The CTMP shall be prepared in accordance with RTA guidelines.

4.9.4 Construction Vehicle Routes

Vehicle access to and from the site will be generally restricted to the proposed (ie. existing) access routes to and from the site.

It is recommended that, to the maximum extent possible, materials delivered to or extracted from the site be undertaken via Parramatta Road.

It is recommended that heavy construction vehicles be restricted from accessing the site via Parramatta Road during the PM commuter peak period (ie. 4pm – 6pm).

4.9.5 Amenity Impacts

The amenity impacts associated with construction traffic are principally associated with noise, vibration and safety issues.

It is suggested that the hours of operation for construction vehicle movements be restricted to agreed hours so that the impacts of construction vehicle noise on amenity can be mitigated for sensitive times (ie. night time, weekends).

4.9.6 On Street Parking Impacts

To further mitigate on street parking implications, dedicated parking spaces should be provided off street for construction workers vehicles either within the site or the University campus.

4.9.7 Site Access and Construction Vehicle Manoeuvring

Construction vehicle access arrangements should be designed such that all construction vehicles can enter and exit the site in a forward direction.

This will require the provision of sufficient on site manoeuvring area to accommodate the large vehicle expected to access the site during the construction period.

5 Conclusions

This traffic and transport assessment has been undertaken to consider the implications of the proposed Project Application for the CODCD project within the University of Sydney.

The proposed CODCD project is considered to be consistent with the University's Campus 2020 Masterplan with regard to:

- On site parking strategy;
- Vehicle access arrangements;
- Promotion of pedestrian links and separation of pedestrian and vehicle movements; and
- Longer term development potential of the Life Sciences Research precinct.

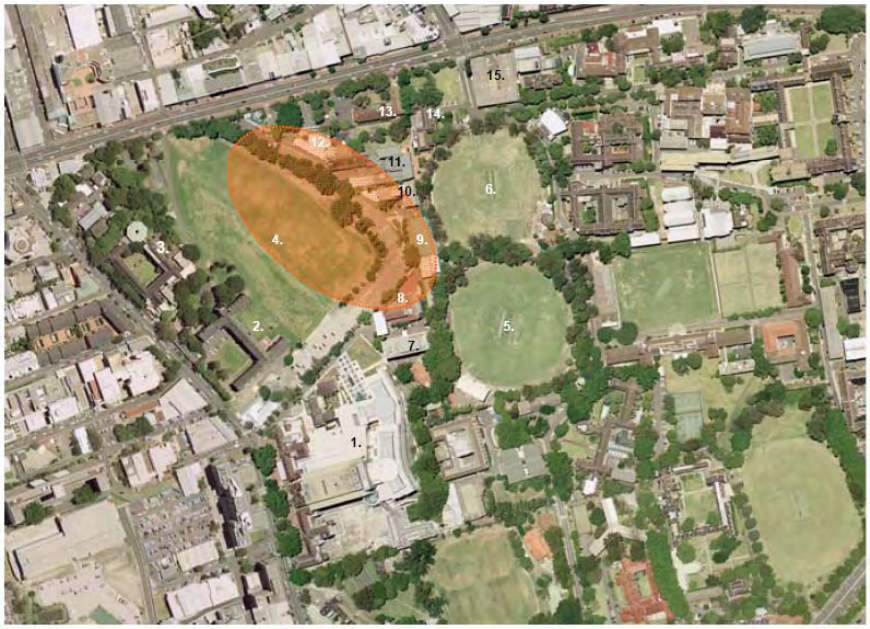
The proposed access arrangements have been specifically developed to avoid significant intensification of vehicle traffic along John Hopkins Drive which Council and this assessment has identified as a sensitive link due to its function as a shared vehicle / pedestrian / cycle route.

With regard to the proposed CODCD project it is concluded that the surrounding road network can adequately accommodate the estimated traffic generation of the site.

While details of the proposed construction works and associated traffic management will need to be further developed during detail design, the proposed construction methodology which includes the provision of a new construction vehicle access via Orphan School Creek Lane will minimise the potential conflicts with internal traffic and pedestrian links within the University.

Appendix A Life Sciences Research Precinct

Aerial photograph – Life Sciences Research Precinct



1	Royal Prince Alfred Hospital	9	HK Ward Gymnasium
2	St John's College	10	Gunn Building
3	Sancta Sophia College	11	Veterinary Science Conference Centre
4	St John's Oval	12	Evelyn Williams Building
5	Oval No. 1	13	McMaster Building
6	Oval No. 2	14	J.D. Stewart Building
7	Centenary Institute	15	Ross St Building
8	Department of Health		

Notional CODCD footprint boundary shaded in blue.

The building footprint shown is the one indicated in the Campus 2020 Masterplan for the LSRP and is indicative only.

Appendix B Campus 2020 Masterplan

Source: University of Sydney – Campus 2020 Masterplan (March 2008)

PUBLIC TRANSPORTATION

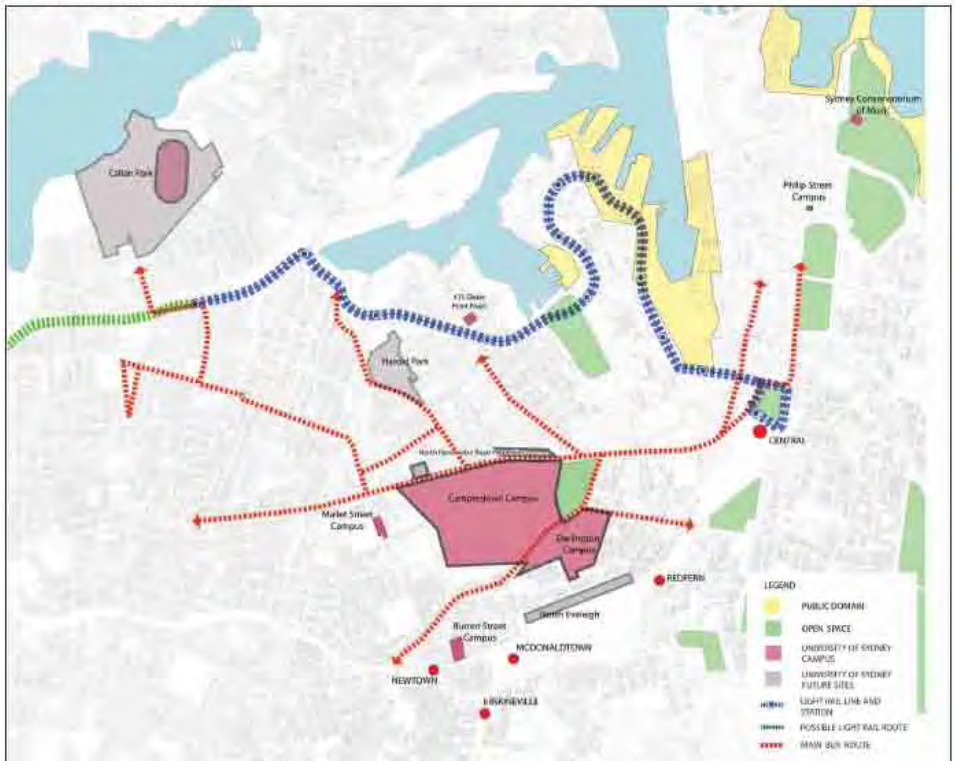
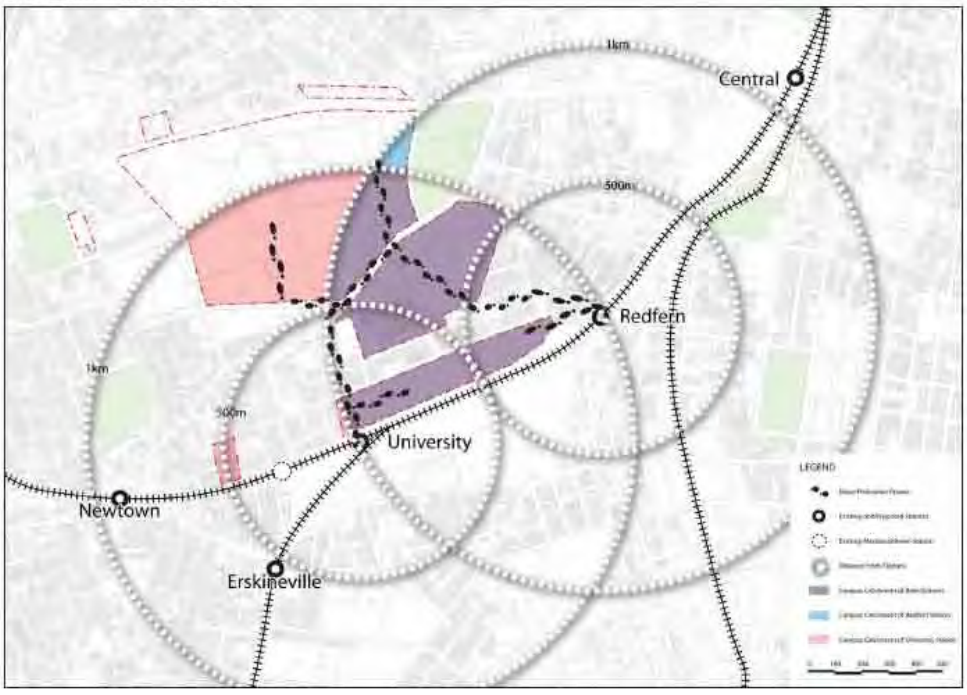
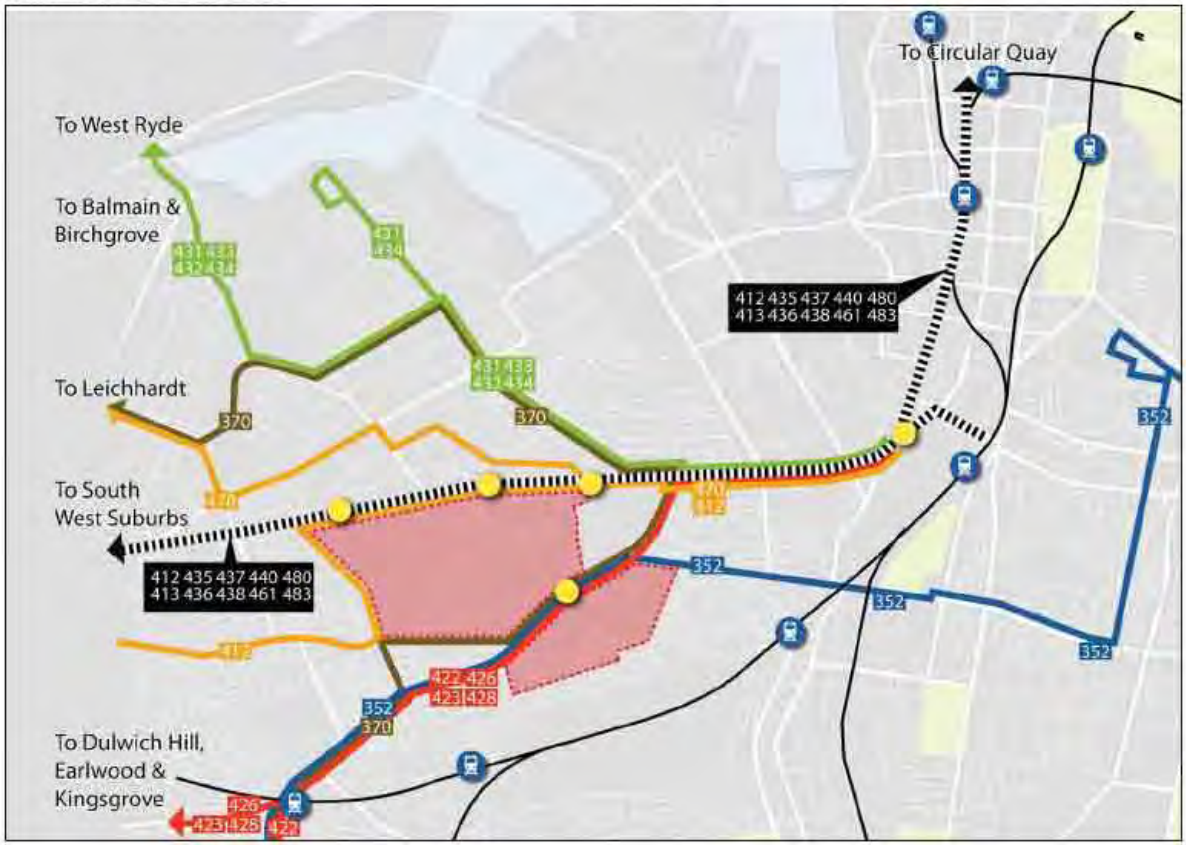


Illustration of major public transportation services to Camperdown-Darlington

UNIVERSITY RAIL SERVICES



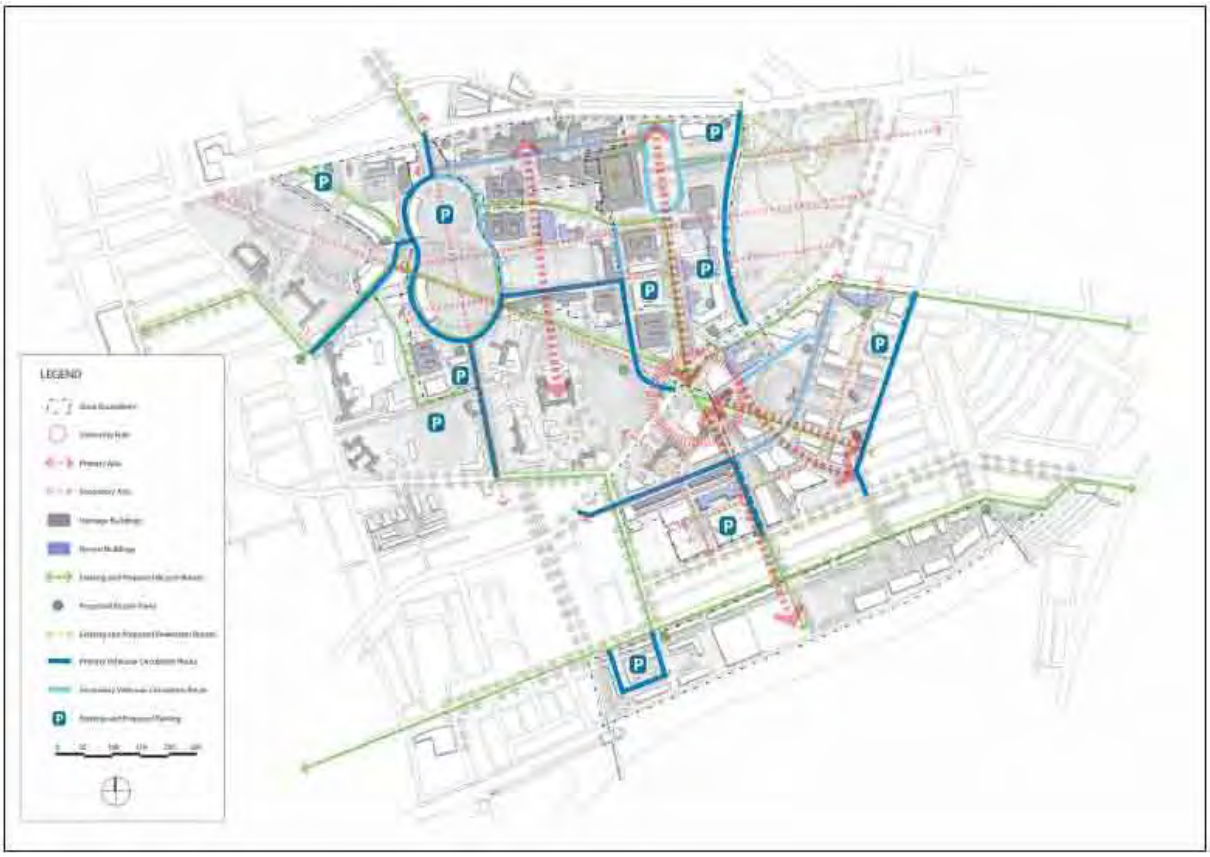
EXTERNAL BUS SERVICES



PEDESTRIAN & BICYCLE PATHS

APPENDIX B

UNIVERSITY OF SYDNEY - CODCD PROJECT



Illustrative Structure and Pedestrian and Vehicle Movements

Future Planning - Parking

Key

(1) Law School Carpark (under construction)

(2) Western Avenue Carpark (redevelop and extend)

(3) Economics and Business Carpark

(4) Darlington Carpark (replaces Shepherd St Carpark)

(5) Ross St Carpark (under Oval No. 2)

(6) Arc Building Carpark

(7) University Gallery Carpark

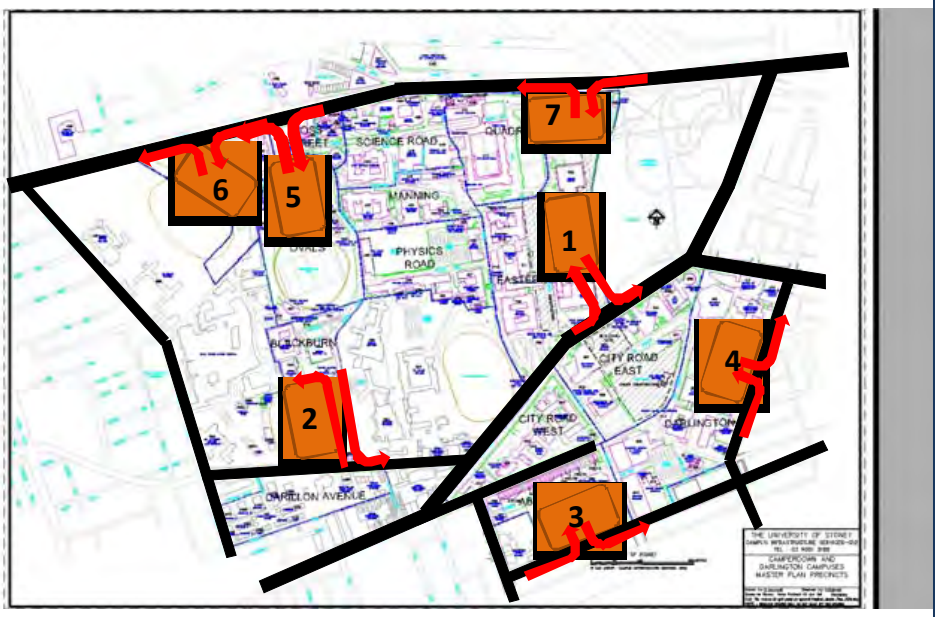
Public Parking Access to:

Ross St Carpark

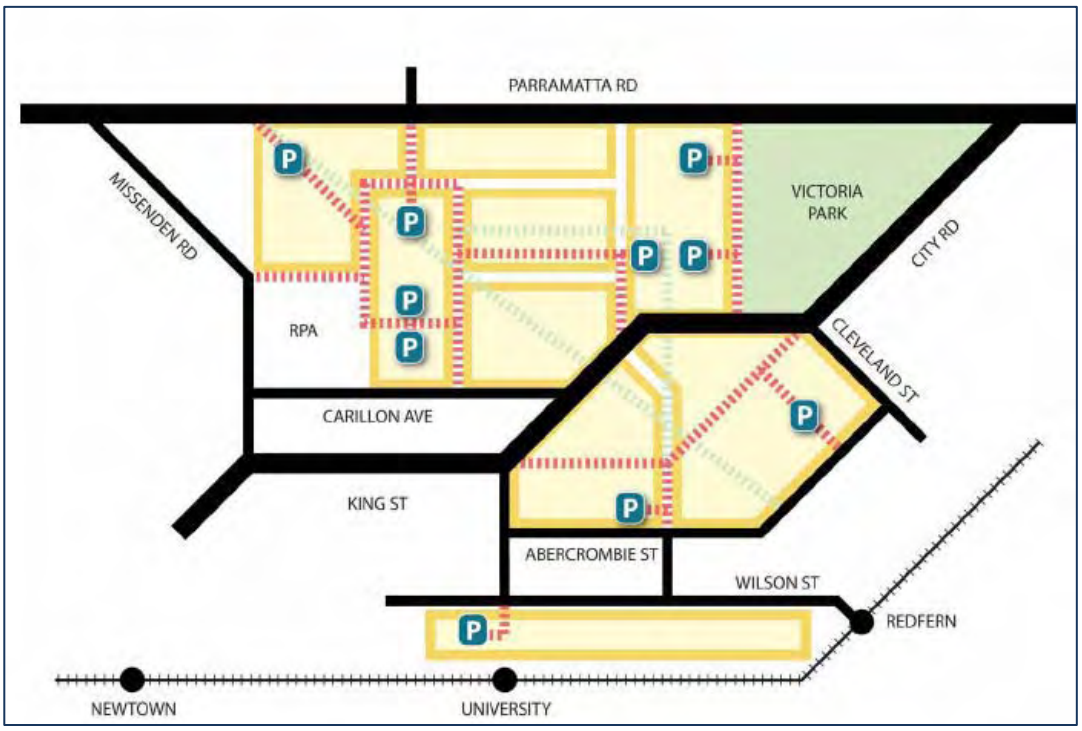
Western Avenue Carpark

University Gallery Carpark

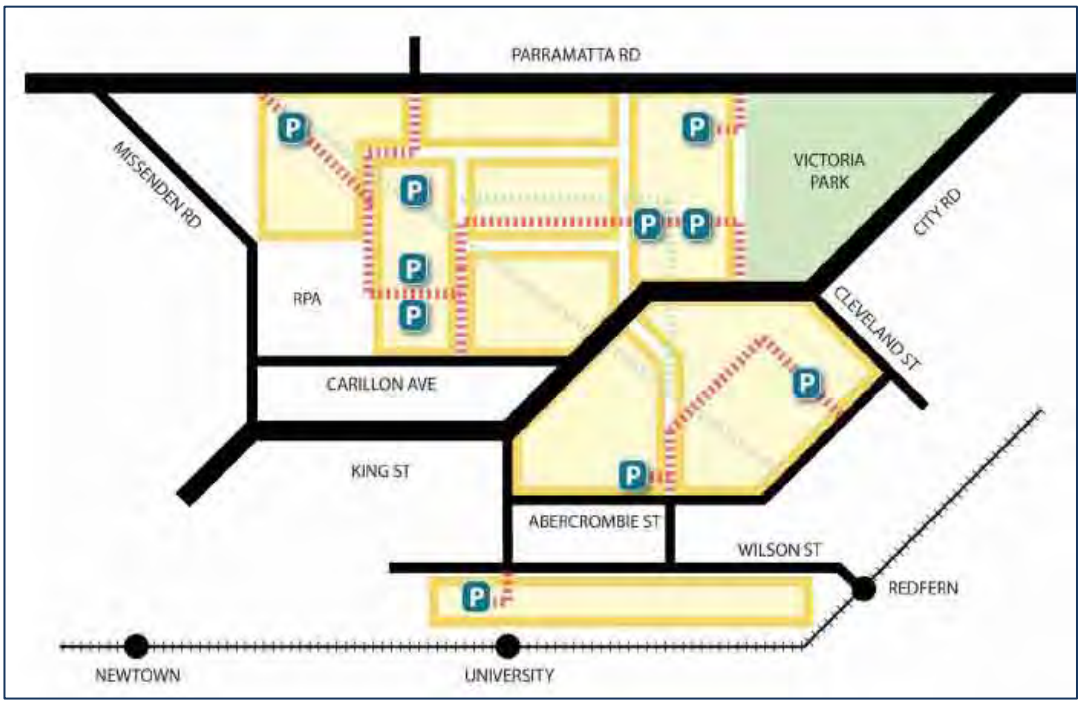
Darlington Carpark



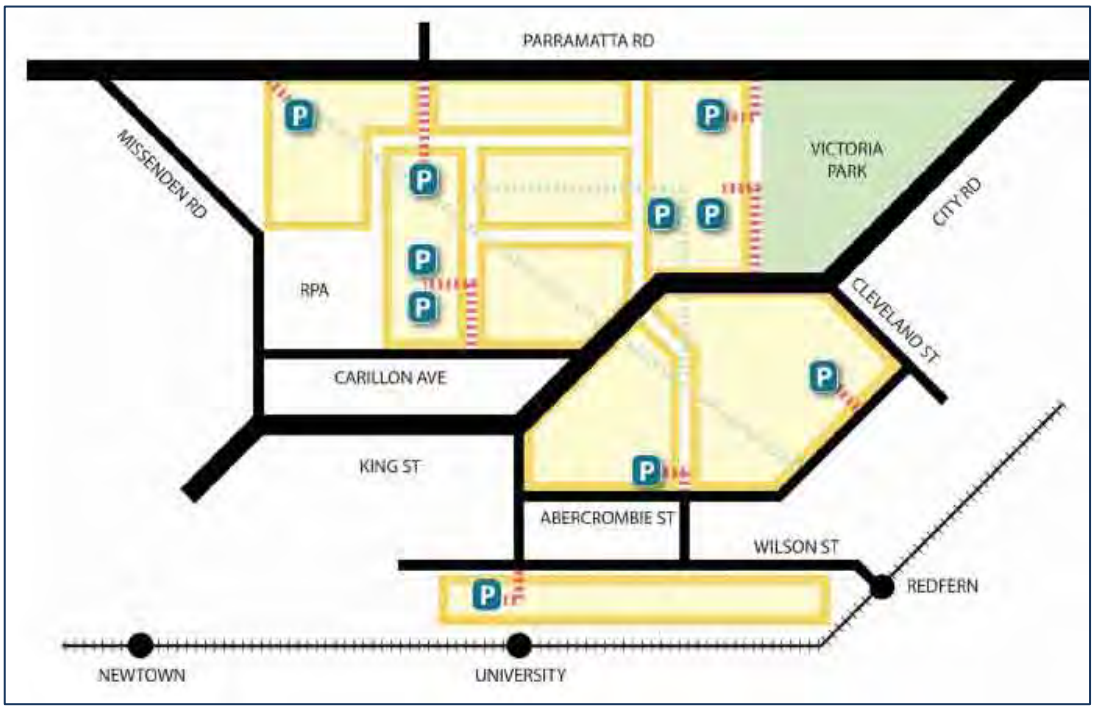
University of Sydney Campus Masterplan 2008



First Stage Traffic Management – Limited Permeability Model



Second Stage Traffic Management – Limited Loop Model

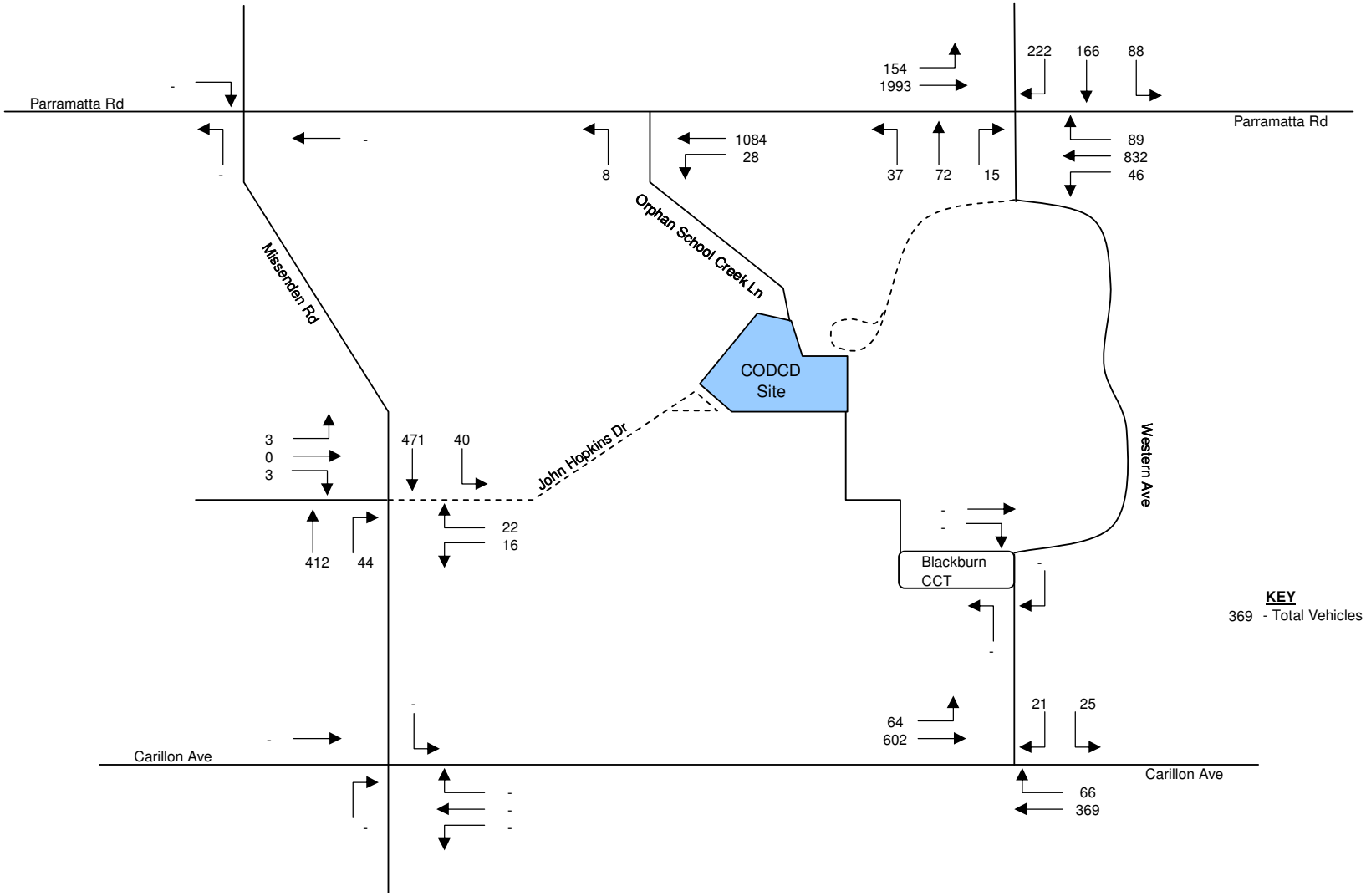


Third Stage Traffic Management – Peripheral Access Model

Appendix C Estimated Traffic Distribution

2009 SURVEYED TRAFFIC FLOWS, MORNING PEAK

CODCD - THE UNIVERSITY OF SYDNEY



Halcrow MWT

Figure C.1

2009 SURVEYED TRAFFIC FLOWS, EVENING PEAK

CODCD - THE UNIVERSITY OF SYDNEY

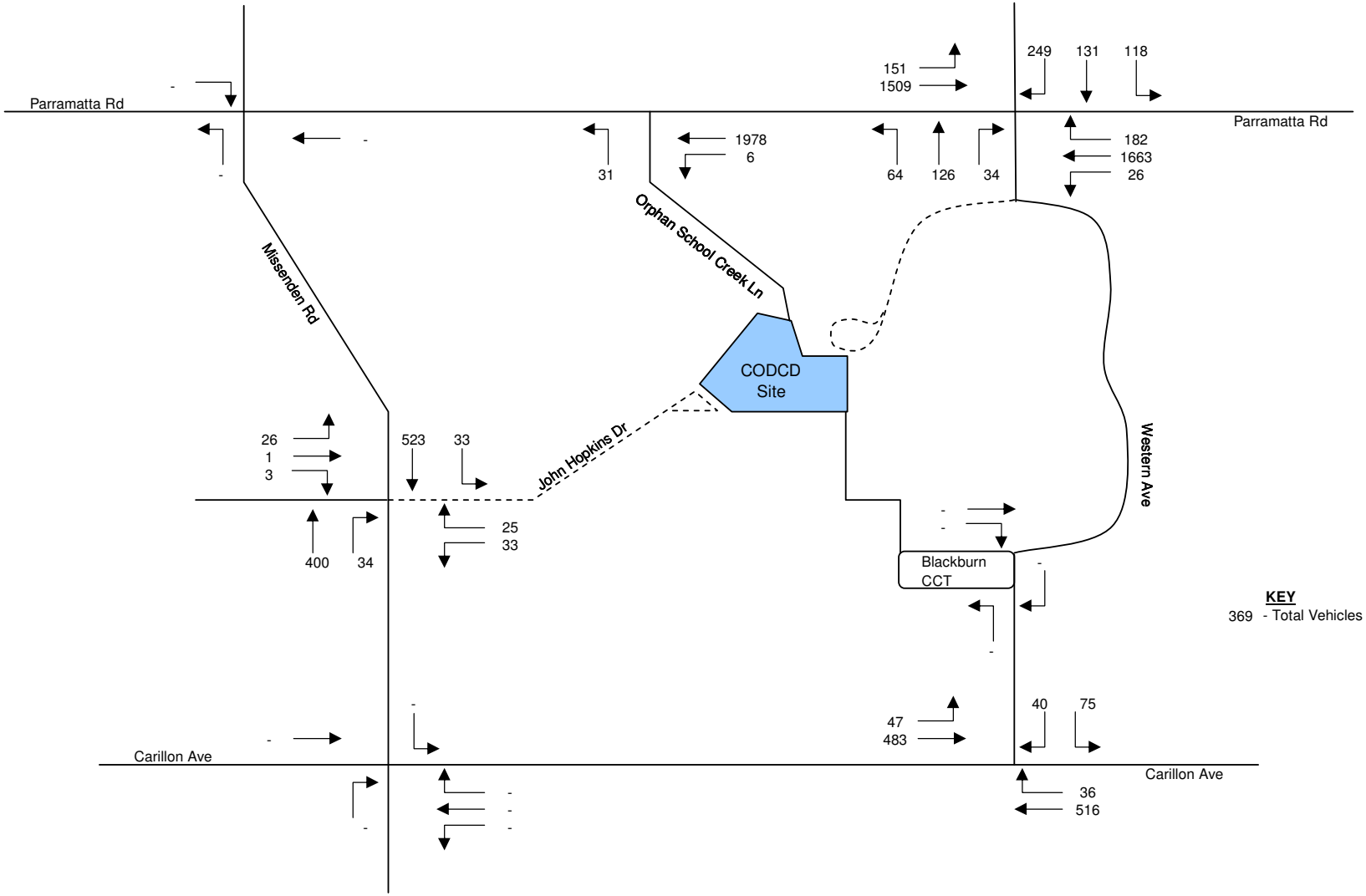
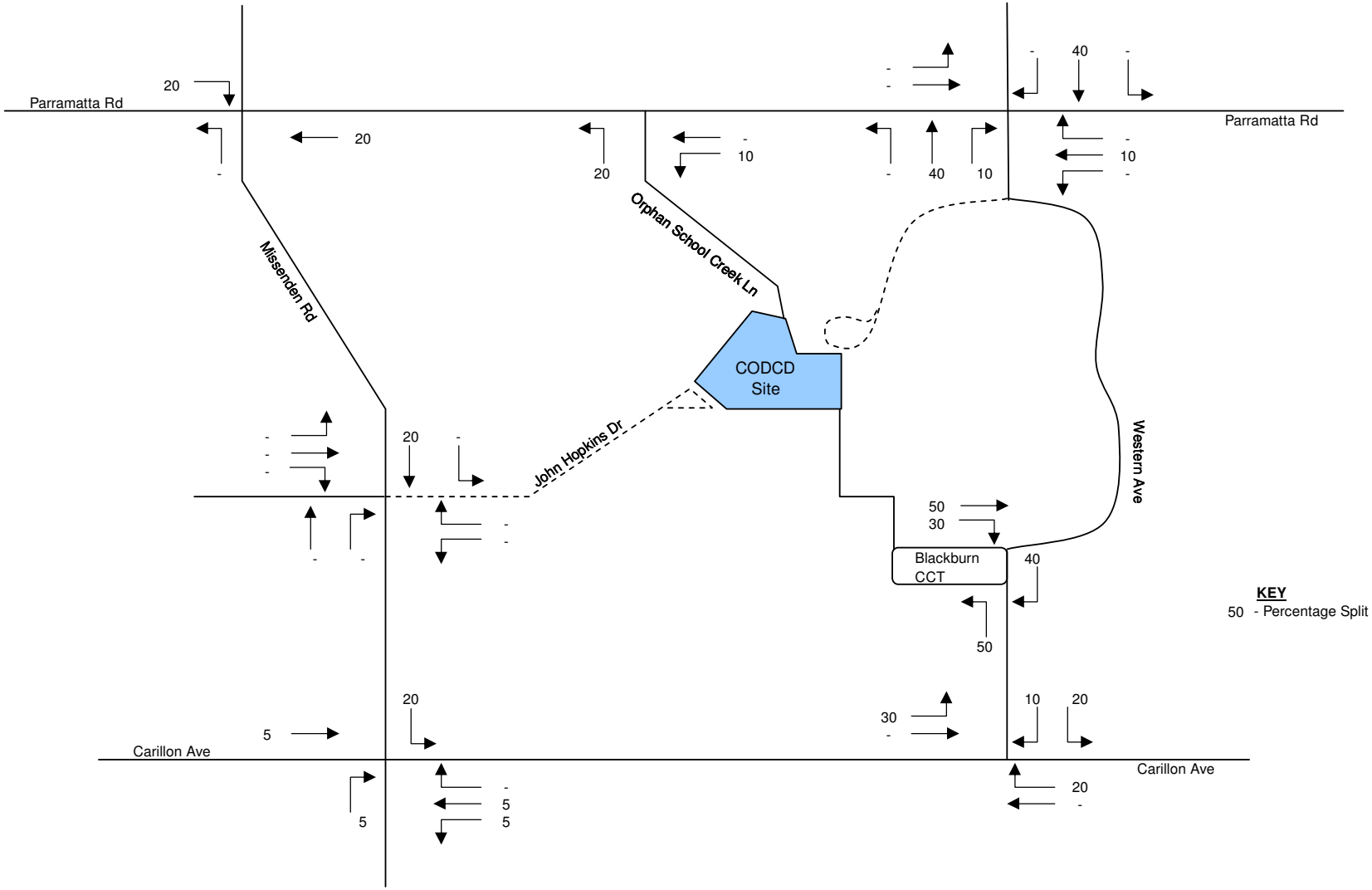


Figure C.2

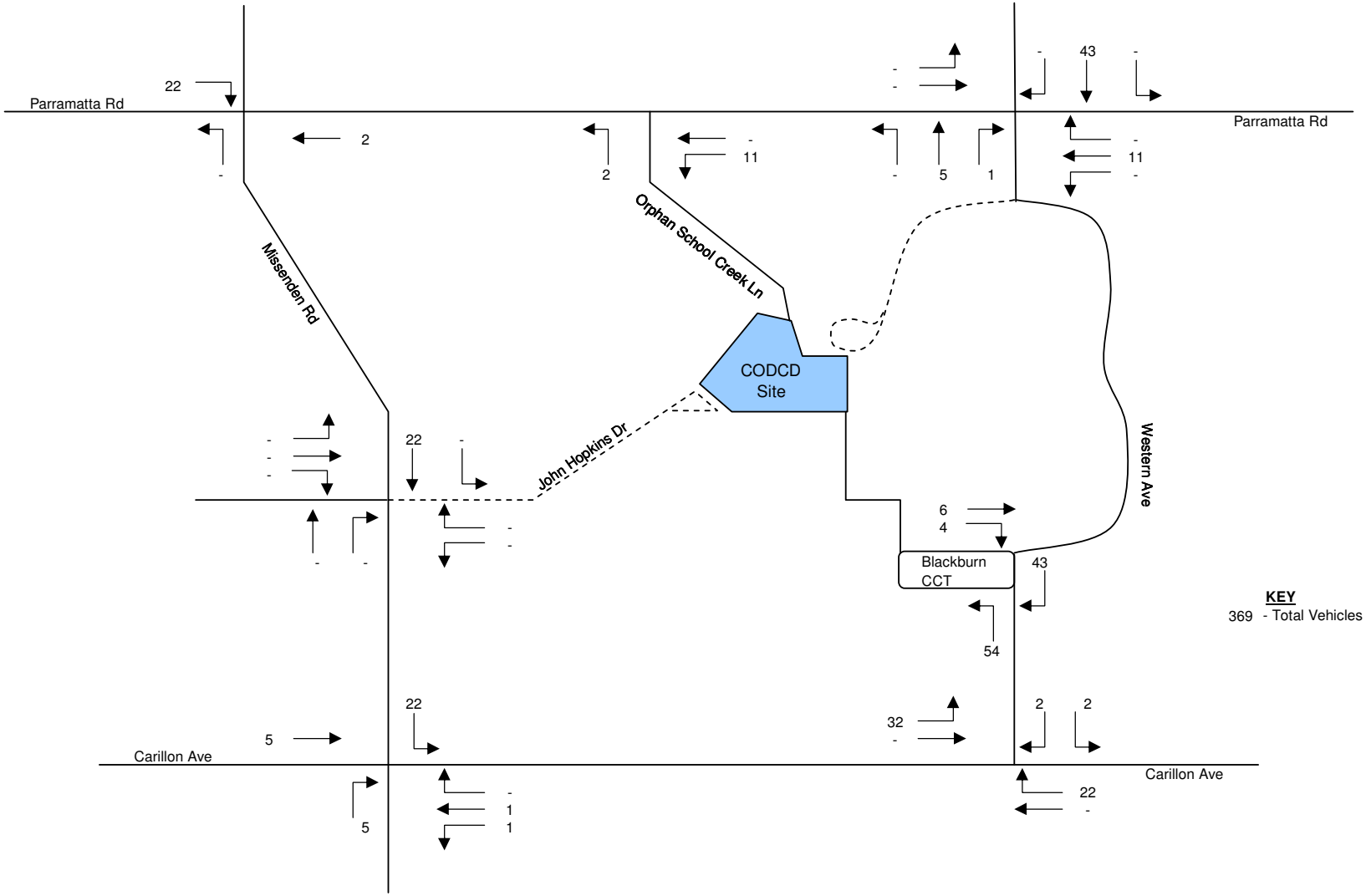
ASSUMED TRIP DISTRIBUTION

CODCD - THE UNIVERSITY OF SYDNEY



Halcrow MWT

Figure C.3


Parramatta Rd
Parramatta Rd
Missenden Rd
Orphan School Creek Ln
John Hopkins Dr
CODCD Site
Western Ave
Blackburn CCT
Carillon Ave
Carillon Ave
KEY
369 - Total Vehicles

DEVELOPMENT TRAFFIC ASSIGNMENT, EVENING PEAK

CODCD - THE UNIVERSITY OF SYDNEY

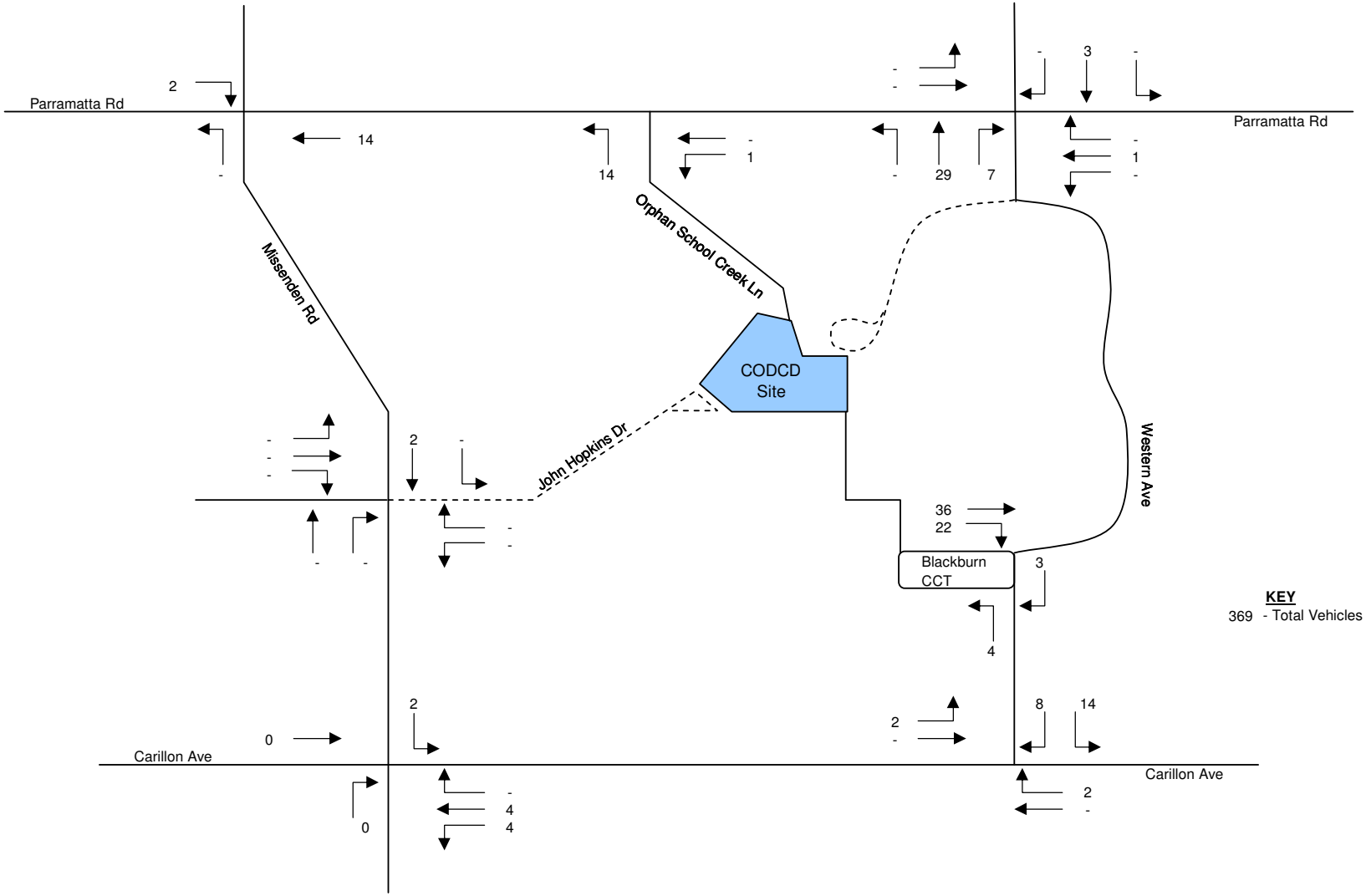


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Figure C.5

BASE + DEVELOPMENT TRAFFIC FLOWS, MORNING PEAK

CODCD - THE UNIVERSITY OF SYDNEY

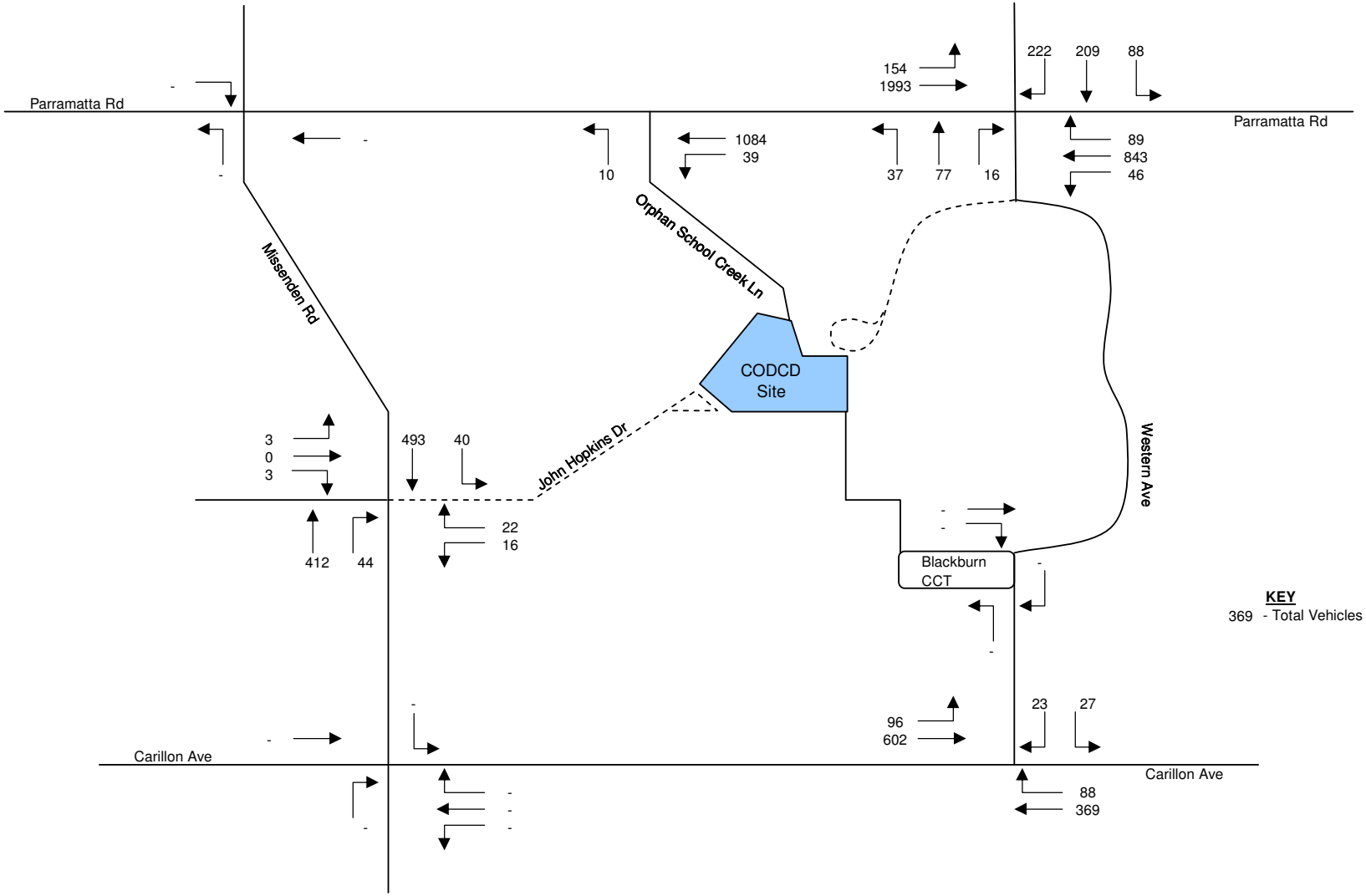


Figure C.6

BASE + DEVELOPMENT TRAFFIC FLOWS, EVENING PEAK

CODCD - THE UNIVERSITY OF SYDNEY

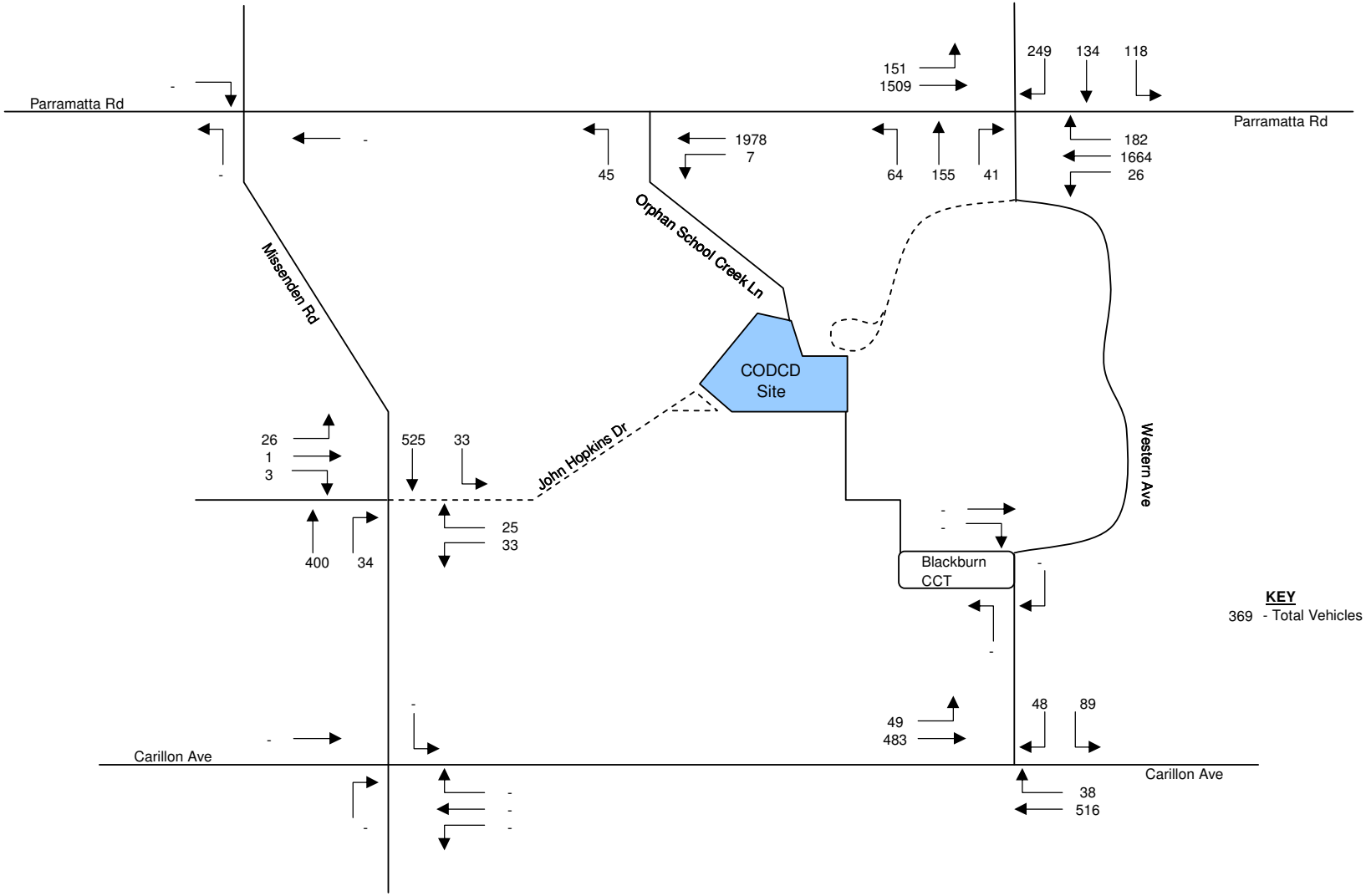
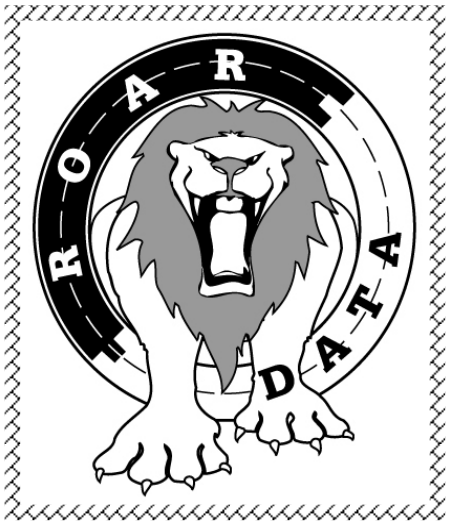


Figure C.7

Appendix D Traffic Survey Data



Ross St

To

Piran Trethewey

at ***Halcrow M.W.T***

your results for

SYDNEY UNI Traffic & Pedestrians Survey

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

Client : Halcrow M.W.T

Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey

Day/Date : Tuesday 27th October 09

Lights

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	24	19	37	23	483	0	3	5	2	1	186	13	**796**
0715 - 0730	24	28	34	28	472	0	2	10	1	6	196	21	**822**
0730 - 0745	28	28	57	41	513	0	10	11	4	5	223	20	**940**
0745 - 0800	18	33	56	45	526	0	8	10	2	8	210	26	**942**
0800 - 0815	24	43	49	42	531	0	5	8	3	12	241	15	**973**
0815 - 0830	24	28	45	32	566	0	8	15	4	9	221	27	**979**
0830 - 0845	14	44	57	34	464	0	6	20	3	14	202	27	**885**
0845 - 0900	20	40	60	43	513	0	7	16	2	12	184	15	**912**
0900 - 0915	30	53	57	44	432	0	16	21	6	11	215	19	**904**
0915 - 0930	26	35	41	28	482	0	5	11	4	6	255	31	**924**
0930 - 0945	26	22	53	15	450	0	2	6	1	8	195	18	**796**
0945 - 1000	33	37	50	14	392	0	13	11	5	9	239	23	**826**
Period End	**291**	**410**	**596**	**389**	**5824**	**0**	**85**	**144**	**37**	**101**	**2567**	**255**	**10699**

Lights

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	94	108	184	137	1994	0	23	36	9	20	815	80	**3500**
0715 - 0815	94	132	196	156	2042	0	25	39	10	31	870	82	**3677**
0730 - 0830	94	132	207	160	2136	0	31	44	13	34	895	88	**3834**
0745 - 0845	80	148	207	153	2087	0	27	53	12	43	874	95	**3779**
0800 - 0900	82	155	211	151	2074	0	26	59	12	47	848	84	**3749**
0815 - 0915	88	165	219	153	1975	0	37	72	15	46	822	88	**3680**
0830 - 0930	90	172	215	149	1891	0	34	68	15	43	856	92	**3625**
0845 - 0945	102	150	211	130	1877	0	30	54	13	37	849	83	**3536**
0900 - 1000	115	147	201	101	1756	0	36	49	16	34	904	91	**3450**
PEAK HOUR	**94**	**132**	**207**	**160**	**2136**	**0**	**31**	**44**	**13**	**34**	**895**	**88**	**3834**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	0	0	0	5	0	0	0	0	0	1	0	**6**
0715 - 0730	1	0	0	0	1	0	0	0	0	0	5	0	**7**
0730 - 0745	0	0	1	1	4	0	0	0	0	0	2	0	**8**
0745 - 0800	0	0	0	0	1	0	0	0	0	0	4	1	**6**
0800 - 0815	1	0	0	1	4	0	0	0	0	0	1	0	**7**
0815 - 0830	0	1	2	0	3	0	0	0	0	0	0	1	**7**
0830 - 0845	0	0	0	1	4	0	0	0	0	0	5	0	**10**
0845 - 0900	0	0	0	0	5	0	0	0	0	0	2	0	**7**
0900 - 0915	0	0	1	0	6	0	0	0	0	0	3	0	**10**
0915 - 0930	0	0	0	0	3	0	0	0	0	0	2	0	**5**
0930 - 0945	2	0	0	0	3	0	0	0	0	0	5	0	**10**
0945 - 1000	0	0	0	0	4	0	0	0	0	0	0	0	**4**
Period End	**4**	**1**	**4**	**3**	**43**	**0**	**0**	**0**	**0**	**0**	**30**	**2**	**87**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	1	0	1	1	11	0	0	0	0	0	12	1	**27**
0715 - 0815	2	0	1	2	10	0	0	0	0	0	12	1	**28**
0730 - 0830	1	1	3	2	12	0	0	0	0	0	7	2	**28**
0745 - 0845	1	1	2	2	12	0	0	0	0	0	10	2	**30**
0800 - 0900	1	1	2	2	16	0	0	0	0	0	8	1	**31**
0815 - 0915	0	1	3	1	18	0	0	0	0	0	10	1	**34**
0830 - 0930	0	0	1	1	18	0	0	0	0	0	12	0	**32**
0845 - 0945	2	0	1	0	17	0	0	0	0	0	12	0	**32**
0900 - 1000	2	0	1	0	16	0	0	0	0	0	10	0	**29**
PEAK HOUR	**1**	**1**	**3**	**2**	**12**	**0**	**0**	**0**	**0**	**0**	**7**	**2**	**28**

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Reliable, Original & Authentic Results

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

Client : Halcrow M.W.T

Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey

Day/Date : Tuesday 27th October 09

Buses

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	0	0	0	9	0	0	0	0	0	3	0	**12**
0715 - 0730	0	0	0	0	10	0	0	0	0	0	5	0	**15**
0730 - 0745	0	0	0	0	18	0	0	0	0	0	8	0	**26**
0745 - 0800	0	0	0	0	14	0	0	0	0	0	6	0	**20**
0800 - 0815	0	0	0	0	19	0	0	0	0	0	10	0	**29**
0815 - 0830	0	0	0	0	16	0	0	0	0	0	6	0	**22**
0830 - 0845	0	0	0	0	15	0	0	0	0	0	8	0	**23**
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0900 - 0915	0	0	0	0	14	0	0	0	0	0	16	0	**30**
0915 - 0930	0	0	0	0	10	0	0	0	0	0	14	1	**25**
0930 - 0945	0	0	0	0	8	0	0	0	0	0	17	0	**25**
0945 - 1000	0	0	0	0	13	0	0	0	0	0	8	0	**21**
Period End	**0**	**0**	**0**	**0**	**164**	**0**	**0**	**0**	**0**	**0**	**118**	**1**	**283**

Buses

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	0	0	0	0	51	0	0	0	0	0	22	0	**73**
0715 - 0815	0	0	0	0	61	0	0	0	0	0	29	0	**90**
0730 - 0830	0	0	0	0	67	0	0	0	0	0	30	0	**97**
0745 - 0845	0	0	0	0	64	0	0	0	0	0	30	0	**94**
0800 - 0900	0	0	0	0	68	0	0	0	0	0	41	0	**109**
0815 - 0915	0	0	0	0	63	0	0	0	0	0	47	0	**110**
0830 - 0930	0	0	0	0	57	0	0	0	0	0	55	1	**113**
0845 - 0945	0	0	0	0	50	0	0	0	0	0	64	1	**115**
0900 - 1000	0	0	0	0	45	0	0	0	0	0	55	1	**101**
PEAK HOUR	**0**	**0**	**0**	**0**	**67**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**97**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	24	19	37	23	497	0	3	5	2	1	190	13	**814**
0715 - 0730	25	28	34	28	483	0	2	10	1	6	206	21	**844**
0730 - 0745	28	28	58	42	535	0	10	11	4	5	233	20	**974**
0745 - 0800	18	33	56	45	541	0	8	10	2	8	220	27	**968**
0800 - 0815	25	43	49	43	554	0	5	8	3	12	252	15	**1009**
0815 - 0830	24	29	47	32	585	0	8	15	4	9	227	28	**1008**
0830 - 0845	14	44	57	35	483	0	6	20	3	14	215	27	**918**
0845 - 0900	20	40	60	43	536	0	7	16	2	12	203	15	**954**
0900 - 0915	30	53	58	44	452	0	16	21	6	11	234	19	**944**
0915 - 0930	26	35	41	28	495	0	5	11	4	6	271	32	**954**
0930 - 0945	28	22	53	15	461	0	2	6	1	8	217	18	**831**
0945 - 1000	33	37	50	14	409	0	13	11	5	9	247	23	**851**
Period End	**295**	**411**	**600**	**392**	**6031**	**0**	**85**	**144**	**37**	**101**	**2715**	**258**	**11069**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	95	108	185	138	2056	0	23	36	9	20	849	81	**3600**
0715 - 0815	96	132	197	158	2113	0	25	39	10	31	911	83	**3795**
0730 - 0830	95	133	210	162	2215	0	31	44	13	34	932	90	**3959**
0745 - 0845	81	149	209	155	2163	0	27	53	12	43	914	97	**3903**
0800 - 0900	83	156	213	153	2158	0	26	59	12	47	897	85	**3889**
0815 - 0915	88	166	222	154	2056	0	37	72	15	46	879	89	**3824**
0830 - 0930	90	172	216	150	1966	0	34	68	15	43	923	93	**3770**
0845 - 0945	104	150	212	130	1944	0	30	54	13	37	925	84	**3683**
0900 - 1000	117	147	202	101	1817	0	36	49	16	34	969	92	**3580**
PEAK HOUR	**95**	**133**	**210**	**162**	**2215**	**0**	**31**	**44**	**13**	**34**	**932**	**90**	**3959**

R.O.A.R DATA
Reliable, Original & Authentic Results
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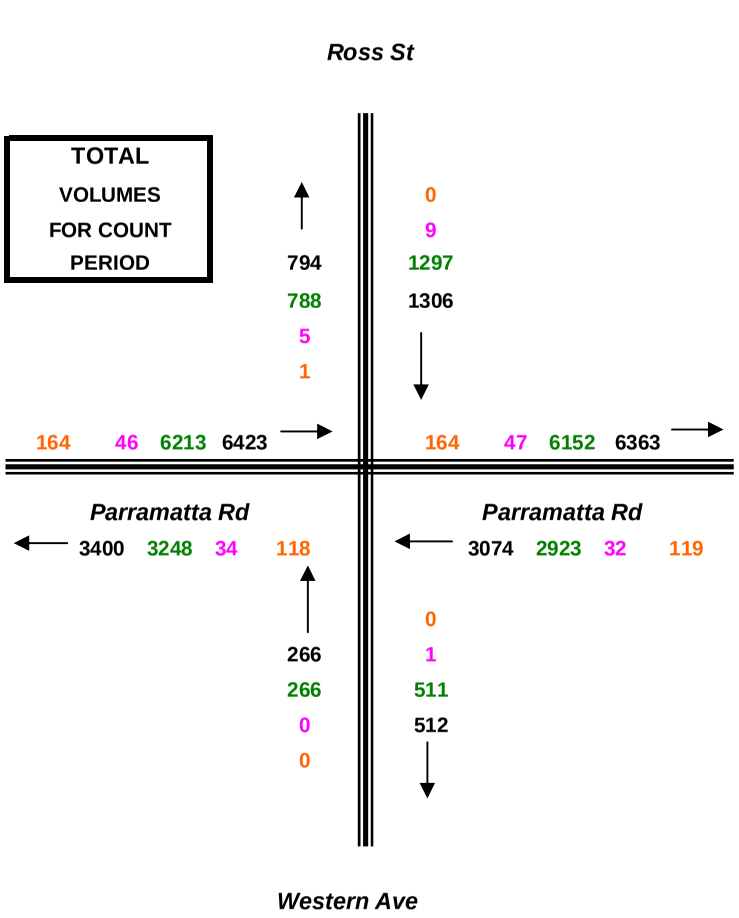
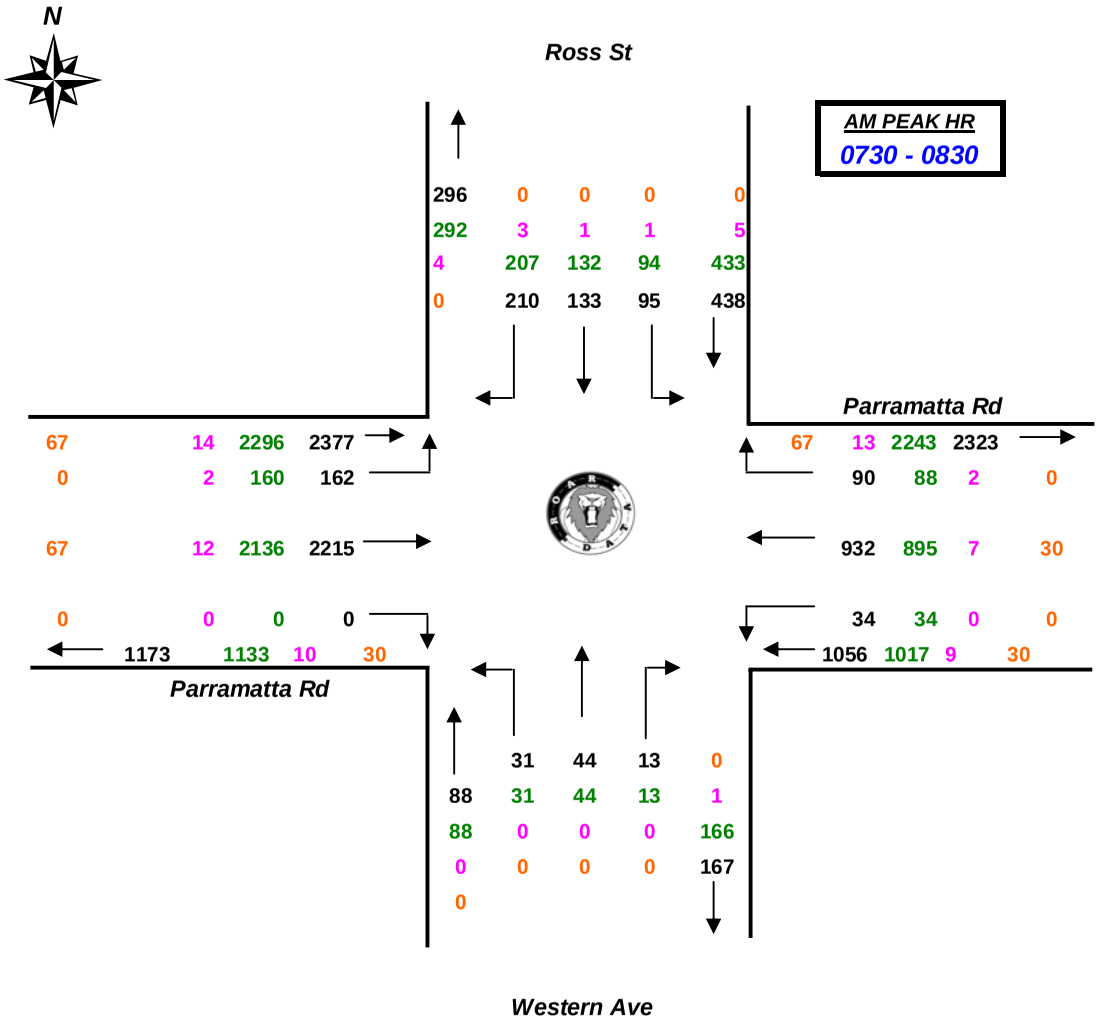
Client : Halcrow M.W.T
Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey
Day/Date : Tuesday 27th October 09





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Lights

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	24	17	47	41	284	0	21	22	2	13	345	37	**853**
1515 - 1530	22	22	66	40	352	0	12	21	5	6	411	48	**1005**
1530 - 1545	35	16	66	32	291	0	12	15	3	6	450	48	**974**
1545 - 1600	28	25	66	34	328	0	10	20	7	2	414	41	**975**
1600 - 1615	27	25	54	39	358	0	14	26	8	2	414	45	**1012**
1615 - 1630	35	26	64	30	344	0	10	25	4	5	401	45	**989**
1630 - 1645	22	40	65	46	368	0	10	24	2	4	422	47	**1050**
1645 - 1700	30	24	58	38	391	0	22	28	8	12	422	48	**1081**
1700 - 1715	29	31	61	37	388	0	15	35	10	7	409	33	**1055**
1715 - 1730	36	36	64	29	358	0	17	39	14	3	402	54	**1052**
1730 - 1745	26	32	50	34	342	0	13	38	4	11	453	68	**1071**
1745 - 1800	17	31	47	33	390	0	15	38	8	13	410	51	**1053**
Period End	**331**	**325**	**708**	**433**	**4194**	**0**	**171**	**331**	**75**	**84**	**4953**	**565**	**12170**

Lights

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	109	80	245	147	1255	0	55	78	17	27	1620	174	**3807**
1515 - 1615	112	88	252	145	1329	0	48	82	23	16	1689	182	**3966**
1530 - 1630	125	92	250	135	1321	0	46	86	22	15	1679	179	**3950**
1545 - 1645	112	116	249	149	1398	0	44	95	21	13	1651	178	**4026**
1600 - 1700	114	115	241	153	1461	0	56	103	22	23	1659	185	**4132**
1615 - 1715	116	121	248	151	1491	0	57	112	24	28	1654	173	**4175**
1630 - 1730	117	131	248	150	1505	0	64	126	34	26	1655	182	**4238**
1645 - 1745	121	123	233	138	1479	0	67	140	36	33	1686	203	**4259**
1700 - 1800	108	130	222	133	1478	0	60	150	36	34	1674	206	**4231**
PEAK HOUR	**121**	**123**	**233**	**138**	**1479**	**0**	**67**	**140**	**36**	**33**	**1686**	**203**	**4259**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	0	0	0	1	2	0	0	0	0	0	4	0	**7**
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1530 - 1545	0	0	0	0	1	0	0	0	0	0	2	1	**4**
1545 - 1600	0	0	0	0	6	0	0	0	0	0	0	0	**6**
1600 - 1615	1	0	0	0	2	0	0	0	0	0	3	0	**6**
1615 - 1630	0	0	0	0	0	0	0	0	0	0	2	0	**2**
1630 - 1645	0	0	1	1	1	0	0	0	0	0	2	0	**5**
1645 - 1700	0	0	0	0	3	0	0	0	0	0	4	0	**7**
1700 - 1715	0	0	0	0	0	0	0	0	0	0	1	0	**1**
1715 - 1730	0	0	0	0	0	0	0	0	0	0	1	0	**1**
1730 - 1745	0	0	0	0	0	0	0	0	0	0	1	0	**1**
1745 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Period End	**1**	**0**	**1**	**2**	**15**	**0**	**0**	**0**	**0**	**0**	**20**	**1**	**40**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	0	0	0	1	9	0	0	0	0	0	6	1	**17**
1515 - 1615	1	0	0	0	9	0	0	0	0	0	5	1	**16**
1530 - 1630	1	0	0	0	9	0	0	0	0	0	7	1	**18**
1545 - 1645	1	0	1	1	9	0	0	0	0	0	7	0	**19**
1600 - 1700	1	0	1	1	6	0	0	0	0	0	11	0	**20**
1615 - 1715	0	0	1	1	4	0	0	0	0	0	9	0	**15**
1630 - 1730	0	0	1	1	4	0	0	0	0	0	8	0	**14**
1645 - 1745	0	0	0	0	3	0	0	0	0	0	7	0	**10**
1700 - 1800	0	0	0	0	0	0	0	0	0	0	3	0	**3**
PEAK HOUR	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**10**

R.O.A.R. DATA

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Client : Halcrow M.W.T

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Day/Date : Tuesday 27th October 09

Buses

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	0	0	0	0	5	0	0	0	1	0	8	0	**14**
1515 - 1530	1	0	0	0	7	0	0	0	0	0	10	0	**18**
1530 - 1545	0	0	0	0	9	0	0	0	0	0	8	0	**17**
1545 - 1600	0	0	0	0	6	0	0	0	0	0	10	0	**16**
1600 - 1615	0	0	0	0	9	0	0	0	0	0	9	0	**18**
1615 - 1630	0	0	0	0	14	0	0	0	1	0	10	0	**25**
1630 - 1645	0	0	0	0	8	0	0	0	0	0	12	0	**20**
1645 - 1700	0	0	0	0	13	0	0	0	0	0	13	0	**26**
1700 - 1715	1	0	0	0	7	0	0	0	0	0	12	0	**20**
1715 - 1730	0	0	0	0	9	0	0	0	0	0	16	0	**25**
1730 - 1745	0	0	0	0	8	0	0	0	0	0	14	0	**22**
1745 - 1800	0	0	0	0	7	0	0	0	0	0	11	0	**18**
Period End	**2**	**0**	**0**	**0**	**102**	**0**	**0**	**0**	**2**	**0**	**133**	**0**	**239**

Buses

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	1	0	0	0	27	0	0	0	1	0	36	0	**65**
1515 - 1615	1	0	0	0	31	0	0	0	0	0	37	0	**69**
1530 - 1630	0	0	0	0	38	0	0	0	1	0	37	0	**76**
1545 - 1645	0	0	0	0	37	0	0	0	1	0	41	0	**79**
1600 - 1700	0	0	0	0	44	0	0	0	1	0	44	0	**89**
1615 - 1715	1	0	0	0	42	0	0	0	1	0	47	0	**91**
1630 - 1730	1	0	0	0	37	0	0	0	0	0	53	0	**91**
1645 - 1745	1	0	0	0	37	0	0	0	0	0	55	0	**93**
1700 - 1800	1	0	0	0	31	0	0	0	0	0	53	0	**85**
PEAK HOUR	**1**	**0**	**0**	**0**	**37**	**0**	**0**	**0**	**0**	**0**	**55**	**0**	**93**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	24	17	47	42	291	0	21	22	3	13	357	37	**874**
1515 - 1530	23	22	66	40	359	0	12	21	5	6	421	48	**1023**
1530 - 1545	35	16	66	32	301	0	12	15	3	6	460	49	**995**
1545 - 1600	28	25	66	34	340	0	10	20	7	2	424	41	**997**
1600 - 1615	28	25	54	39	369	0	14	26	8	2	426	45	**1036**
1615 - 1630	35	26	64	30	358	0	10	25	5	5	413	45	**1016**
1630 - 1645	22	40	66	47	377	0	10	24	2	4	436	47	**1075**
1645 - 1700	30	24	58	38	407	0	22	28	8	12	439	48	**1114**
1700 - 1715	30	31	61	37	395	0	15	35	10	7	422	33	**1076**
1715 - 1730	36	36	64	29	367	0	17	39	14	3	419	54	**1078**
1730 - 1745	26	32	50	34	350	0	13	38	4	11	468	68	**1094**
1745 - 1800	17	31	47	33	397	0	15	38	8	13	421	51	**1071**
Period End	**334**	**325**	**709**	**435**	**4311**	**0**	**171**	**331**	**77**	**84**	**5106**	**566**	**12449**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Ross St			*Parramatta Rd*			*Western Ave*			*Parramatta Rd*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	110	80	245	148	1291	0	55	78	18	27	1662	175	**3889**
1515 - 1615	114	88	252	145	1369	0	48	82	23	16	1731	183	**4051**
1530 - 1630	126	92	250	135	1368	0	46	86	23	15	1723	180	**4044**
1545 - 1645	113	116	250	150	1444	0	44	95	22	13	1699	178	**4124**
1600 - 1700	115	115	242	154	1511	0	56	103	23	23	1714	185	**4241**
1615 - 1715	117	121	249	152	1537	0	57	112	25	28	1710	173	**4281**
1630 - 1730	118	131	249	151	1546	0	64	126	34	26	1716	182	**4343**
1645 - 1745	122	123	233	138	1519	0	67	140	36	33	1748	203	**4362**
1700 - 1800	109	130	222	133	1509	0	60	150	36	34	1730	206	**4319**
PEAK HOUR	**122**	**123**	**233**	**138**	**1519**	**0**	**67**	**140**	**36**	**33**	**1748**	**203**	**4362**

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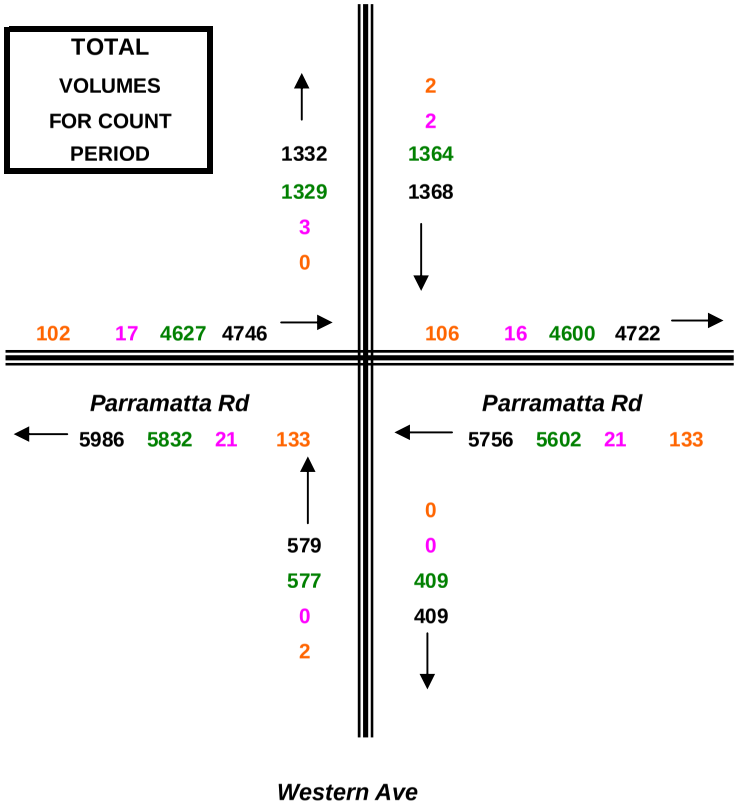

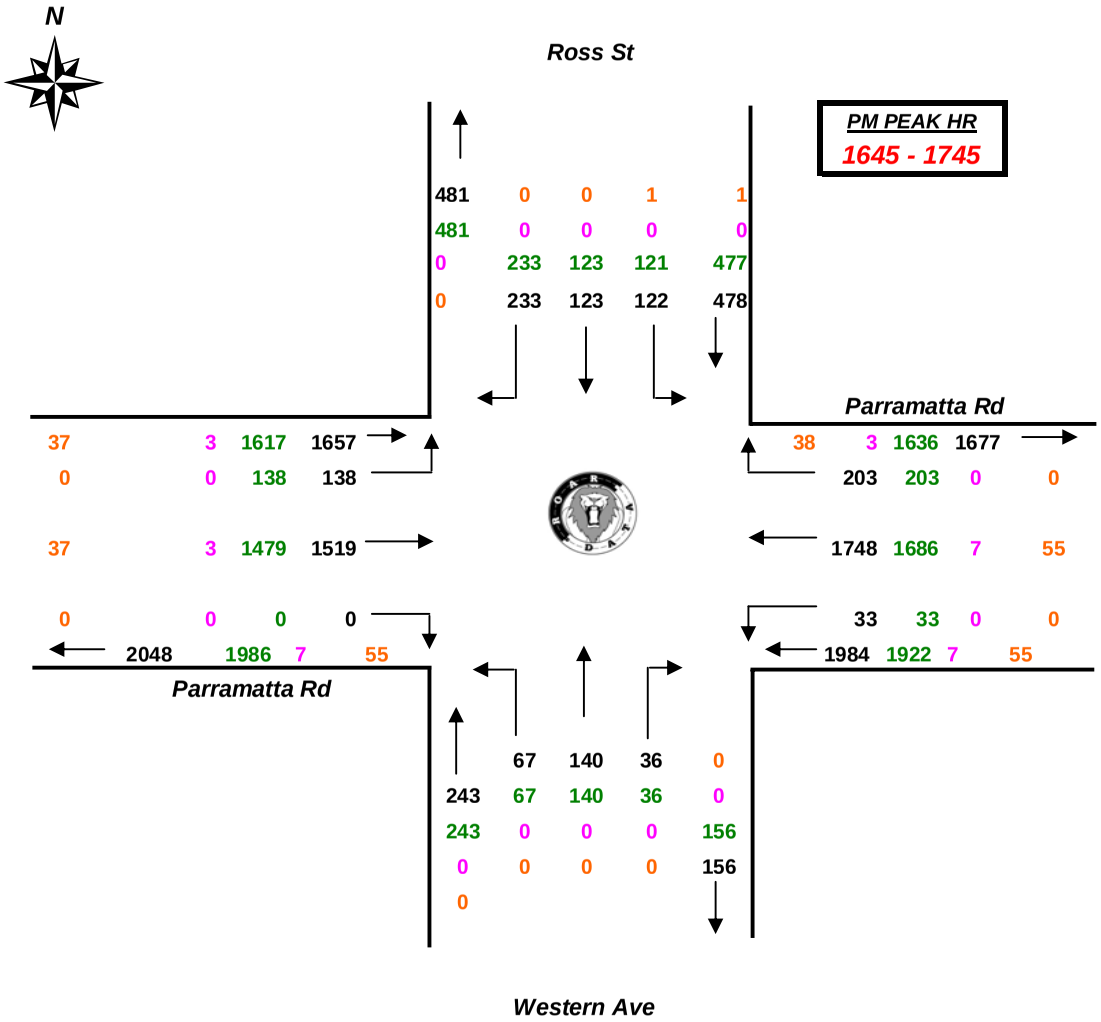

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Peds	WEST		SOUTH		EAST		NORTH Crossing		EAST Crossing		
	Parramatta		*Western Ave*		*Parramatta*		*Ross St*		*Parramatta*		
Time Per	**R**	**E-B**	**L**	**R**	**W-B**	**L**	**W-B**	**E-B**	**N-B**	**S-B**	**TOT**
0700 - 0715	0	1	0	2	1	9	0	3	3	5	**24**
0715 - 0730	0	3	0	4	2	11	2	0	5	6	**33**
0730 - 0745	2	1	0	4	0	15	1	3	13	7	**46**
0745 - 0800	2	4	0	5	2	30	2	3	10	20	**78**
0800 - 0815	4	4	0	7	2	43	1	2	15	30	**108**
0815 - 0830	4	3	1	8	3	27	16	2	30	20	**114**
0830 - 0845	2	2	0	2	0	62	23	5	37	29	**162**
0845 - 0900	6	2	1	7	2	118	36	7	51	71	**301**
0900 - 0915	5	4	0	9	2	103	12	2	30	55	**222**
0915 - 0930	1	1	0	8	1	51	3	4	20	40	**129**
0930 - 0945	4	2	0	9	3	44	0	3	25	30	**120**
0945 - 1000	11	0	1	5	2	51	0	1	11	31	**113**
Period End	**41**	**27**	**3**	**70**	**20**	**564**	**96**	**35**	**250**	**344**	**725**

Peds	WEST		SOUTH		EAST		NORTH Crossing		EAST Crossing		
	Parramatta		*Western Ave*		*Parramatta*		*Ross St*		*Parramatta*		
Time Per	**R**	**E-B**	**L**	**R**	**W-B**	**L**	**W-B**	**E-B**	**N-B**	**S-B**	**TOT**
1500 - 1515	2	0	7	29	5	11	10	65	41	27	**54**
1515 - 1530	1	7	8	27	1	14	5	9	29	17	**58**
1530 - 1545	0	2	1	22	5	11	1	3	20	9	**41**
1545 - 1600	5	1	3	43	1	21	9	6	42	14	**74**
1600 - 1615	0	4	8	63	3	16	10	4	70	18	**94**
1615 - 1630	4	5	6	31	3	14	9	12	53	22	**63**
1630 - 1645	3	3	4	36	3	32	8	7	32	25	**81**
1645 - 1700	4	4	7	37	2	18	7	14	46	10	**72**
1700 - 1715	4	4	6	75	7	16	8	16	56	26	**112**
1715 - 1730	1	2	4	48	4	21	11	13	57	22	**80**
1730 - 1745	2	4	4	34	4	9	13	12	36	14	**57**
1745 - 1800	1	1	3	38	3	13	2	11	47	14	**59**
Period End	**27**	**37**	**61**	**483**	**41**	**196**	**93**	**172**	**529**	**218**	**845**

Peds	WEST		SOUTH		EAST		NORTH Crossing		EAST Crossing		
	Parramatta		*Western Ave*		*Parramatta*		*Ross St*		*Parramatta*		
Peak Per	**R**	**E-B**	**L**	**R**	**W-B**	**L**	**W-B**	**E-B**	**N-B**	**S-B**	**TOT**
0700 - 0800	4	9	0	15	5	65	5	9	31	38	**98**
0715 - 0815	8	12	0	20	6	99	6	8	43	63	**145**
0730 - 0830	12	12	1	24	7	115	20	10	68	77	**171**
0745 - 0845	12	13	1	22	7	162	42	12	92	99	**217**
0800 - 0900	16	11	2	24	7	250	76	16	133	150	**310**
0815 - 0915	17	11	2	26	7	310	87	16	148	175	**373**
0830 - 0930	14	9	1	26	5	334	74	18	138	195	**389**
0845 - 0945	16	9	1	33	8	316	51	16	126	196	**383**
0900 - 1000	21	7	1	31	8	249	15	10	86	156	**317**
PEAK HR	**14**	**9**	**1**	**26**	**5**	**334**	**74**	**18**	**138**	**195**	**389**

Peds	WEST		SOUTH		EAST		NORTH Crossing		EAST Crossing		
	Parramatta		*Western Ave*		*Parramatta*		*Ross St*		*Parramatta*		
Peak Per	**R**	**E-B**	**L**	**R**	**W-B**	**L**	**W-B**	**E-B**	**N-B**	**S-B**	**TOT**
1500 - 1600	8	10	19	121	12	57	25	83	132	67	**227**
1515 - 1615	6	14	20	155	10	62	25	22	161	58	**267**
1530 - 1630	9	12	18	159	12	62	29	25	185	63	**272**
1545 - 1645	12	13	21	173	10	83	36	29	197	79	**312**
1600 - 1700	11	16	25	167	11	80	34	37	201	75	**310**
1615 - 1715	15	16	23	179	15	80	32	49	187	83	**328**
1630 - 1730	12	13	21	196	16	87	34	50	191	83	**345**
1645 - 1745	11	14	21	194	17	64	39	55	195	72	**321**
1700 - 1800	8	11	17	195	18	59	34	52	196	76	**308**
PEAK HR	**12**	**13**	**21**	**196**	**16**	**87**	**34**	**50**	**191**	**83**	**345**

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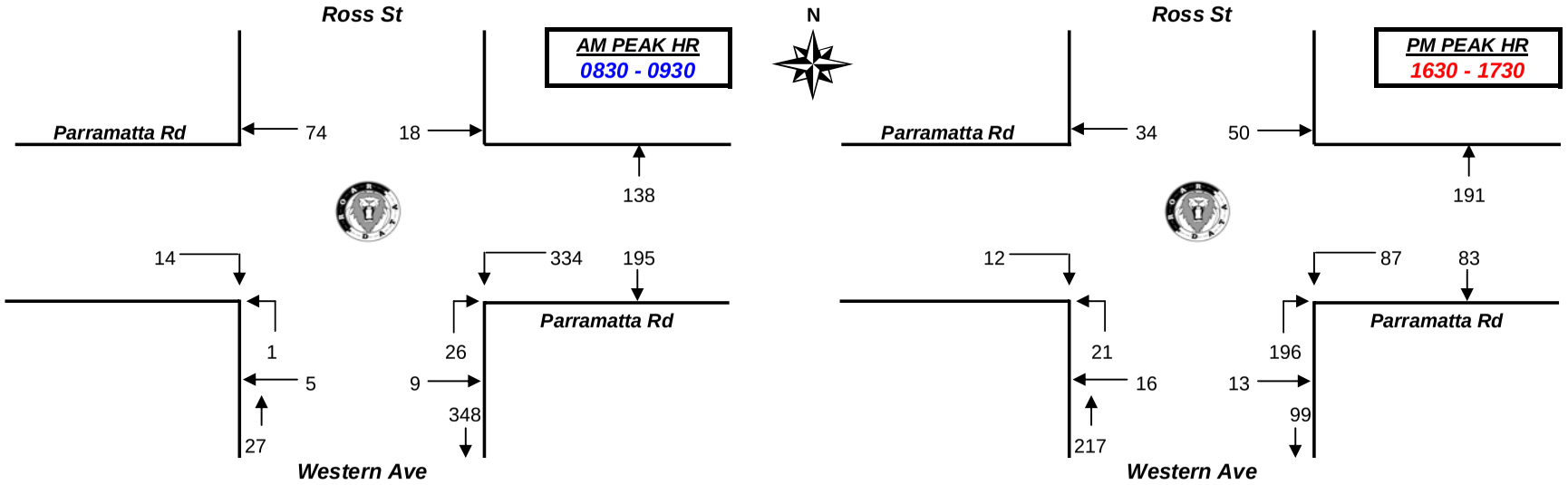
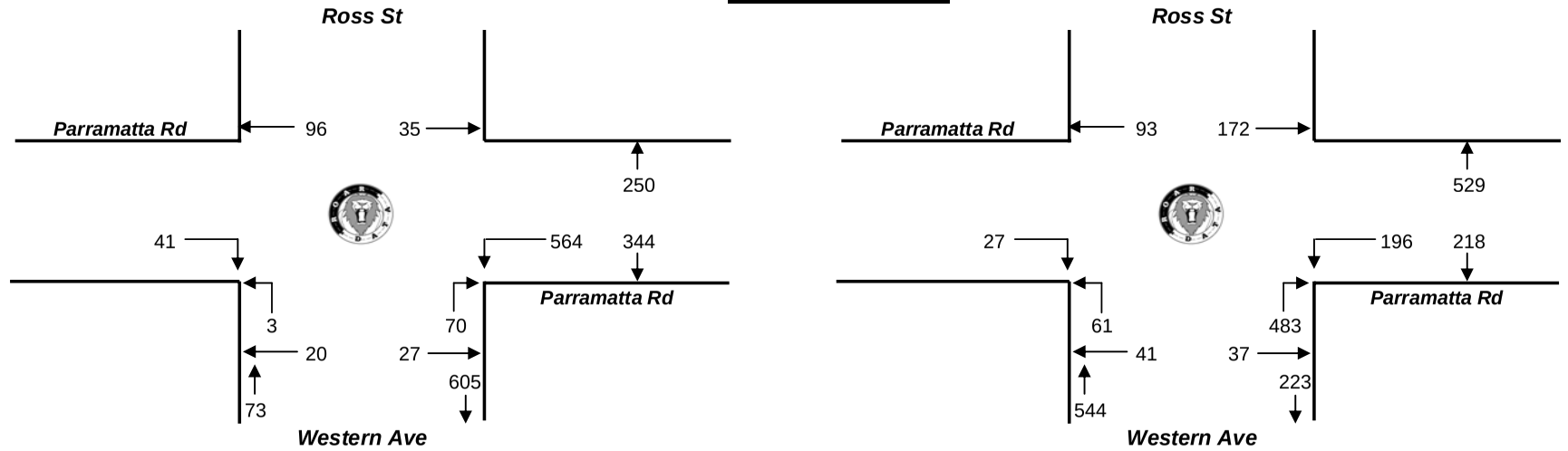
Pedestrians Ross St & Parramatta Rd



TOTAL VOLUMES FOR COUNT PERIODS



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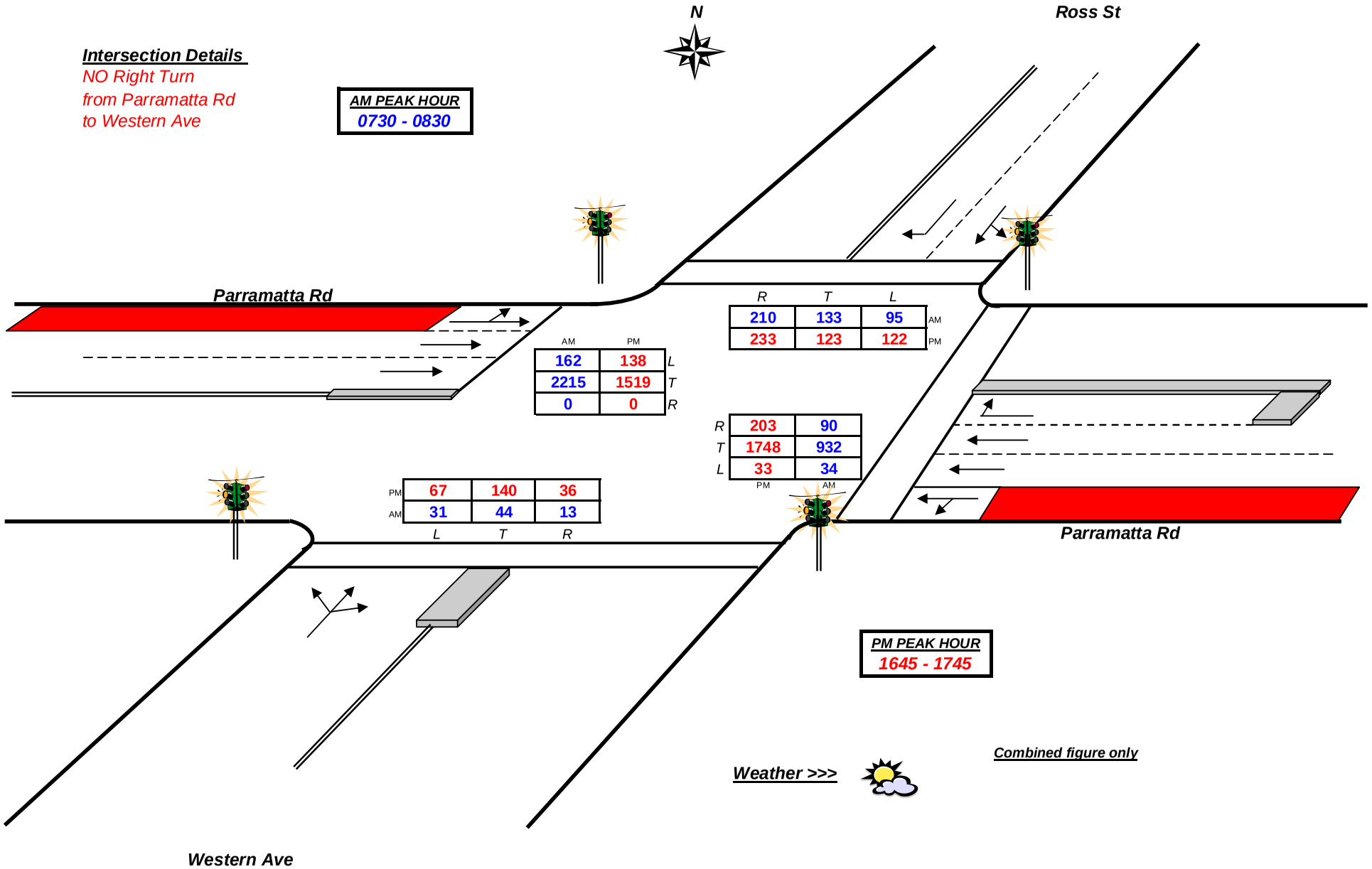
Client : Halcrow M.W.T
Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey
Day/Date : Tuesday 27th October 09

Intersection Details
NO Right Turn
from Parramatta Rd
to Western Ave

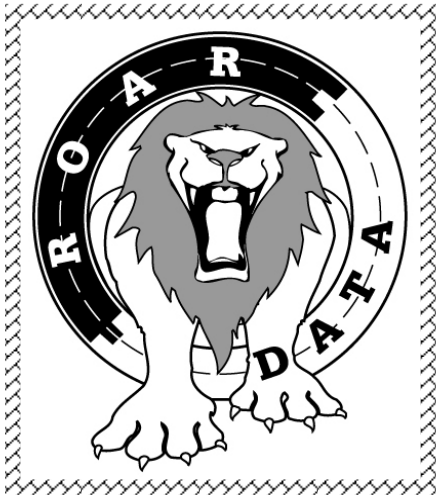
AM PEAK HOUR
0730 - 0830



PM PEAK HOUR
1645 - 1745

Weather >>>

Combined figure only



Car Park Access

To

Piran Trethewey

at ***Halcrow M.W.T***

your results for

SYDNEY UNI Traffic & Pedestrians Survey

supplied by

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Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey
Day/Date : Tuesday 27th October 09

Buses

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	0	0	0	0	3	3
0715 - 0730	0	0	0	0	0	5	5
0730 - 0745	0	0	0	0	0	8	8
0745 - 0800	0	0	0	0	0	5	5
0800 - 0815	0	0	0	0	0	10	10
0815 - 0830	0	0	0	0	0	6	6
0830 - 0845	0	0	0	0	0	8	8
0845 - 0900	0	0	0	0	0	17	17
0900 - 0915	0	0	0	0	0	16	16
0915 - 0930	0	0	0	0	0	14	14
0930 - 0945	0	0	0	0	0	18	18
0945 - 1000	0	0	0	0	0	8	8
Per End	0	0	0	0	0	118	118

Buses

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	0	0	0	0	0	21	21
0715 - 0815	0	0	0	0	0	28	28
0730 - 0830	0	0	0	0	0	29	29
0745 - 0845	0	0	0	0	0	29	29
0800 - 0900	0	0	0	0	0	41	41
0815 - 0915	0	0	0	0	0	47	47
0830 - 0930	0	0	0	0	0	55	55
0845 - 0945	0	0	0	0	0	65	65
0900 - 1000	0	0	0	0	0	56	56
PEAK HR	0	0	0	0	0	56	56

Lights

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	0	0	0	2	215	217
0715 - 0730	0	0	1	0	3	239	243
0730 - 0745	0	0	2	0	17	260	279
0745 - 0800	0	0	1	0	15	271	287
0800 - 0815	0	0	1	0	6	287	294
0815 - 0830	0	0	2	0	4	266	272
0830 - 0845	0	0	4	0	2	271	277
0845 - 0900	0	0	1	0	6	248	255
0900 - 0915	0	0	1	0	16	287	304
0915 - 0930	0	0	1	0	6	287	294
0930 - 0945	0	0	1	0	3	262	266
0945 - 1000	0	0	4	0	9	296	309
Per End	0	0	19	0	89	3189	3297

Heavies

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	0	0	0	0	1	1
0715 - 0730	0	0	0	0	0	5	5
0730 - 0745	0	0	0	0	0	2	2
0745 - 0800	0	0	0	0	0	6	6
0800 - 0815	0	0	0	0	0	1	1
0815 - 0830	0	0	0	0	0	2	2
0830 - 0845	0	0	0	0	0	5	5
0845 - 0900	0	0	0	0	0	2	2
0900 - 0915	0	0	0	0	0	3	3
0915 - 0930	0	0	0	0	0	2	2
0930 - 0945	0	0	0	0	0	5	5
0945 - 1000	0	0	0	0	0	0	0
Per End	0	0	0	0	0	34	34

Combined

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Time Per	T	R	L	R	L	T	TOT
0700 - 0715	0	0	0	0	2	219	221
0715 - 0730	0	0	1	0	3	249	253
0730 - 0745	0	0	2	0	17	270	289
0745 - 0800	0	0	1	0	15	282	298
0800 - 0815	0	0	1	0	6	298	305
0815 - 0830	0	0	2	0	4	274	280
0830 - 0845	0	0	4	0	2	284	290
0845 - 0900	0	0	1	0	6	267	274
0900 - 0915	0	0	1	0	16	306	323
0915 - 0930	0	0	1	0	6	303	310
0930 - 0945	0	0	1	0	3	285	289
0945 - 1000	0	0	4	0	9	304	317
Per End	0	0	19	0	89	3341	3449

Lights

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	0	0	4	0	37	985	1026
0715 - 0815	0	0	5	0	41	1057	1103
0730 - 0830	0	0	6	0	42	1084	1132
0745 - 0845	0	0	8	0	27	1095	1130
0800 - 0900	0	0	8	0	18	1072	1098
0815 - 0915	0	0	8	0	28	1072	1108
0830 - 0930	0	0	7	0	30	1093	1130
0845 - 0945	0	0	4	0	31	1084	1119
0900 - 1000	0	0	7	0	34	1132	1173
PEAK HR	0	0	7	0	34	1132	1173

Heavies

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	0	0	0	0	0	14	14
0715 - 0815	0	0	0	0	0	14	14
0730 - 0830	0	0	0	0	0	11	11
0745 - 0845	0	0	0	0	0	14	14
0800 - 0900	0	0	0	0	0	10	10
0815 - 0915	0	0	0	0	0	12	12
0830 - 0930	0	0	0	0	0	12	12
0845 - 0945	0	0	0	0	0	12	12
0900 - 1000	0	0	0	0	0	10	10
PEAK HR	0	0	0	0	0	10	10

Combined

	WEST		SOUTH		EAST		
	Parramatta Rd		Car Park		Parramatta Rd		
Peak Per	T	R	L	R	L	T	TOT
0700 - 0800	0	0	4	0	37	1020	1061
0715 - 0815	0	0	5	0	41	1099	1145
0730 - 0830	0	0	6	0	42	1124	1172
0745 - 0845	0	0	8	0	27	1138	1173
0800 - 0900	0	0	8	0	18	1123	1149
0815 - 0915	0	0	8	0	28	1131	1167
0830 - 0930	0	0	7	0	30	1160	1197
0845 - 0945	0	0	4	0	31	1161	1196
0900 - 1000	0	0	7	0	34	1198	1239
PEAK HR	0	0	7	0	34	1198	1239

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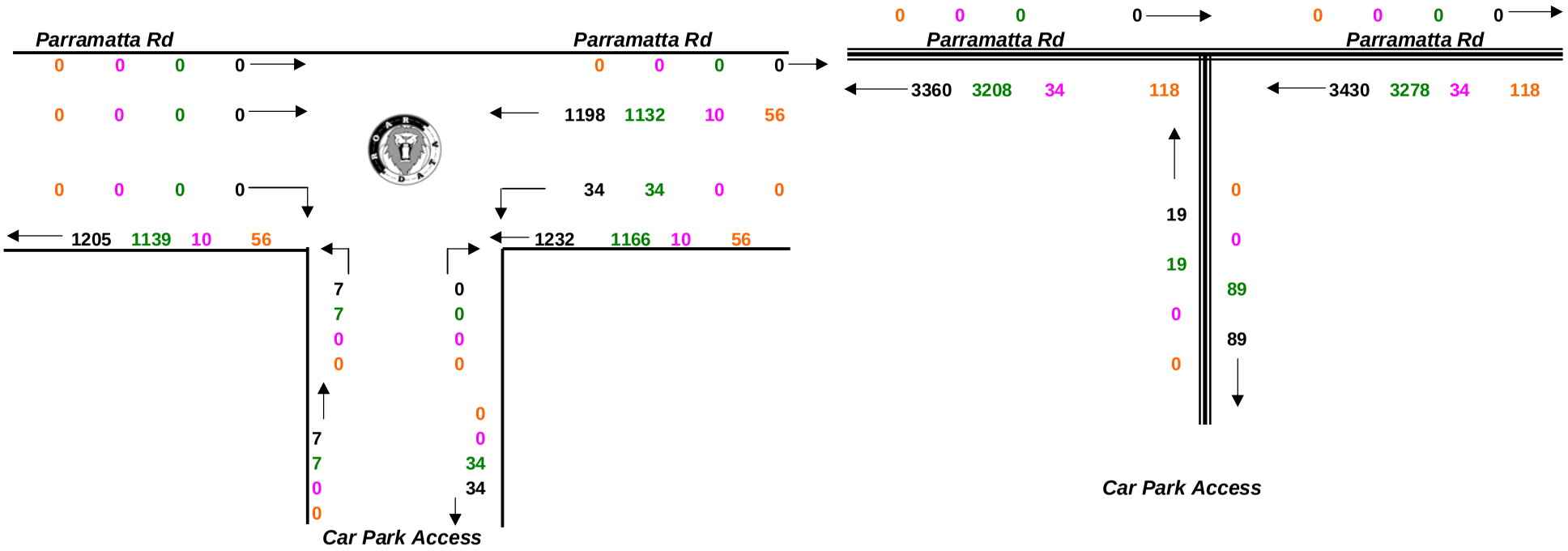
AM PEAK
0900 - 1000

TOTAL VOLUMES
FOR COUNT PERIOD



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Client : Halcrow M.W.T
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Day/Date : Tuesday 27th October 09

Buses

Time Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1515	0	0	0	0	0	8	**8**
1515 - 1530	0	0	0	0	0	10	**10**
1530 - 1545	0	0	0	0	0	8	**8**
1545 - 1600	0	0	0	0	0	10	**10**
1600 - 1615	0	0	0	0	0	9	**9**
1615 - 1630	0	0	0	0	0	10	**10**
1630 - 1645	0	0	0	0	0	12	**12**
1645 - 1700	0	0	0	0	0	13	**13**
1700 - 1715	0	0	0	0	0	12	**12**
1715 - 1730	0	0	0	0	0	16	**16**
1730 - 1745	0	0	0	0	0	14	**14**
1745 - 1800	0	0	0	0	0	11	**11**
Per End	**0**	**0**	**0**	**0**	**0**	**133**	**133**

Buses

Peak Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1600	0	0	0	0	0	36	**36**
1515 - 1615	0	0	0	0	0	37	**37**
1530 - 1630	0	0	0	0	0	37	**37**
1545 - 1645	0	0	0	0	0	41	**41**
1600 - 1700	0	0	0	0	0	44	**44**
1615 - 1715	0	0	0	0	0	47	**47**
1630 - 1730	0	0	0	0	0	53	**53**
1645 - 1745	0	0	0	0	0	55	**55**
1700 - 1800	0	0	0	0	0	53	**53**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**54**	**54**

Lights

Time Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1515	0	0	0	0	4	422	**426**
1515 - 1530	0	0	4	0	1	471	**476**
1530 - 1545	0	0	1	0	1	508	**510**
1545 - 1600	0	0	3	0	2	488	**493**
1600 - 1615	0	0	7	0	4	501	**512**
1615 - 1630	0	0	6	0	2	482	**490**
1630 - 1645	0	0	5	0	0	488	**493**
1645 - 1700	0	0	9	0	2	501	**512**
1700 - 1715	0	0	8	0	3	486	**497**
1715 - 1730	0	0	9	0	1	494	**504**
1730 - 1745	0	0	7	0	4	514	**525**
1745 - 1800	0	0	3	0	2	474	**479**
Per End	**0**	**0**	**62**	**0**	**26**	**5829**	**5917**

Heavies

Time Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1515	0	0	0	0	0	4	**4**
1515 - 1530	0	0	0	0	0	0	**0**
1530 - 1545	0	0	0	0	0	2	**2**
1545 - 1600	0	0	0	0	0	0	**0**
1600 - 1615	0	0	0	0	0	3	**3**
1615 - 1630	0	0	0	0	0	2	**2**
1630 - 1645	0	0	0	0	0	2	**2**
1645 - 1700	0	0	0	0	0	5	**5**
1700 - 1715	0	0	0	0	0	1	**1**
1715 - 1730	0	0	0	0	0	1	**1**
1730 - 1745	0	0	0	0	0	1	**1**
1745 - 1800	0	0	0	0	0	0	**0**
Per End	**0**	**0**	**0**	**0**	**0**	**21**	**21**

Combined

Time Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1515	0	0	0	0	4	434	**438**
1515 - 1530	0	0	4	0	1	481	**486**
1530 - 1545	0	0	1	0	1	518	**520**
1545 - 1600	0	0	3	0	2	498	**503**
1600 - 1615	0	0	7	0	4	513	**524**
1615 - 1630	0	0	6	0	2	494	**502**
1630 - 1645	0	0	5	0	0	502	**507**
1645 - 1700	0	0	9	0	2	519	**530**
1700 - 1715	0	0	8	0	3	499	**510**
1715 - 1730	0	0	9	0	1	511	**521**
1730 - 1745	0	0	7	0	4	529	**540**
1745 - 1800	0	0	3	0	2	485	**490**
Per End	**0**	**0**	**62**	**0**	**26**	**5983**	**6071**

Lights

Peak Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1600	0	0	8	0	8	1889	**1905**
1515 - 1615	0	0	15	0	8	1968	**1991**
1530 - 1630	0	0	17	0	9	1979	**2005**
1545 - 1645	0	0	21	0	8	1959	**1988**
1600 - 1700	0	0	27	0	8	1972	**2007**
1615 - 1715	0	0	28	0	7	1957	**1992**
1630 - 1730	0	0	31	0	6	1969	**2006**
1645 - 1745	0	0	33	0	10	1995	**2038**
1700 - 1800	0	0	27	0	10	1968	**2005**
PEAK HR	**0**	**0**	**33**	**0**	**10**	**1995**	**2038**

Heavies

Peak Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1600	0	0	0	0	0	6	**6**
1515 - 1615	0	0	0	0	0	5	**5**
1530 - 1630	0	0	0	0	0	7	**7**
1545 - 1645	0	0	0	0	0	7	**7**
1600 - 1700	0	0	0	0	0	12	**12**
1615 - 1715	0	0	0	0	0	10	**10**
1630 - 1730	0	0	0	0	0	9	**9**
1645 - 1745	0	0	0	0	0	8	**8**
1700 - 1800	0	0	0	0	0	3	**3**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**8**	**8**

Combined

Peak Per	WEST Parramatta Rd T	WEST Parramatta Rd R	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta Rd L	EAST Parramatta Rd T	TOT
1500 - 1600	0	0	8	0	8	1931	**1947**
1515 - 1615	0	0	15	0	8	2010	**2033**
1530 - 1630	0	0	17	0	9	2023	**2049**
1545 - 1645	0	0	21	0	8	2007	**2036**
1600 - 1700	0	0	27	0	8	2028	**2063**
1615 - 1715	0	0	28	0	7	2014	**2049**
1630 - 1730	0	0	31	0	6	2031	**2068**
1645 - 1745	0	0	33	0	10	2058	**2101**
1700 - 1800	0	0	27	0	10	2024	**2061**
PEAK HR	**0**	**0**	**33**	**0**	**10**	**2058**	**2101**

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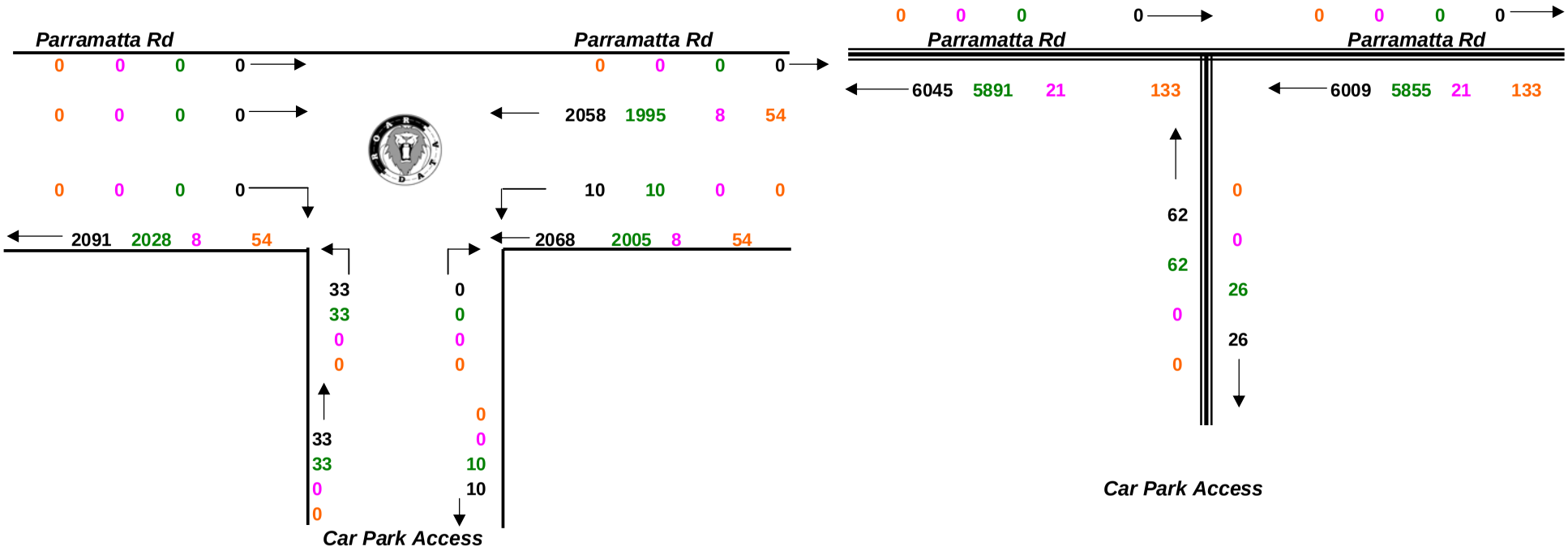
Day/Date : Tuesday 27th October 09

PM PEAK
1645 - 1745

N

TOTAL VOLUMES
FOR COUNT PERIOD



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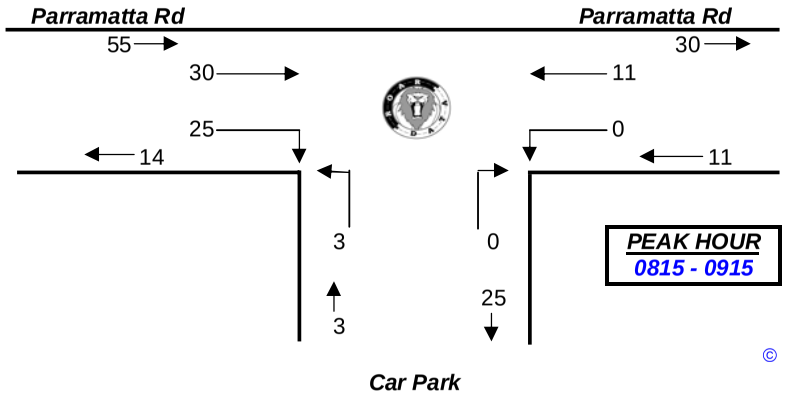
Peds

Time Per	WEST Parramatta Rd R	WEST Parramatta Rd T	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta T	EAST Parramatta L	TOTAL
0700 - 0715	3	1	1	0	0	0	**5**
0715 - 0730	0	3	0	0	1	0	**4**
0730 - 0745	0	2	0	0	0	0	**2**
0745 - 0800	5	9	3	0	2	0	**19**
0800 - 0815	5	7	1	0	2	0	**15**
0815 - 0830	0	6	0	0	5	0	**11**
0830 - 0845	4	5	0	0	2	0	**11**
0845 - 0900	19	10	0	0	1	0	**30**
0900 - 0915	2	9	3	0	3	0	**17**
0915 - 0930	5	0	0	0	1	0	**6**
0930 - 0945	2	5	1	0	2	1	**11**
0945 - 1000	1	4	2	0	3	0	**10**
Period End	**46**	**61**	**11**	**0**	**22**	**1**	**141**

Peds

Peak Per	WEST Parramatta Rd R	WEST Parramatta Rd T	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta T	EAST Parramatta L	TOTAL
0700 - 0800	8	15	4	0	3	0	**30**
0715 - 0815	10	21	4	0	5	0	**40**
0730 - 0830	10	24	4	0	9	0	**47**
0745 - 0845	14	27	4	0	11	0	**56**
0800 - 0900	28	28	1	0	10	0	**67**
0815 - 0915	25	30	3	0	11	0	**69**
0830 - 0930	30	24	3	0	7	0	**64**
0845 - 0945	28	24	4	0	7	1	**64**
0900 - 1000	10	18	6	0	9	1	**44**
PEAK HR	**25**	**30**	**3**	**0**	**11**	**0**	**69**

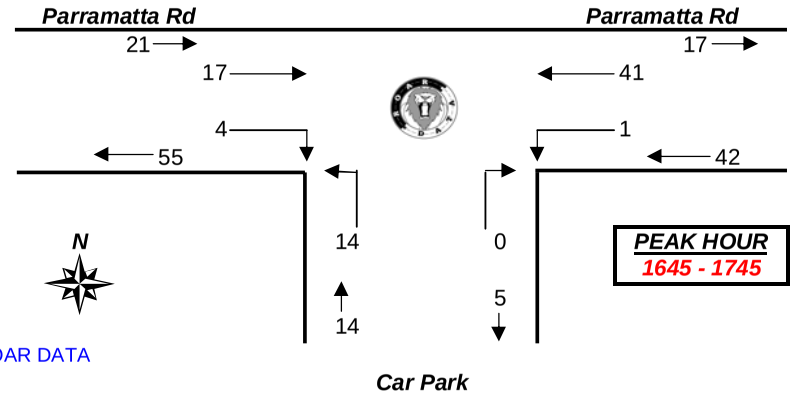


Peds

Time Per	WEST Parramatta R	WEST Parramatta T	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta T	EAST Parramatta L	TOTAL
1500 - 1515	1	4	1	0	17	0	**23**
1515 - 1530	0	2	1	1	3	0	**7**
1530 - 1545	0	2	1	0	5	0	**8**
1545 - 1600	0	4	0	0	3	0	**7**
1600 - 1615	0	6	1	0	9	0	**16**
1615 - 1630	0	11	1	0	6	0	**18**
1630 - 1645	1	4	1	0	5	1	**12**
1645 - 1700	1	7	1	0	13	0	**22**
1700 - 1715	1	4	5	0	8	0	**18**
1715 - 1730	1	3	6	0	11	1	**22**
1730 - 1745	1	3	2	0	9	0	**15**
1745 - 1800	1	1	1	0	8	0	**11**
Period End	**7**	**51**	**21**	**1**	**97**	**2**	**179**

Peds

Peak Per	WEST Parramatta R	WEST Parramatta T	SOUTH Car Park L	SOUTH Car Park R	EAST Parramatta T	EAST Parramatta L	TOTAL
1500 - 1600	1	12	3	1	28	0	**45**
1515 - 1615	0	14	3	1	20	0	**38**
1530 - 1630	0	23	3	0	23	0	**49**
1545 - 1645	1	25	3	0	23	1	**53**
1600 - 1700	2	28	4	0	33	1	**68**
1615 - 1715	3	26	8	0	32	1	**70**
1630 - 1730	4	18	13	0	37	2	**74**
1645 - 1745	4	17	14	0	41	1	**77**
1700 - 1800	4	11	14	0	36	1	**66**
PEAK HR	**4**	**17**	**14**	**0**	**41**	**1**	**77**



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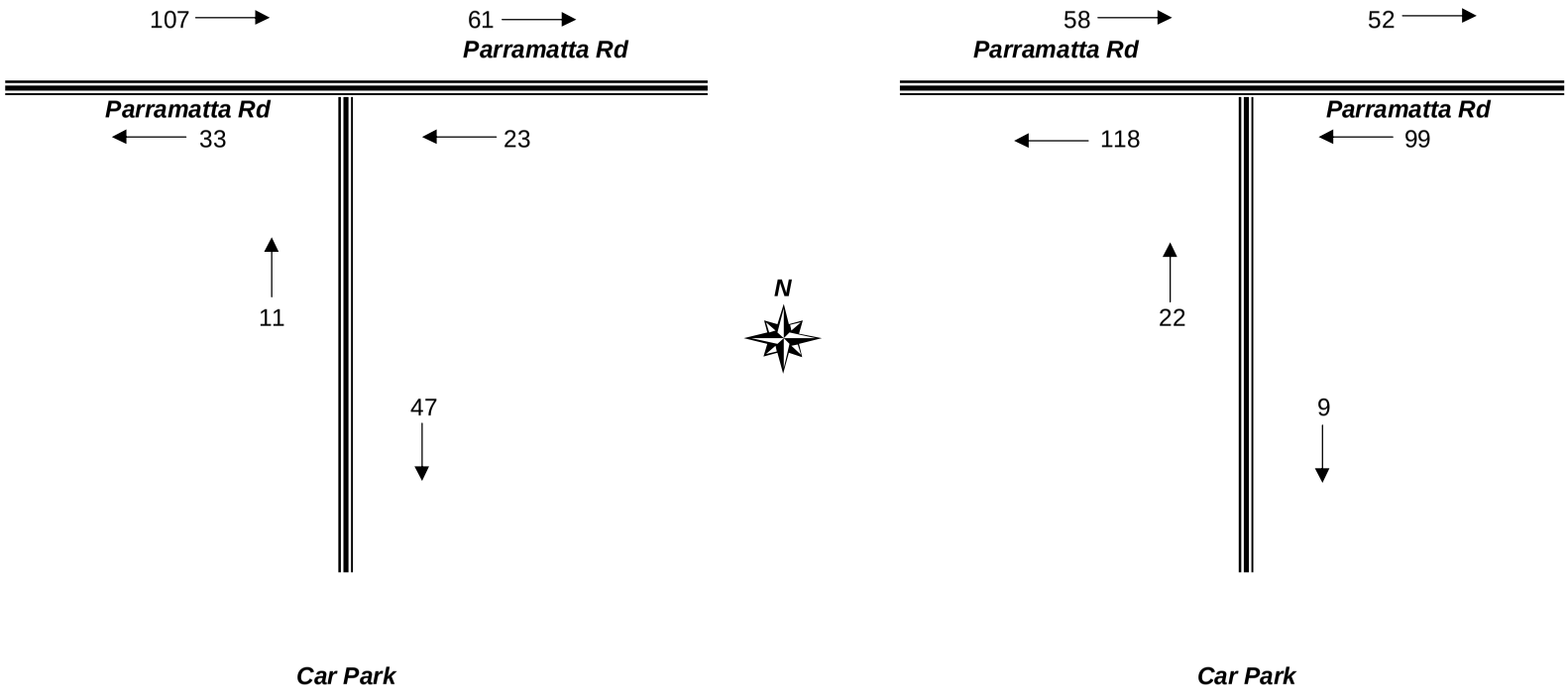
Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey
Day/Date : Tuesday 27th October 09

AM | **TOTAL VOLUMES FOR COUNT PERIOD** | ***PM***



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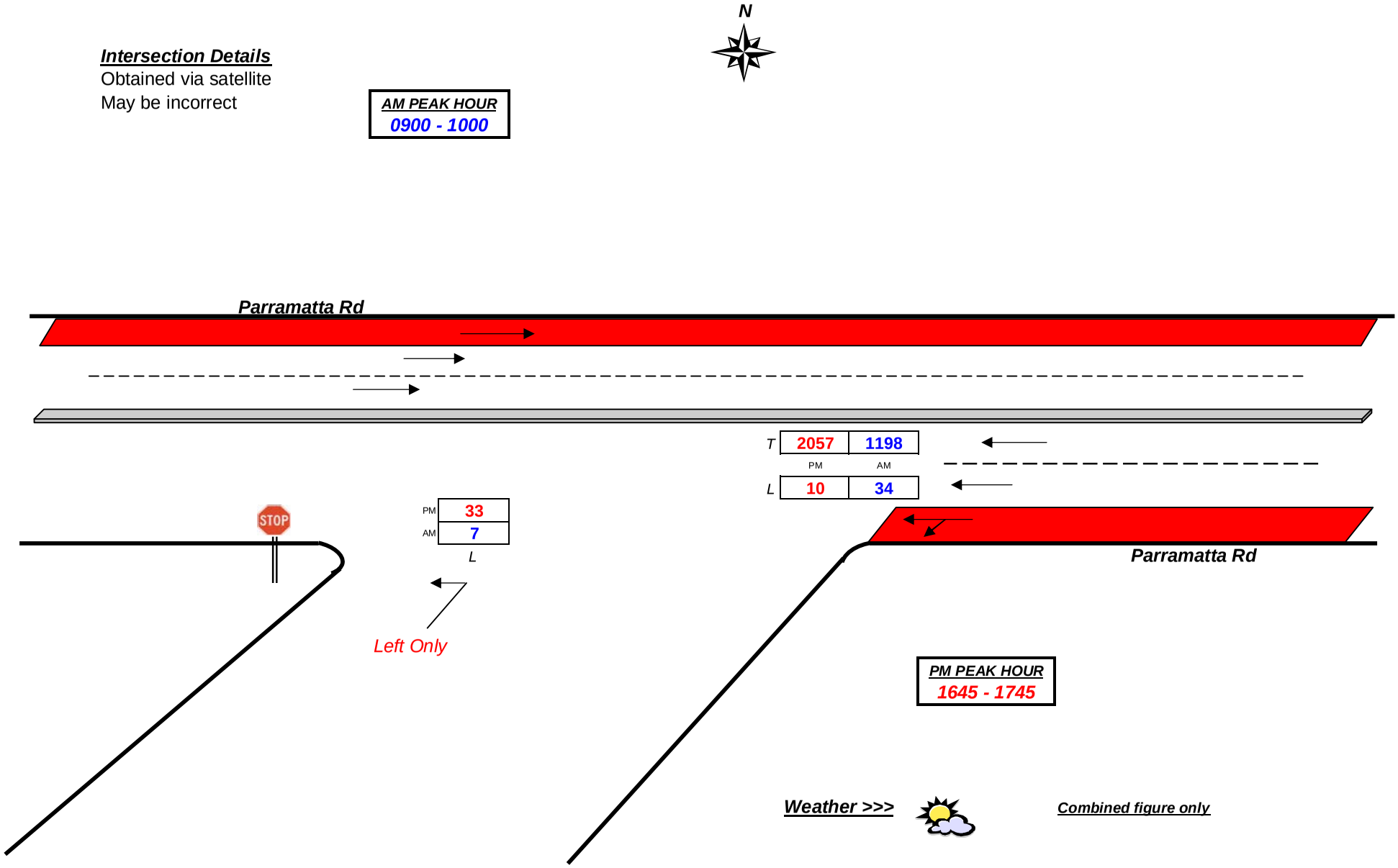
Intersection Details
Obtained via satellite
May be incorrect

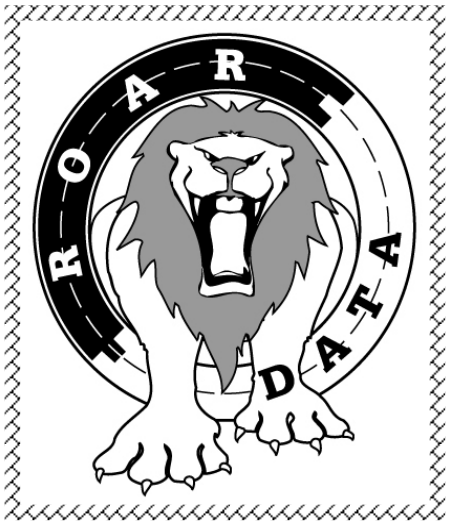
AM PEAK HOUR
0900 - 1000



PM PEAK HOUR
1645 - 1745

Weather >>>

Combined figure only



Missenden Rd

To

Piran Trethewey

at ***Halcrow M.W.T***

your results for

SYDNEY UNI Traffic & Pedestrians Survey

supplied by

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Client : Halcrow M.W.T

Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey

Day/Date : Tuesday 27th October 09

Lights

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	9	98	0	1	0	0	0	91	14	2	0	5	**220**
0715 - 0730	14	83	0	1	1	0	0	89	12	3	0	1	**204**
0730 - 0745	11	112	0	3	1	1	0	79	10	6	0	3	**226**
0745 - 0800	6	112	0	2	1	2	0	84	9	4	0	7	**227**
0800 - 0815	18	112	0	4	0	1	0	88	8	5	0	4	**240**
0815 - 0830	16	111	0	0	0	0	0	104	6	6	0	5	**248**
0830 - 0845	9	111	0	2	0	1	0	95	12	1	0	5	**236**
0845 - 0900	6	127	0	0	0	1	0	103	12	5	0	6	**260**
0900 - 0915	8	115	0	1	0	1	0	103	14	4	0	6	**252**
0915 - 0930	13	95	0	5	0	0	0	87	13	10	0	8	**231**
0930 - 0945	9	102	0	2	1	1	0	115	10	10	0	7	**257**
0945 - 1000	8	110	0	0	2	2	0	108	13	6	0	4	**253**
Period End	**127**	**1288**	**0**	**21**	**6**	**10**	**0**	**1146**	**133**	**62**	**0**	**61**	**2854**

Lights

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	40	405	0	7	3	3	0	343	45	15	0	16	**877**
0715 - 0815	49	419	0	10	3	4	0	340	39	18	0	15	**897**
0730 - 0830	51	447	0	9	2	4	0	355	33	21	0	19	**941**
0745 - 0845	49	446	0	8	1	4	0	371	35	16	0	21	**951**
0800 - 0900	49	461	0	6	0	3	0	390	38	17	0	20	**984**
0815 - 0915	39	464	0	3	0	3	0	405	44	16	0	22	**996**
0830 - 0930	36	448	0	8	0	3	0	388	51	20	0	25	**979**
0845 - 0945	36	439	0	8	1	3	0	408	49	29	0	27	**1000**
0900 - 1000	38	422	0	8	3	4	0	413	50	30	0	25	**993**
PEAK HOUR	**36**	**439**	**0**	**8**	**1**	**3**	**0**	**408**	**49**	**29**	**0**	**27**	**1000**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	3	0	0	0	0	0	1	0	0	0	0	**4**
0715 - 0730	0	0	0	0	0	0	0	1	0	0	0	0	**1**
0730 - 0745	0	0	0	0	0	0	0	2	0	0	0	1	**3**
0745 - 0800	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0800 - 0815	0	3	0	0	0	0	0	1	0	0	0	0	**4**
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0	**0**
0830 - 0845	0	0	0	0	0	0	0	0	0	0	0	0	**0**
0845 - 0900	1	2	0	0	0	0	0	0	0	0	0	0	**3**
0900 - 0915	0	3	0	0	0	0	0	2	0	0	0	0	**5**
0915 - 0930	0	1	0	0	0	0	0	2	0	1	0	0	**4**
0930 - 0945	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0945 - 1000	0	2	0	0	0	0	0	1	0	0	0	0	**3**
Period End	**1**	**18**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**1**	**0**	**1**	**31**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	0	5	0	0	0	0	0	4	0	0	0	1	**10**
0715 - 0815	0	5	0	0	0	0	0	4	0	0	0	1	**10**
0730 - 0830	0	5	0	0	0	0	0	3	0	0	0	1	**9**
0745 - 0845	0	5	0	0	0	0	0	1	0	0	0	0	**6**
0800 - 0900	1	5	0	0	0	0	0	1	0	0	0	0	**7**
0815 - 0915	1	5	0	0	0	0	0	2	0	0	0	0	**8**
0830 - 0930	1	6	0	0	0	0	0	4	0	1	0	0	**12**
0845 - 0945	1	8	0	0	0	0	0	4	0	1	0	0	**14**
0900 - 1000	0	8	0	0	0	0	0	5	0	1	0	0	**14**
PEAK HOUR	**1**	**8**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**14**

R.O.A.R. DATA

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Day/Date : Tuesday 27th October 09

Buses

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	0	0	0	0	0	0	0	0	0	0	0	0	**0**
0715 - 0730	0	0	0	0	0	0	0	1	0	0	0	0	**1**
0730 - 0745	0	1	0	0	0	0	0	1	0	0	0	0	**2**
0745 - 0800	0	0	0	0	0	0	0	2	0	0	0	0	**2**
0800 - 0815	0	2	0	0	0	0	0	0	0	0	0	0	**2**
0815 - 0830	0	0	0	0	0	0	0	2	0	0	0	0	**2**
0830 - 0845	0	1	0	0	0	0	0	1	0	0	0	0	**2**
0845 - 0900	0	1	0	0	0	0	0	1	0	0	0	0	**2**
0900 - 0915	0	0	0	0	0	0	0	1	0	0	0	0	**1**
0915 - 0930	0	1	0	0	0	0	0	1	0	0	0	0	**2**
0930 - 0945	0	2	0	0	0	0	0	1	0	0	0	0	**3**
0945 - 1000	0	0	0	0	0	0	0	1	0	0	0	0	**1**
Period End	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**20**

Buses

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	0	1	0	0	0	0	0	4	0	0	0	0	**5**
0715 - 0815	0	3	0	0	0	0	0	4	0	0	0	0	**7**
0730 - 0830	0	3	0	0	0	0	0	5	0	0	0	0	**8**
0745 - 0845	0	3	0	0	0	0	0	5	0	0	0	0	**8**
0800 - 0900	0	4	0	0	0	0	0	4	0	0	0	0	**8**
0815 - 0915	0	2	0	0	0	0	0	5	0	0	0	0	**7**
0830 - 0930	0	3	0	0	0	0	0	4	0	0	0	0	**7**
0845 - 0945	0	4	0	0	0	0	0	4	0	0	0	0	**8**
0900 - 1000	0	3	0	0	0	0	0	4	0	0	0	0	**7**
PEAK HOUR	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**8**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
0700 - 0715	9	101	0	1	0	0	0	92	14	2	0	5	**224**
0715 - 0730	14	83	0	1	1	0	0	91	12	3	0	1	**206**
0730 - 0745	11	113	0	3	1	1	0	82	10	6	0	4	**231**
0745 - 0800	6	114	0	2	1	2	0	86	9	4	0	7	**231**
0800 - 0815	18	117	0	4	0	1	0	89	8	5	0	4	**246**
0815 - 0830	16	111	0	0	0	0	0	106	6	6	0	5	**250**
0830 - 0845	9	112	0	2	0	1	0	96	12	1	0	5	**238**
0845 - 0900	7	130	0	0	0	1	0	104	12	5	0	6	**265**
0900 - 0915	8	118	0	1	0	1	0	106	14	4	0	6	**258**
0915 - 0930	13	97	0	5	0	0	0	90	13	11	0	8	**237**
0930 - 0945	9	106	0	2	1	1	0	116	10	10	0	7	**262**
0945 - 1000	8	112	0	0	2	2	0	110	13	6	0	4	**257**
Period End	**128**	**1314**	**0**	**21**	**6**	**10**	**0**	**1168**	**133**	**63**	**0**	**62**	**2905**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins Dr*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
0700 - 0800	40	411	0	7	3	3	0	351	45	15	0	17	**892**
0715 - 0815	49	427	0	10	3	4	0	348	39	18	0	16	**914**
0730 - 0830	51	455	0	9	2	4	0	363	33	21	0	20	**958**
0745 - 0845	49	454	0	8	1	4	0	377	35	16	0	21	**965**
0800 - 0900	50	470	0	6	0	3	0	395	38	17	0	20	**999**
0815 - 0915	40	471	0	3	0	3	0	412	44	16	0	22	**1011**
0830 - 0930	37	457	0	8	0	3	0	396	51	21	0	25	**998**
0845 - 0945	37	451	0	8	1	3	0	416	49	30	0	27	**1022**
0900 - 1000	38	433	0	8	3	4	0	422	50	31	0	25	**1014**
PEAK HOUR	**37**	**451**	**0**	**8**	**1**	**3**	**0**	**416**	**49**	**30**	**0**	**27**	**1022**

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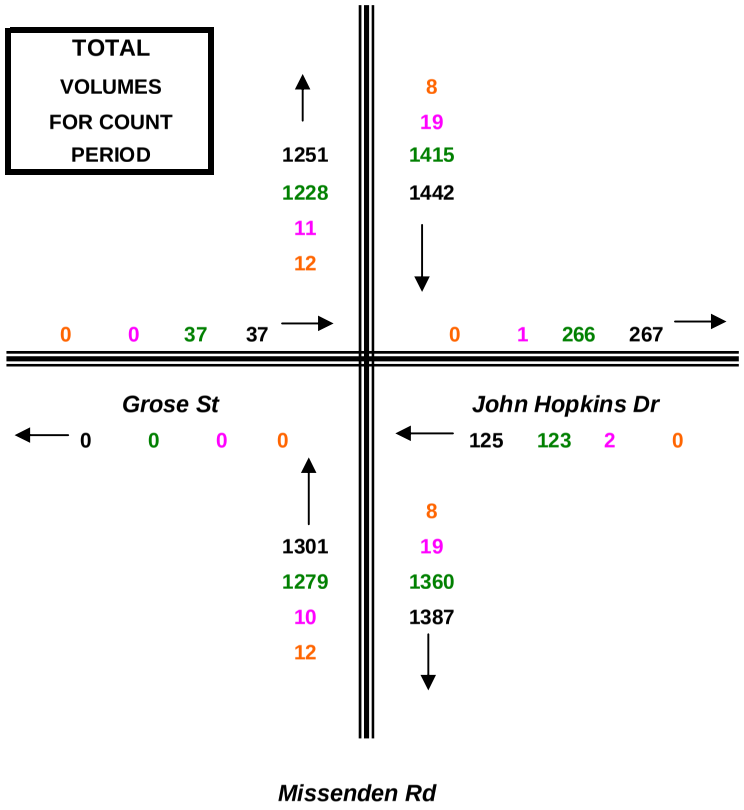

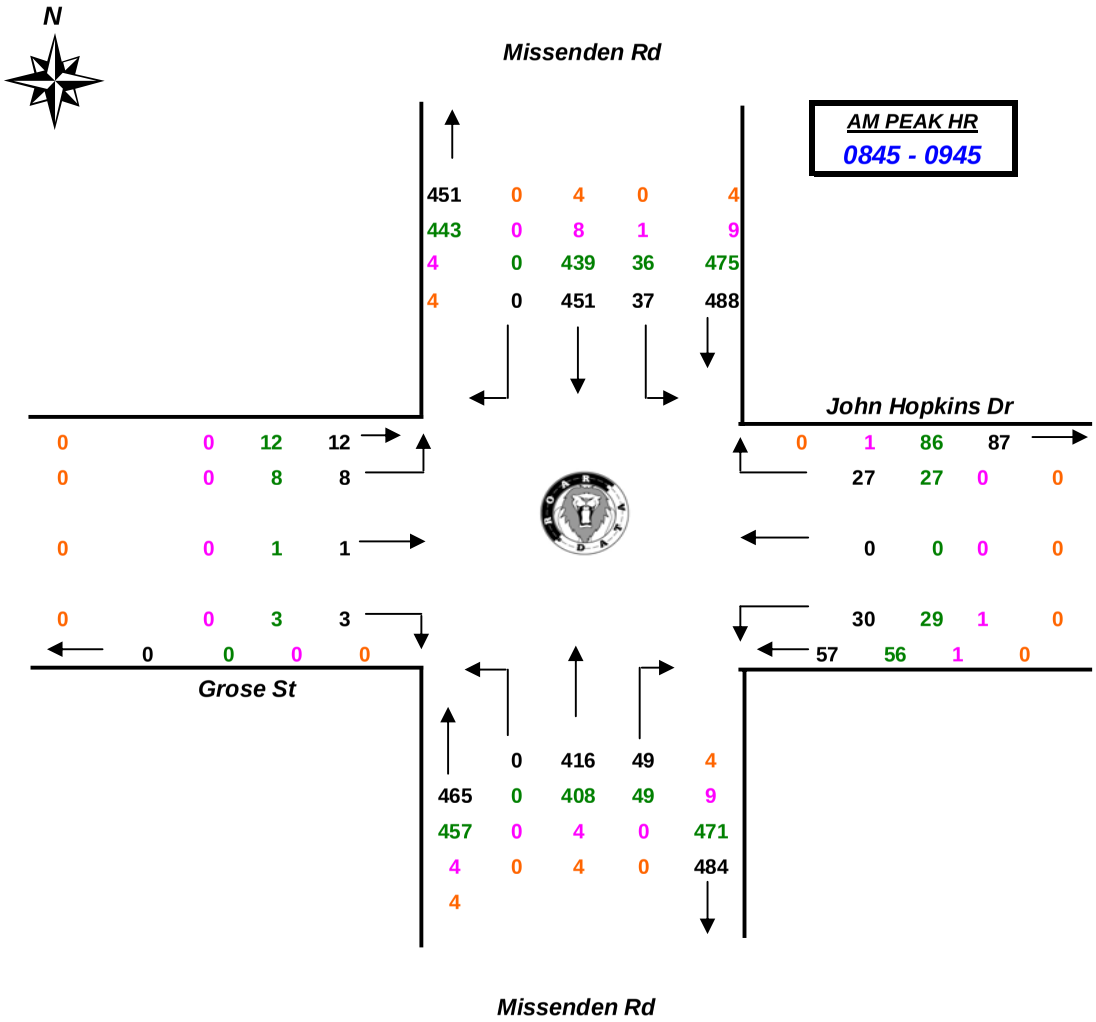

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Day/Date : Tuesday 27th October 09

These vehicles are included in the intersection count only light vehicles recorded

Hospital Emergency Access

Time Period	IN
0700 - 0715	2
0715 - 0730	3
0730 - 0745	1
0745 - 0800	2
0800 - 0815	1
0815 - 0830	1
0830 - 0845	7
0845 - 0900	2
0900 - 0915	4
0915 - 0930	2
0930 - 0945	1
0945 - 1000	2
Period End	**28**

Hospital Emergency Access

Peak Period	IN
0700 - 0800	**8**
0715 - 0815	**7**
0730 - 0830	**5**
0745 - 0845	**11**
0800 - 0900	**11**
0815 - 0915	**14**
0830 - 0930	**15**
0845 - 0945	**9**
0900 - 1000	**9**

PEAK HOUR	9

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Lights

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	2	120	0	6	0	1	0	81	4	4	0	9	**227**
1515 - 1530	6	94	0	7	0	1	0	99	11	5	0	2	**225**
1530 - 1545	6	92	0	13	0	3	0	101	15	4	0	0	**234**
1545 - 1600	4	112	0	5	0	1	0	91	9	9	0	3	**234**
1600 - 1615	2	105	0	10	1	2	0	111	10	6	0	9	**256**
1615 - 1630	8	130	0	14	0	1	0	100	10	4	0	4	**271**
1630 - 1645	13	135	0	9	0	1	0	107	7	12	0	4	**288**
1645 - 1700	8	118	0	6	1	0	0	92	16	10	0	7	**258**
1700 - 1715	7	119	0	3	0	0	0	106	9	7	0	9	**260**
1715 - 1730	5	147	0	8	0	2	0	90	2	4	0	5	**263**
1730 - 1745	5	115	0	4	0	3	0	105	5	2	0	4	**243**
1745 - 1800	10	141	0	2	0	1	0	72	5	7	0	5	**243**
Period End	**76**	**1428**	**0**	**87**	**2**	**16**	**0**	**1155**	**103**	**74**	**0**	**61**	**3002**

Lights

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	18	418	0	31	0	6	0	372	39	22	0	14	**920**
1515 - 1615	18	403	0	35	1	7	0	402	45	24	0	14	**949**
1530 - 1630	20	439	0	42	1	7	0	403	44	23	0	16	**995**
1545 - 1645	27	482	0	38	1	5	0	409	36	31	0	20	**1049**
1600 - 1700	31	488	0	39	2	4	0	410	43	32	0	24	**1073**
1615 - 1715	36	502	0	32	1	2	0	405	42	33	0	24	**1077**
1630 - 1730	33	519	0	26	1	3	0	395	34	33	0	25	**1069**
1645 - 1745	25	499	0	21	1	5	0	393	32	23	0	25	**1024**
1700 - 1800	27	522	0	17	0	6	0	373	21	20	0	23	**1009**
PEAK HOUR	**36**	**502**	**0**	**32**	**1**	**2**	**0**	**405**	**42**	**33**	**0**	**24**	**1077**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	0	1	0	0	0	0	0	0	0	0	0	0	**1**
1515 - 1530	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1530 - 1545	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1545 - 1600	0	0	0	0	0	0	0	2	0	0	0	0	**2**
1600 - 1615	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1615 - 1630	0	0	0	0	0	0	0	2	0	0	0	0	**2**
1630 - 1645	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1700 - 1715	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1745 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Period End	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**5**

Heavies

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	0	1	0	0	0	0	0	2	0	0	0	0	**3**
1515 - 1615	0	0	0	0	0	0	0	2	0	0	0	0	**2**
1530 - 1630	0	0	0	0	0	0	0	4	0	0	0	0	**4**
1545 - 1645	0	0	0	0	0	0	0	4	0	0	0	0	**4**
1600 - 1700	0	0	0	0	0	0	0	2	0	0	0	0	**2**
1615 - 1715	0	0	0	0	0	0	0	2	0	0	0	0	**2**
1630 - 1730	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	0	0	0	0	0	0	**0**
PEAK HOUR	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**

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Buses

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	0	0	0	0	0	0	0	1	0	0	0	0	**1**
1515 - 1530	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1530 - 1545	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1545 - 1600	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1600 - 1615	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1615 - 1630	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1630 - 1645	0	1	0	0	0	0	0	2	0	0	0	0	**3**
1645 - 1700	0	1	0	0	0	0	0	2	0	0	0	0	**3**
1700 - 1715	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1715 - 1730	0	1	0	0	0	0	0	0	0	0	0	0	**1**
1730 - 1745	0	1	0	0	0	0	0	1	0	0	0	0	**2**
1745 - 1800	0	1	0	0	0	0	0	1	0	0	0	0	**2**
Period End	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**	**24**

Buses

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	0	3	0	0	0	0	0	4	0	0	0	0	**7**
1515 - 1615	0	4	0	0	0	0	0	4	0	0	0	0	**8**
1530 - 1630	0	4	0	0	0	0	0	4	0	0	0	0	**8**
1545 - 1645	0	4	0	0	0	0	0	5	0	0	0	0	**9**
1600 - 1700	0	4	0	0	0	0	0	6	0	0	0	0	**10**
1615 - 1715	0	4	0	0	0	0	0	6	0	0	0	0	**10**
1630 - 1730	0	4	0	0	0	0	0	5	0	0	0	0	**9**
1645 - 1745	0	4	0	0	0	0	0	4	0	0	0	0	**8**
1700 - 1800	0	4	0	0	0	0	0	3	0	0	0	0	**7**
PEAK HOUR	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**10**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Time Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOT**
1500 - 1515	2	121	0	6	0	1	0	82	4	4	0	9	**229**
1515 - 1530	6	95	0	7	0	1	0	100	11	5	0	2	**227**
1530 - 1545	6	93	0	13	0	3	0	102	15	4	0	0	**236**
1545 - 1600	4	113	0	5	0	1	0	94	9	9	0	3	**238**
1600 - 1615	2	106	0	10	1	2	0	112	10	6	0	9	**258**
1615 - 1630	8	131	0	14	0	1	0	103	10	4	0	4	**275**
1630 - 1645	13	136	0	9	0	1	0	109	7	12	0	4	**291**
1645 - 1700	8	119	0	6	1	0	0	94	16	10	0	7	**261**
1700 - 1715	7	120	0	3	0	0	0	107	9	7	0	9	**262**
1715 - 1730	5	148	0	8	0	2	0	90	2	4	0	5	**264**
1730 - 1745	5	116	0	4	0	3	0	106	5	2	0	4	**245**
1745 - 1800	10	142	0	2	0	1	0	73	5	7	0	5	**245**
Period End	**76**	**1440**	**0**	**87**	**2**	**16**	**0**	**1172**	**103**	**74**	**0**	**61**	**3031**

COMBINED

	NORTH			WEST			SOUTH			EAST			
	Missenden Rd			*Grose St*			*Missenden Rd*			*John Hopkins*			
Peak Period	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**L**	**T**	**R**	**TOTAL**
1500 - 1600	18	422	0	31	0	6	0	378	39	22	0	14	**930**
1515 - 1615	18	407	0	35	1	7	0	408	45	24	0	14	**959**
1530 - 1630	20	443	0	42	1	7	0	411	44	23	0	16	**1007**
1545 - 1645	27	486	0	38	1	5	0	418	36	31	0	20	**1062**
1600 - 1700	31	492	0	39	2	4	0	418	43	32	0	24	**1085**
1615 - 1715	36	506	0	32	1	2	0	413	42	33	0	24	**1089**
1630 - 1730	33	523	0	26	1	3	0	400	34	33	0	25	**1078**
1645 - 1745	25	503	0	21	1	5	0	397	32	23	0	25	**1032**
1700 - 1800	27	526	0	17	0	6	0	376	21	20	0	23	**1016**
PEAK HOUR	**36**	**506**	**0**	**32**	**1**	**2**	**0**	**413**	**42**	**33**	**0**	**24**	**1089**

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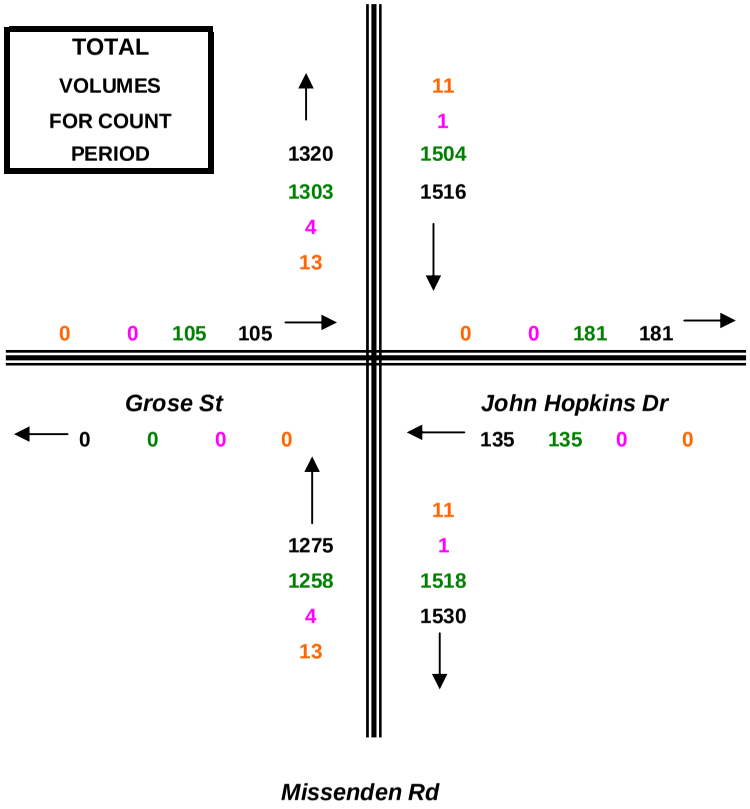
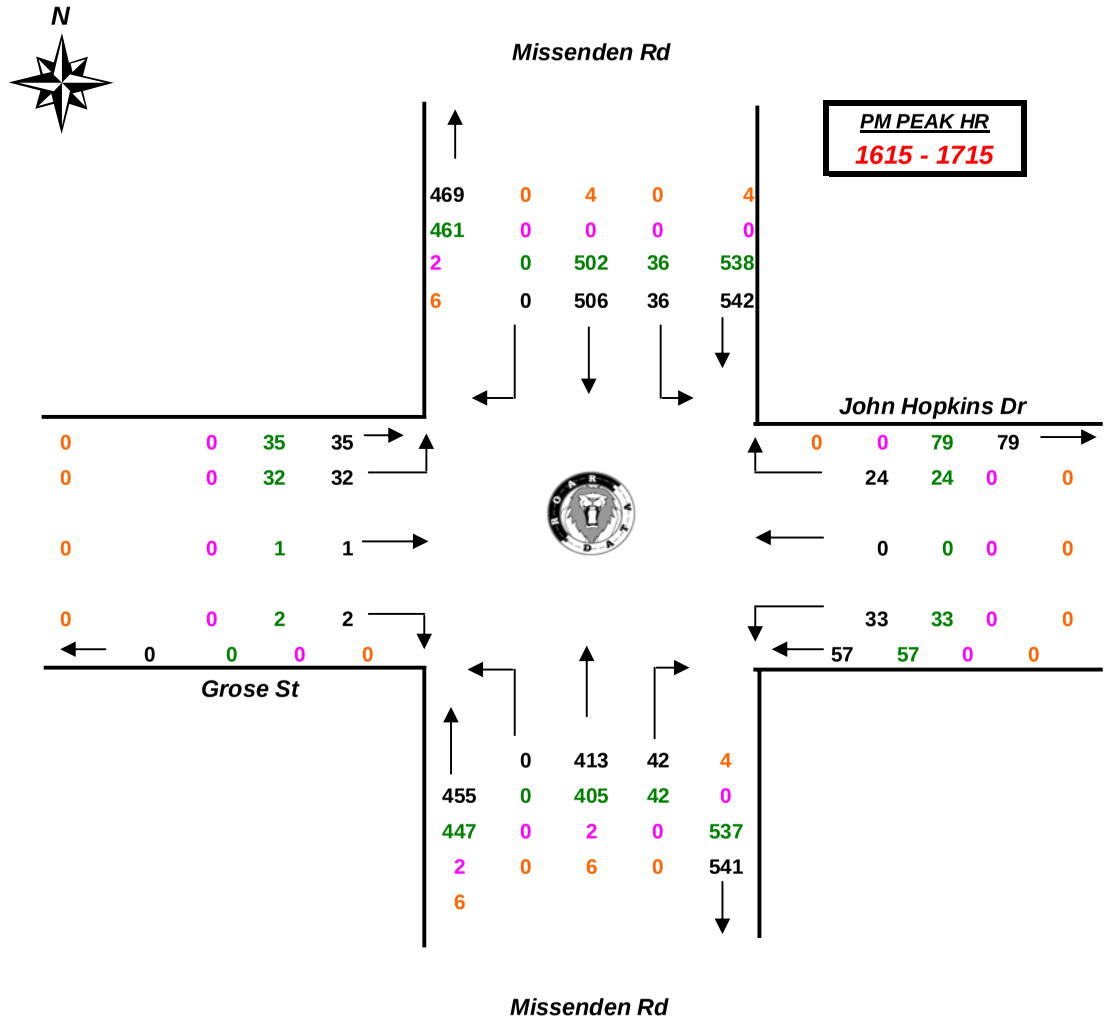
Client : Halcrow M.W.T
Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey
Day/Date : Tuesday 27th October 09





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These vehicles are included in the intersection count only light vehicles recorded

Hospital
Emergency
Access

Time Period	IN
1500 - 1515	0
1515 - 1530	10
1530 - 1545	1
1545 - 1600	0
1600 - 1615	2
1615 - 1630	0
1630 - 1645	2
1645 - 1700	5
1700 - 1715	4
1715 - 1730	1
1730 - 1745	0
1745 - 1800	0
Period End	**25**

Hospital
Emergency
Access

Peak Period	IN
1500 - 1600	**11**
1515 - 1615	**13**
1530 - 1630	**3**
1545 - 1645	**4**
1600 - 1700	**9**
1615 - 1715	**11**
1630 - 1730	**12**
1645 - 1745	**10**
1700 - 1800	**5**

PEAK HOUR	**11**

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Job No/Name : 2859 SYDNEY UNI Traffic & Peds Survey

Day/Date : Tuesday 27th October 09

Peds	NORTH		EAST		SOUTH		NTH CROSSING		
	Missenden		*John*		*Missenden*		*Missenden Rd*		
Time Per	**S-B**	**L**	**R**	**L**	**R**	**N-B**	**E-B**	**W-B**	**TOT**
0700 - 0715	15	40	3	2	2	11	55	4	**132**
0715 - 0730	9	79	11	6	6	7	114	11	**243**
0730 - 0745	27	46	6	0	10	16	79	10	**194**
0745 - 0800	29	42	22	5	4	25	78	37	**242**
0800 - 0815	24	42	19	19	13	11	49	22	**199**
0815 - 0830	18	44	14	6	22	9	53	23	**189**
0830 - 0845	10	42	6	15	16	12	45	12	**158**
0845 - 0900	21	44	8	30	15	24	49	23	**214**
0900 - 0915	21	27	11	12	11	17	33	17	**149**
0915 - 0930	24	29	6	5	20	19	50	14	**167**
0930 - 0945	22	9	16	5	19	22	24	24	**141**
0945 - 1000	24	20	11	20	6	13	41	14	**149**
Period End	**244**	**464**	**133**	**125**	**144**	**186**	**670**	**211**	**1296**

Peds	NORTH		EAST		SOUTH		NTH CROSSING		
	Missenden		*John*		*Missenden*		*Missenden Rd*		
Peak Per	**S-B**	**L**	**R**	**L**	**R**	**N-B**	**E-B**	**W-B**	**TOT**
0700 - 0800	80	207	42	13	22	59	326	62	**811**
0715 - 0815	89	209	58	30	33	59	320	80	**878**
0730 - 0830	98	174	61	30	49	61	259	92	**824**
0745 - 0845	81	170	61	45	55	57	225	94	**788**
0800 - 0900	73	172	47	70	66	56	196	80	**760**
0815 - 0915	91	85	44	42	56	71	148	69	**606**
0830 - 0930	91	85	44	42	56	71	148	69	**606**
0845 - 0945	91	85	44	42	56	71	148	69	**606**
0900 - 1000	91	85	44	42	56	71	148	69	**606**
PEAK HR	**89**	**209**	**58**	**30**	**33**	**59**	**320**	**80**	**878**

Peds	NORTH		EAST		SOUTH		NTH CROSSING		
	Missenden		*John*		*Missenden*		*Missenden Rd*		
Time Per	**S-B**	**L**	**R**	**L**	**R**	**N-B**	**E-B**	**W-B**	**TOT**
1500 - 1515	17	9	10	6	6	26	24	25	**123**
1515 - 1530	24	10	24	9	4	36	15	29	**151**
1530 - 1545	14	13	47	2	25	34	19	62	**216**
1545 - 1600	25	15	40	7	7	24	28	43	**189**
1600 - 1615	19	12	48	10	3	23	18	56	**189**
1615 - 1630	18	11	35	14	13	27	24	43	**185**
1630 - 1645	24	10	433	3	5	29	26	62	**592**
1645 - 1700	13	13	38	8	9	26	15	46	**168**
1700 - 1715	17	17	46	7	13	29	21	61	**211**
1715 - 1730	21	8	38	2	7	34	14	48	**172**
1730 - 1745	24	8	45	3	11	27	13	58	**189**
1745 - 1800	13	7	26	3	10	28	21	39	**147**
Period End	**229**	**133**	**830**	**74**	**113**	**343**	**238**	**572**	**2532**

Peds	NORTH		EAST		SOUTH		NTH CROSSING		
	Missenden		*John*		*Missenden*		*Missenden Rd*		
Peak Per	**S-B**	**L**	**R**	**L**	**R**	**N-B**	**E-B**	**W-B**	**TOT**
1500 - 1600	80	47	121	24	42	120	86	159	**679**
1515 - 1615	82	50	159	28	39	117	80	190	**745**
1530 - 1630	76	51	170	33	48	108	89	204	**779**
1545 - 1645	86	48	556	34	28	103	96	204	**1155**
1600 - 1700	74	46	554	35	30	105	83	207	**1134**
1615 - 1715	72	51	552	32	40	111	86	212	**1156**
1630 - 1730	75	48	555	20	34	118	76	217	**1143**
1645 - 1745	75	46	167	20	40	116	63	213	**740**
1700 - 1800	75	40	155	15	41	118	69	206	**719**

PEAK HR	**72**	**51**	**552**	**32**	**40**	**111**	**86**	**212**	**1156**

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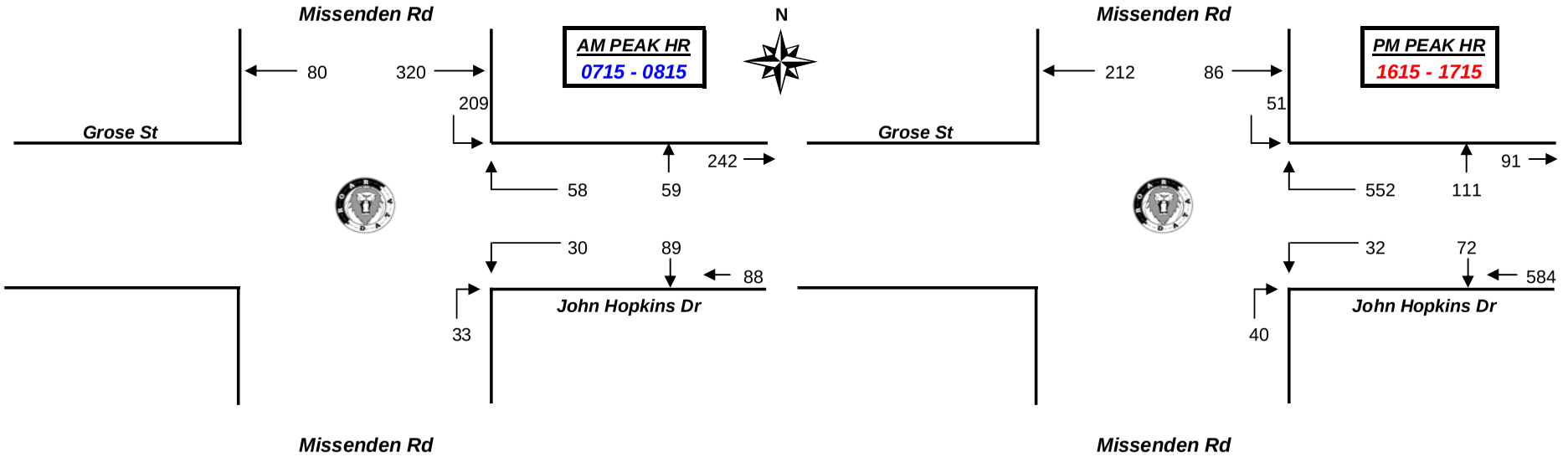
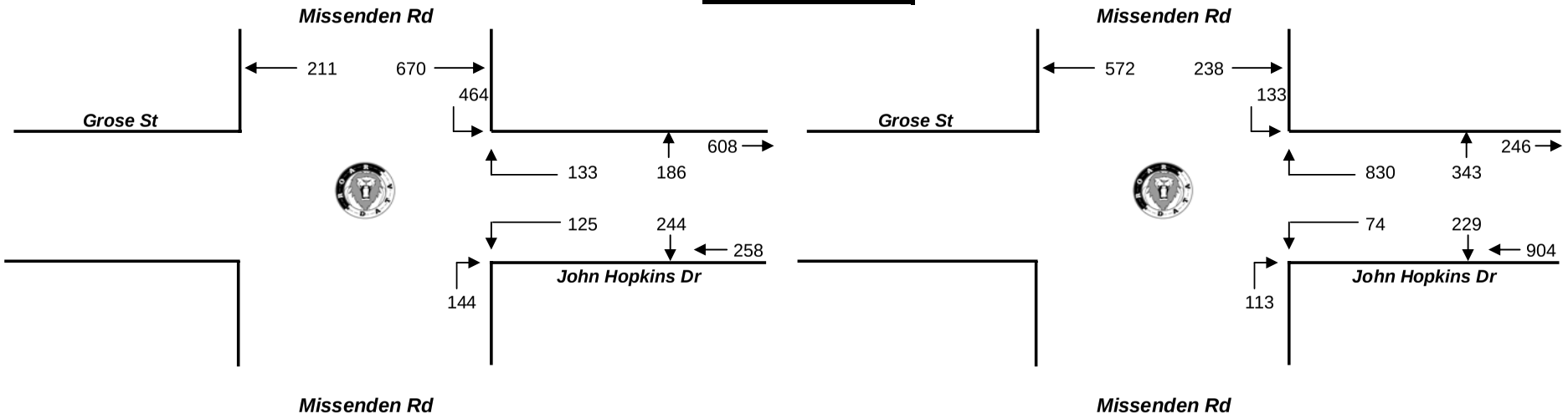
Day/Date : Tuesday 27th October 09

Pedestrians in Missenden Rd & Grose St



TOTAL VOLUMES FOR COUNT PERIODS



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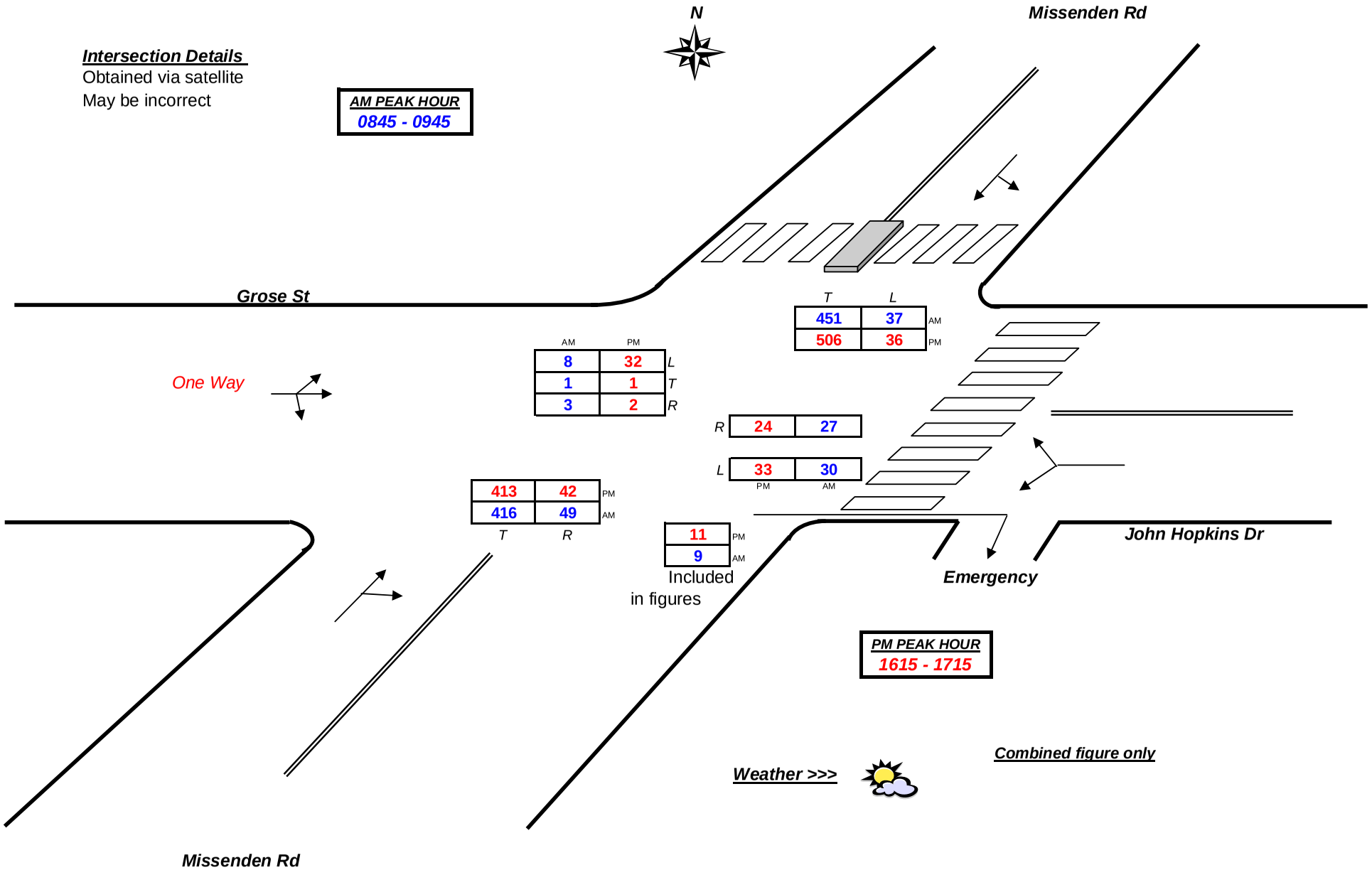
Intersection Details
Obtained via satellite
May be incorrect

AM PEAK HOUR
0845 - 0945



PM PEAK HOUR
1615 - 1715

Weather >>>

Combined figure only

Carillon Ave & Western Ave

To

Piran Trethewey

at ***Halcrow MWT***

your results for

SYDNEY Uni Traffic & Ped Survey 2

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Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

Lights

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	99	11	0	5	6	31	**152**
0715 - 0730	113	13	3	4	8	75	**216**
0730 - 0745	134	16	2	3	3	74	**232**
0745 - 0800	137	20	3	5	8	93	**266**
0800 - 0815	124	19	5	3	14	73	**238**
0815 - 0830	153	12	1	5	10	82	**263**
0830 - 0845	152	18	6	9	21	98	**304**
0845 - 0900	130	21	7	5	22	106	**291**
0900 - 0915	166	13	7	6	13	82	**287**
0915 - 0930	145	14	7	6	13	87	**272**
0930 - 0945	125	20	9	7	9	90	**260**
0945 - 1000	132	15	5	8	13	79	**252**
Per End	**1610**	**192**	**55**	**66**	**140**	**970**	**3033**

Heavies

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	1	0	0	0	0	0	**1**
0715 - 0730	0	0	0	0	0	1	**1**
0730 - 0745	0	0	0	0	0	0	**0**
0745 - 0800	0	0	0	0	0	0	**0**
0800 - 0815	0	0	0	0	0	1	**1**
0815 - 0830	0	0	0	0	0	0	**0**
0830 - 0845	1	0	0	0	0	0	**1**
0845 - 0900	0	0	0	0	0	0	**0**
0900 - 0915	0	0	0	0	0	0	**0**
0915 - 0930	0	0	0	0	0	1	**1**
0930 - 0945	0	1	0	1	0	0	**2**
0945 - 1000	0	0	0	0	0	0	**0**
Per End	**2**	**1**	**0**	**1**	**0**	**3**	**7**

Buses

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
0700 - 0715	0	0	0	0	0	0	**153**
0715 - 0730	0	0	0	0	0	0	**217**
0730 - 0745	0	0	0	0	0	0	**232**
0745 - 0800	0	0	0	0	0	0	**266**
0800 - 0815	0	0	0	0	0	1	**239**
0815 - 0830	0	0	0	0	0	1	**263**
0830 - 0845	0	0	0	0	0	0	**305**
0845 - 0900	0	0	0	0	0	0	**291**
0900 - 0915	0	0	0	0	0	0	**287**
0915 - 0930	1	0	0	0	0	0	**273**
0930 - 0945	0	0	0	0	0	0	**262**
0945 - 1000	0	0	0	0	0	2	**252**
Per End	**1**	**0**	**0**	**0**	**0**	**4**	**3040**

Lights

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	483	60	8	17	25	273	**866**
0715 - 0815	508	68	13	15	33	315	**952**
0730 - 0830	548	67	11	16	35	322	**999**
0745 - 0845	566	69	15	22	53	346	**1071**
0800 - 0900	559	70	19	22	67	359	**1096**
0815 - 0915	601	64	21	25	66	368	**1145**
0830 - 0930	593	66	27	26	69	373	**1154**
0845 - 0945	566	68	30	24	57	365	**1110**
0900 - 1000	568	62	28	27	48	338	**1071**
PEAK HR	**593**	**66**	**27**	**26**	**69**	**373**	**1154**

Heavies

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	1	0	0	0	0	1	**2**
0715 - 0815	0	0	0	0	0	2	**2**
0730 - 0830	0	0	0	0	0	1	**1**
0745 - 0845	1	0	0	0	0	1	**2**
0800 - 0900	1	0	0	0	0	1	**2**
0815 - 0915	1	0	0	0	0	0	**1**
0830 - 0930	1	0	0	0	0	1	**2**
0845 - 0945	0	1	0	1	0	1	**3**
0900 - 1000	0	1	0	1	0	1	**3**
PEAK HR	**1**	**0**	**0**	**0**	**0**	**1**	**2**

Buses

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
0700 - 0800	0	0	0	0	0	0	**0**
0715 - 0815	0	0	0	0	0	1	**1**
0730 - 0830	0	0	0	0	0	2	**2**
0745 - 0845	0	0	0	0	0	2	**2**
0800 - 0900	0	0	0	0	0	2	**2**
0815 - 0915	0	0	0	0	0	1	**1**
0830 - 0930	1	0	0	0	0	0	**1**
0845 - 0945	1	0	0	0	0	0	**1**
0900 - 1000	1	0	0	0	0	2	**3**
PEAK HR	**1**	**0**	**0**	**0**	**0**	**0**	**1**

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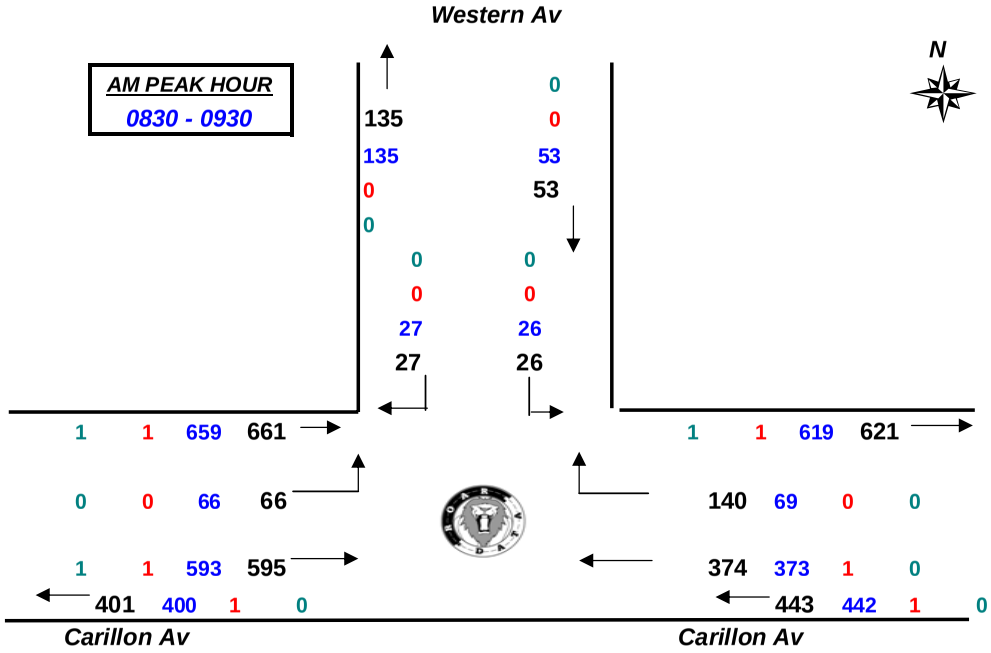
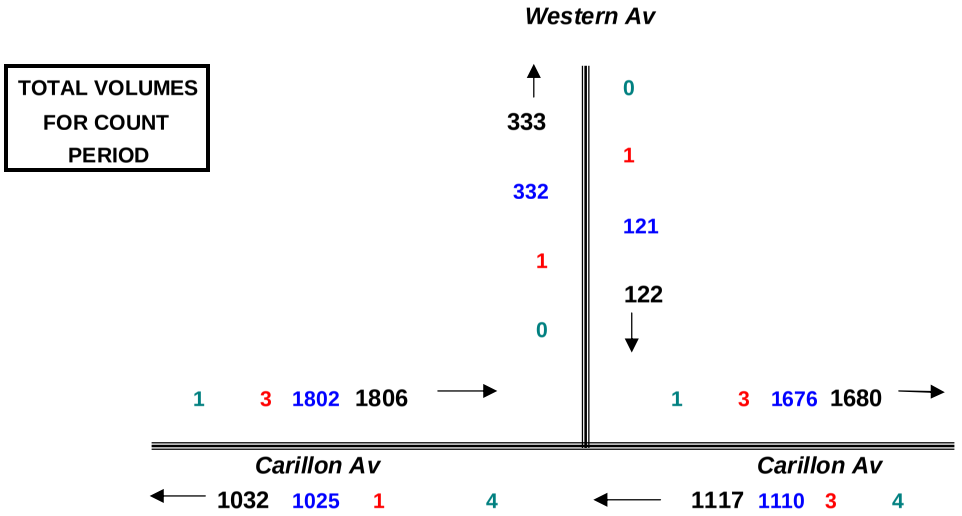
Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

Combined	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOT**
0700 - 0715	100	11	0	5	6	31	**153**
0715 - 0730	113	13	3	4	8	76	**217**
0730 - 0745	134	16	2	3	3	74	**232**
0745 - 0800	137	20	3	5	8	93	**266**
0800 - 0815	124	19	5	3	14	75	**240**
0815 - 0830	153	12	1	5	10	83	**264**
0830 - 0845	153	18	6	9	21	98	**305**
0845 - 0900	130	21	7	5	22	106	**291**
0900 - 0915	166	13	7	6	13	82	**287**
0915 - 0930	146	14	7	6	13	88	**274**
0930 - 0945	125	21	9	8	9	90	**262**
0945 - 1000	132	15	5	8	13	81	**254**
Per End	**1613**	**193**	**55**	**67**	**140**	**977**	**3045**



Combined	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOT**
0700 - 0800	484	60	8	17	25	274	**868**
0715 - 0815	508	68	13	15	33	318	**955**
0730 - 0830	395	55	10	11	25	242	**738**
0745 - 0845	261	39	8	8	22	168	**506**
0800 - 0900	124	19	5	3	14	75	**240**
0815 - 0915	602	64	21	25	66	369	**1147**
0830 - 0930	595	66	27	26	69	374	**1157**
0845 - 0945	567	69	30	25	57	366	**1114**
0900 - 1000	569	63	28	28	48	341	**1077**

PEAK HR	**595**	**66**	**27**	**26**	**69**	**374**	**1157**



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Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

Lights

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
1500 - 1515	65	10	7	7	5	83	**177**
1515 - 1530	71	10	8	8	6	86	**189**
1530 - 1545	110	11	3	10	3	91	**228**
1545 - 1600	106	14	18	10	12	91	**251**
1600 - 1615	117	8	6	14	8	120	**273**
1615 - 1630	134	9	11	11	5	106	**276**
1630 - 1645	119	9	10	12	9	142	**301**
1645 - 1700	112	10	8	25	11	111	**277**
1700 - 1715	119	15	14	19	7	118	**292**
1715 - 1730	130	13	8	19	9	145	**324**
1730 - 1745	140	10	17	12	7	149	**335**
1745 - 1800	144	11	6	31	13	145	**350**
Per End	**1367**	**130**	**116**	**178**	**95**	**1387**	**3273**

Heavies

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
1500 - 1515	0	0	0	0	0	0	**0**
1515 - 1530	0	0	0	0	0	0	**0**
1530 - 1545	0	0	0	0	0	0	**0**
1545 - 1600	0	0	0	0	0	0	**0**
1600 - 1615	0	0	0	0	0	0	**0**
1615 - 1630	0	0	0	0	0	0	**0**
1630 - 1645	0	0	0	0	0	0	**0**
1645 - 1700	0	0	0	0	0	0	**0**
1700 - 1715	0	0	0	0	0	0	**0**
1715 - 1730	0	0	0	0	0	0	**0**
1730 - 1745	0	0	0	0	0	0	**0**
1745 - 1800	0	0	0	0	0	0	**0**
Per End	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Buses

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	T	L	R	L	R	T	TOT
1500 - 1515	0	0	0	0	0	0	**177**
1515 - 1530	0	0	0	0	0	0	**189**
1530 - 1545	0	0	0	0	0	0	**228**
1545 - 1600	0	0	0	0	0	0	**251**
1600 - 1615	0	0	0	0	0	0	**273**
1615 - 1630	0	0	0	0	0	0	**276**
1630 - 1645	0	0	0	0	0	0	**301**
1645 - 1700	2	0	0	0	0	0	**277**
1700 - 1715	0	0	0	0	0	0	**292**
1715 - 1730	1	0	0	0	0	0	**324**
1730 - 1745	1	0	0	0	0	0	**335**
1745 - 1800	0	0	0	0	0	0	**350**
Per End	**4**	**0**	**0**	**0**	**0**	**0**	**3273**

Lights

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
1500 - 1600	352	45	36	35	26	351	**845**
1515 - 1615	404	43	35	42	29	388	**941**
1530 - 1630	467	42	38	45	28	408	**1028**
1545 - 1645	476	40	45	47	34	459	**1101**
1600 - 1700	482	36	35	62	33	479	**1127**
1615 - 1715	484	43	43	67	32	477	**1146**
1630 - 1730	480	47	40	75	36	516	**1194**
1645 - 1745	501	48	47	75	34	523	**1228**
1700 - 1800	533	49	45	81	36	557	**1301**
PEAK HR	**533**	**49**	**45**	**81**	**36**	**557**	**1301**

Heavies

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
1500 - 1600	0	0	0	0	0	0	**0**
1515 - 1615	0	0	0	0	0	0	**0**
1530 - 1630	0	0	0	0	0	0	**0**
1545 - 1645	0	0	0	0	0	0	**0**
1600 - 1700	0	0	0	0	0	0	**0**
1615 - 1715	0	0	0	0	0	0	**0**
1630 - 1730	0	0	0	0	0	0	**0**
1645 - 1745	0	0	0	0	0	0	**0**
1700 - 1800	0	0	0	0	0	0	**0**
PEAK HR	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Buses

	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	T	L	R	L	R	T	TOT
1500 - 1600	0	0	0	0	0	0	**0**
1515 - 1615	0	0	0	0	0	0	**0**
1530 - 1630	0	0	0	0	0	0	**0**
1545 - 1645	0	0	0	0	0	0	**0**
1600 - 1700	2	0	0	0	0	0	**2**
1615 - 1715	2	0	0	0	0	0	**2**
1630 - 1730	3	0	0	0	0	0	**3**
1645 - 1745	4	0	0	0	0	0	**4**
1700 - 1800	2	0	0	0	0	0	**2**
PEAK HR	**2**	**0**	**0**	**0**	**0**	**0**	**2**

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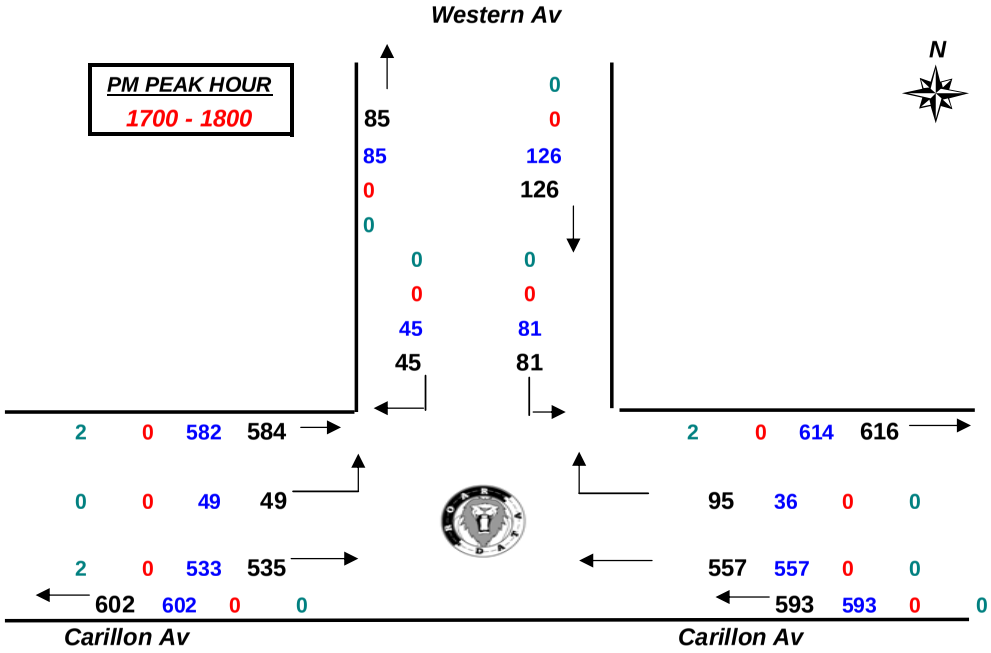
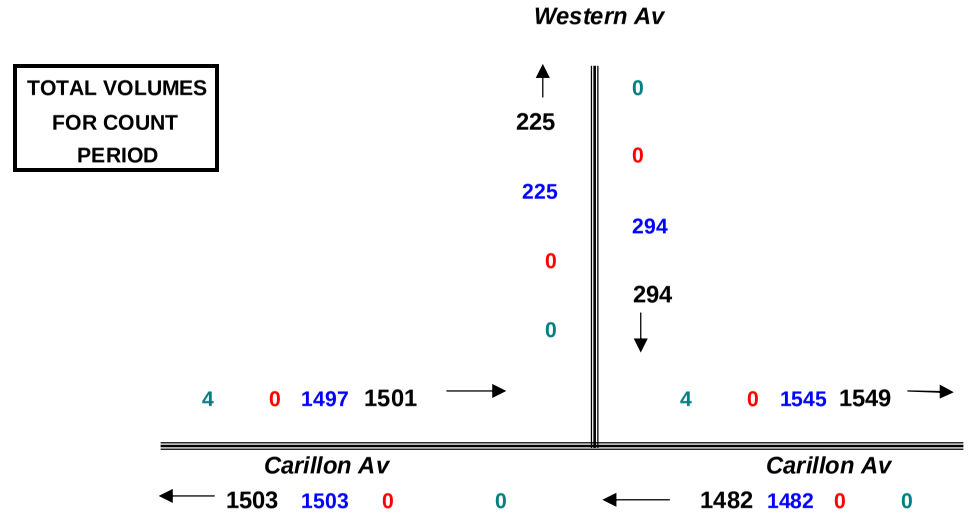
Day/Date : Thursday 5th November 2009

Combined	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Time Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOT**
1500 - 1515	65	10	7	7	5	83	**177**
1515 - 1530	71	10	8	8	6	86	**189**
1530 - 1545	110	11	3	10	3	91	**228**
1545 - 1600	106	14	18	10	12	91	**251**
1600 - 1615	117	8	6	14	8	120	**273**
1615 - 1630	134	9	11	11	5	106	**276**
1630 - 1645	119	9	10	12	9	142	**301**
1645 - 1700	114	10	8	25	11	111	**279**
1700 - 1715	119	15	14	19	7	118	**292**
1715 - 1730	131	13	8	19	9	145	**325**
1730 - 1745	141	10	17	12	7	149	**336**
1745 - 1800	144	11	6	31	13	145	**350**
Per End	**1371**	**130**	**116**	**178**	**95**	**1387**	**3277**



Combined	WEST		NORTH		EAST		
	Carillon Av		*Western Av*		*Carillon Av*		
Peak Per	**T**	**L**	**R**	**L**	**R**	**T**	**TOT**
1500 - 1600	352	45	36	35	26	351	**845**
1515 - 1615	404	43	35	42	29	388	**941**
1530 - 1630	333	33	27	34	23	302	**752**
1545 - 1645	223	22	24	24	20	211	**524**
1600 - 1700	117	8	6	14	8	120	**273**
1615 - 1715	486	43	43	67	32	477	**1148**
1630 - 1730	483	47	40	75	36	516	**1197**
1645 - 1745	505	48	47	75	34	523	**1232**
1700 - 1800	535	49	45	81	36	557	**1303**

PEAK HR	535	49	45	81	36	557	1303



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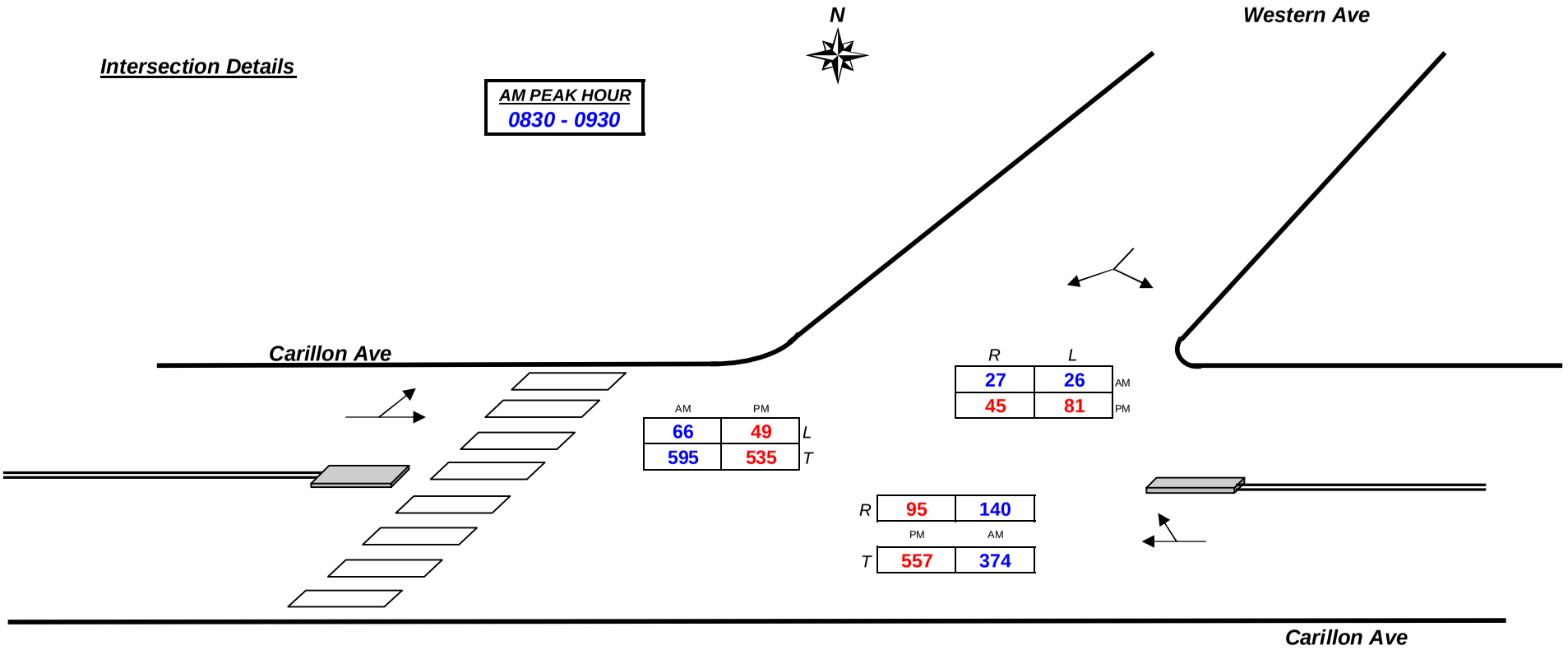
Day/Date : Thursday 5th November 2009

Intersection Details

AM PEAK HOUR
0830 - 0930



Combined figures only

PM PEAK HOUR
1700 - 1800

Weather >>>

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Client : Halcrow MWT
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Day/Date : Thursday 5th November 2009

	WESTERN AVE *Western Footpath*		
Time Per	IN	OUT	TOTAL
0700 - 0715	4	3	**7**
0715 - 0730	7	2	**9**
0730 - 0745	2	1	**3**
0745 - 0800	13	1	**14**
0800 - 0815	13	1	**14**
0815 - 0830	20	4	**24**
0830 - 0845	27	4	**31**
0845 - 0900	37	10	**47**
0900 - 0915	22	0	**22**
0915 - 0930	11	1	**12**
0930 - 0945	17	1	**18**
0945 - 1000	18	5	**23**
Period End	**191**	**33**	**224**

	WESTERN AVE *Eastern Footpath*		
Time Per	IN	OUT	TOTAL
0700 - 0715	0	1	**1**
0715 - 0730	0	2	**2**
0730 - 0745	0	0	**0**
0745 - 0800	1	2	**3**
0800 - 0815	1	0	**1**
0815 - 0830	0	1	**1**
0830 - 0845	0	1	**1**
0845 - 0900	1	2	**3**
0900 - 0915	1	2	**3**
0915 - 0930	0	0	**0**
0930 - 0945	2	0	**2**
0945 - 1000	1	7	**8**
Period End	**7**	**18**	**25**

	WESTERN AVE *Combined*		
Time Per	IN	OUT	TOTAL
0700 - 0715	4	4	**8**
0715 - 0730	7	4	**11**
0730 - 0745	2	1	**3**
0745 - 0800	14	3	**17**
0800 - 0815	14	1	**15**
0815 - 0830	20	5	**25**
0830 - 0845	27	5	**32**
0845 - 0900	38	12	**50**
0900 - 0915	23	2	**25**
0915 - 0930	11	1	**12**
0930 - 0945	19	1	**20**
0945 - 1000	19	12	**31**
Period End	**198**	**51**	**249**

	WESTERN AVE *Western Footpath*		
Peak Per	IN	OUT	TOTAL
0700 - 0800	26	7	**33**
0715 - 0815	35	5	**40**
0730 - 0830	48	7	**55**
0745 - 0845	73	10	**83**
0800 - 0900	97	19	**116**
0815 - 0915	106	18	**124**
0830 - 0930	97	15	**112**
0845 - 0945	87	12	**99**
0900 - 1000	68	7	**75**
PEAK HR	**97**	**15**	

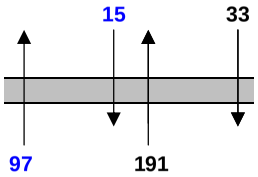
	WESTERN AVE *Eastern Footpath*		
Peak Per	IN	OUT	TOTAL
0700 - 0800	1	5	**6**
0715 - 0815	2	4	**6**
0730 - 0830	2	3	**5**
0745 - 0845	2	4	**6**
0800 - 0900	2	4	**6**
0815 - 0915	2	6	**8**
0830 - 0930	2	5	**7**
0845 - 0945	4	4	**8**
0900 - 1000	4	9	**13**
PEAK HR	**2**	**5**	**7**

	WESTERN AVE *Combined*		
Peak Per	IN	OUT	TOTAL
0700 - 0800	27	12	**39**
0715 - 0815	37	9	**46**
0730 - 0830	50	10	**60**
0745 - 0845	75	14	**89**
0800 - 0900	99	23	**122**
0815 - 0915	108	24	**132**
0830 - 0930	99	20	**119**
0845 - 0945	91	16	**107**
0900 - 1000	72	16	**88**
PEAK HR	**99**	**20**	**119**

PEAK HOUR
0830 - 0930

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave

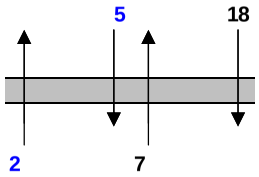


Carillon Ave

PEAK HOUR
0830 - 0930

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave

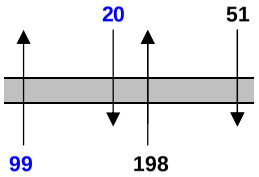


Carillon Ave

PEAK HOUR
0830 - 0930

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave



Carillon Ave

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Client : Halcrow MWT

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Day/Date : Thursday 5th November 2009

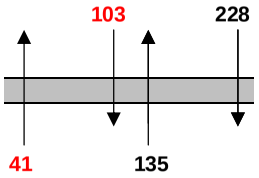
	WESTERN AVE *Western Footpath*		
Time Per	IN	OUT	TOTAL
1500 - 1515	7	9	**16**
1515 - 1530	6	9	**15**
1530 - 1545	18	4	**22**
1545 - 1600	19	19	**38**
1600 - 1615	20	22	**42**
1615 - 1630	5	18	**23**
1630 - 1645	9	25	**34**
1645 - 1700	10	19	**29**
1700 - 1715	20	29	**49**
1715 - 1730	10	25	**35**
1730 - 1745	5	25	**30**
1745 - 1800	6	24	**30**
Period End	**135**	**228**	**363**

	WESTERN AVE *Western Footpath*		
Peak Per	IN	OUT	TOTAL
1500 - 1600	50	41	**91**
1515 - 1615	63	54	**117**
1530 - 1630	62	63	**125**
1545 - 1645	53	84	**137**
1600 - 1700	44	84	**128**
1615 - 1715	44	91	**135**
1630 - 1730	49	98	**147**
1645 - 1745	45	98	**143**
1700 - 1800	41	103	**144**
PEAK HR	**41**	**103**	**144**

PEAK HOUR
1700 - 1800

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave



Carillon Ave

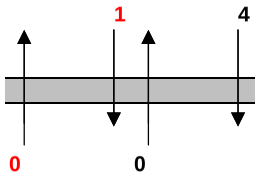
	WESTERN AVE *Eastern Footpath*		
Time Per	IN	OUT	TOTAL
1500 - 1515	0	0	**0**
1515 - 1530	0	0	**0**
1530 - 1545	0	0	**0**
1545 - 1600	0	0	**0**
1600 - 1615	0	1	**1**
1615 - 1630	0	1	**1**
1630 - 1645	0	0	**0**
1645 - 1700	0	1	**1**
1700 - 1715	0	1	**1**
1715 - 1730	0	0	**0**
1730 - 1745	0	0	**0**
1745 - 1800	0	0	**0**
Period End	**0**	**4**	**4**

	WESTERN AVE *Eastern Footpath*		
Peak Per	IN	OUT	TOTAL
1500 - 1600	0	0	**0**
1515 - 1615	0	1	**1**
1530 - 1630	0	2	**2**
1545 - 1645	0	2	**2**
1600 - 1700	0	3	**3**
1615 - 1715	0	3	**3**
1630 - 1730	0	2	**2**
1645 - 1745	0	2	**2**
1700 - 1800	0	1	**1**
PEAK HR	**0**	**1**	**1**

PEAK HOUR
1700 - 1800

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave



Carillon Ave

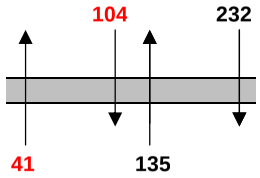
	WESTERN AVE *Combined*		
Time Per	IN	OUT	TOTAL
1500 - 1515	7	9	**16**
1515 - 1530	6	9	**15**
1530 - 1545	18	4	**22**
1545 - 1600	19	19	**38**
1600 - 1615	20	23	**43**
1615 - 1630	5	19	**24**
1630 - 1645	9	25	**34**
1645 - 1700	10	20	**30**
1700 - 1715	20	30	**50**
1715 - 1730	10	25	**35**
1730 - 1745	5	25	**30**
1745 - 1800	6	24	**30**
Period End	**135**	**232**	**367**

	WESTERN AVE *Combined*		
Peak Per	IN	OUT	TOTAL
1500 - 1600	50	41	**91**
1515 - 1615	63	55	**118**
1530 - 1630	62	65	**127**
1545 - 1645	53	86	**139**
1600 - 1700	44	87	**131**
1615 - 1715	44	94	**138**
1630 - 1730	49	100	**149**
1645 - 1745	45	100	**145**
1700 - 1800	41	104	**145**
PEAK HR	**41**	**104**	**145**

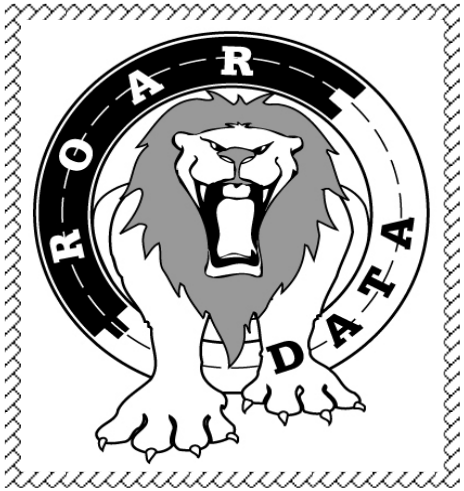
PEAK HOUR
1700 - 1800

TOTAL VOLUMES FOR PERIODS COUNTED

Western Ave



Carillon Ave



Barff Rd & Car Park

To

Piran Trethewey

at ***Halcrow MWT***

your results for

SYDNEY Uni Traffic & Ped Survey 2

supplied by

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R.O.A.R. DATA

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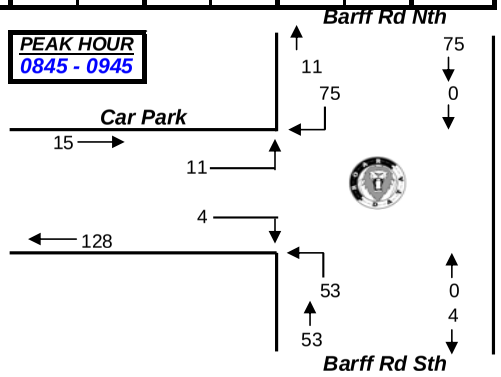
Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

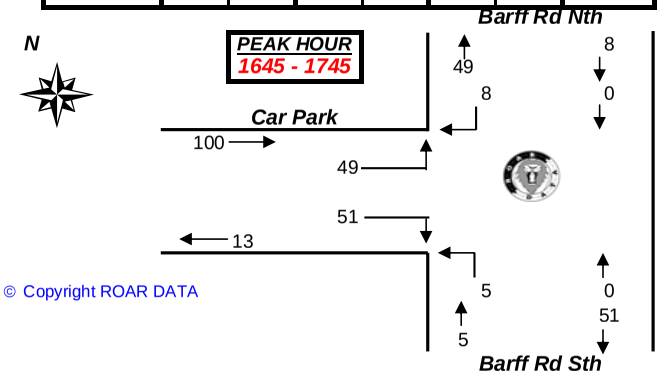
All Vehicles	NORTH Barff Rd Nth		WEST Car Park		SOUTH Barff Rd Sth			At Start 10	Car Park Accumul
Time Per	R	T	L	R	L	T	TOTAL		
0700 - 0715	0		1	1	5		7		13
0715 - 0730	8		0	0	1		9		22
0730 - 0745	5		1	0	2		8		28
0745 - 0800	9		0	0	4		13		41
0800 - 0815	15		2	0	6		23		60
0815 - 0830	15		1	1	7		24		80
0830 - 0845	10		1	0	10		21		99
0845 - 0900	13		2	2	9		26		117
0900 - 0915	23		3	0	18		44		155
0915 - 0930	24		3	1	14		42		189
0930 - 0945	15		3	1	12		31		212
0945 - 1000	15		2	1	8		26	233	232
Period End	152	0	19	7	96	0	274	At Finish	

All Vehicles	NORTH Barff Rd Nth		WEST Car Park		SOUTH Barff Rd Sth			At Start 296	Car Park Accumu
Time Per	R	T	L	R	L	T	TOTAL		
1500 - 1515	8		5	4	1		18		296
1515 - 1530	4		4	4	3		15		295
1530 - 1545	1		4	5	2		12		289
1545 - 1600	4		4	4	1		13		286
1600 - 1615	2		6	6	1		15		277
1615 - 1630	1		6	8	0		15		264
1630 - 1645	3		9	6	3		21		255
1645 - 1700	4		10	9	1		24		241
1700 - 1715	2		13	10	1		26		221
1715 - 1730	0		12	14	1		27		196
1730 - 1745	2		14	18	2		36		168
1745 - 1800	1		11	8	0		20	151	150
Period End	32	0	98	96	16	0	242	At Finish	

	NORTH Barff Rd Nth		WEST Car Park		SOUTH Barff Rd Sth		
Peak Per	R	T	L	R	L	T	TOTAL
0700 - 0800	22	0	2	1	12	0	37
0715 - 0815	37	0	3	0	13	0	53
0730 - 0830	44	0	4	1	19	0	68
0745 - 0845	49	0	4	1	27	0	81
0800 - 0900	53	0	6	3	32	0	94
0815 - 0915	61	0	7	3	44	0	115
0830 - 0930	70	0	9	3	51	0	133
0845 - 0945	75	0	11	4	53	0	143
0900 - 1000	77	0	11	3	52	0	143
PEAK HR	75	0	11	4	53	0	143



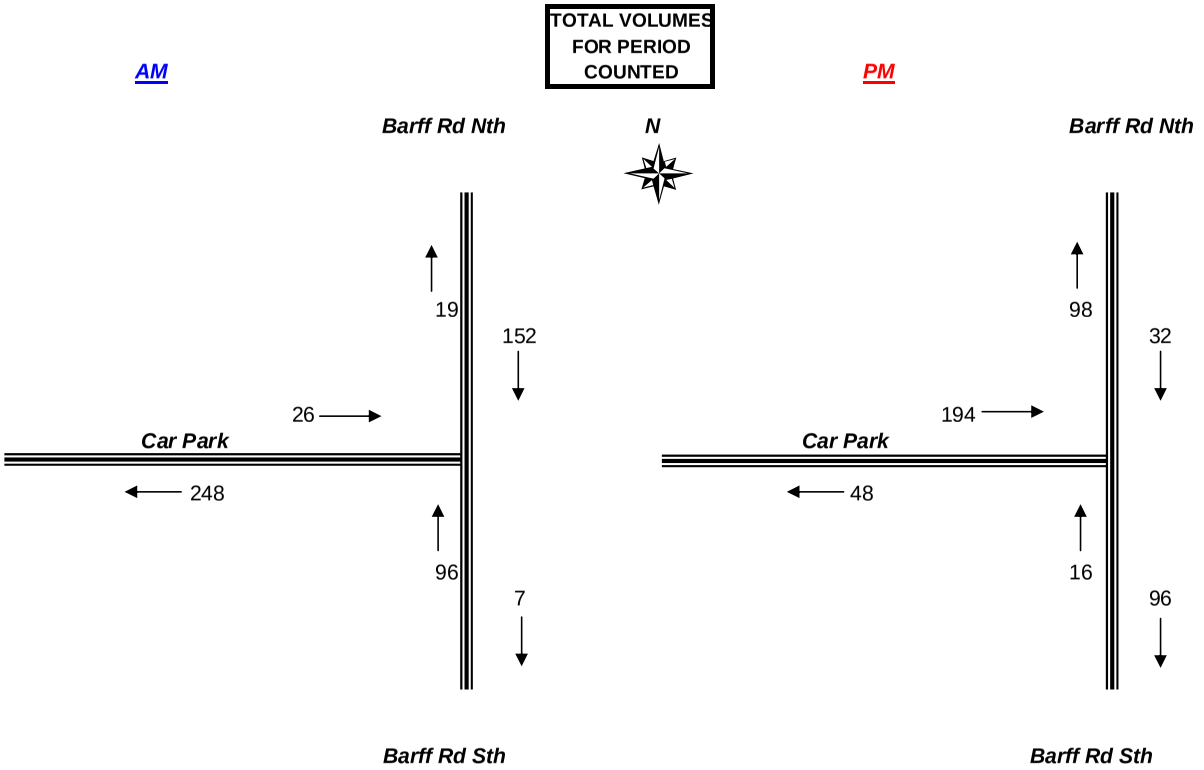
	NORTH Barff Rd Nth		WEST Car Park		SOUTH Barff Rd Sth		
Peak Per	R	T	L	R	L	T	TOTAL
1500 - 1600	17	0	17	17	7	0	58
1515 - 1615	11	0	18	19	7	0	55
1530 - 1630	8	0	20	23	4	0	55
1545 - 1645	10	0	25	24	5	0	64
1600 - 1700	10	0	31	29	5	0	75
1615 - 1715	10	0	38	33	5	0	86
1630 - 1730	9	0	44	39	6	0	98
1645 - 1745	8	0	49	51	5	0	113
1700 - 1800	5	0	50	50	4	0	109
PEAK HR	8	0	49	51	5	0	113



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

Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

TOTAL VOLUMES FOR PERIOD COUNTED

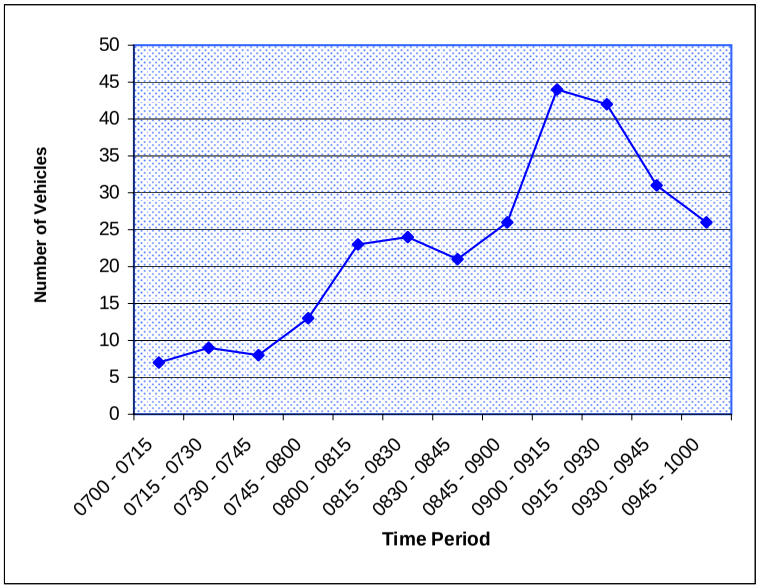


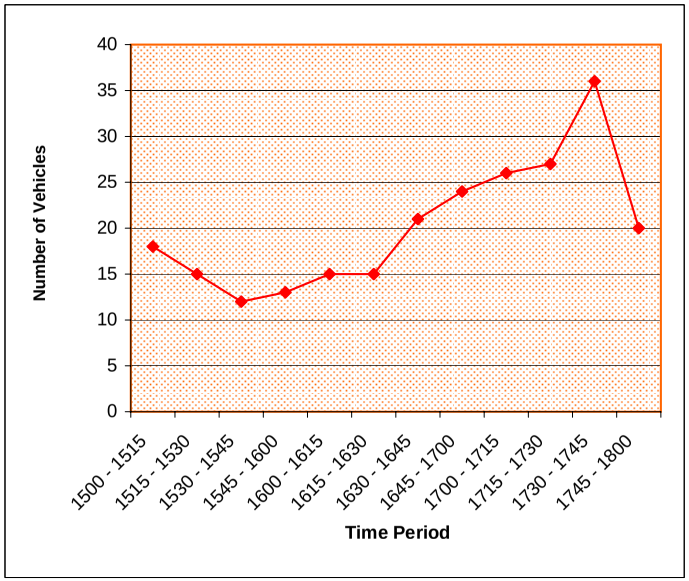
R.O.A.R DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

AM ***PM***

Barff Rd & Car Park

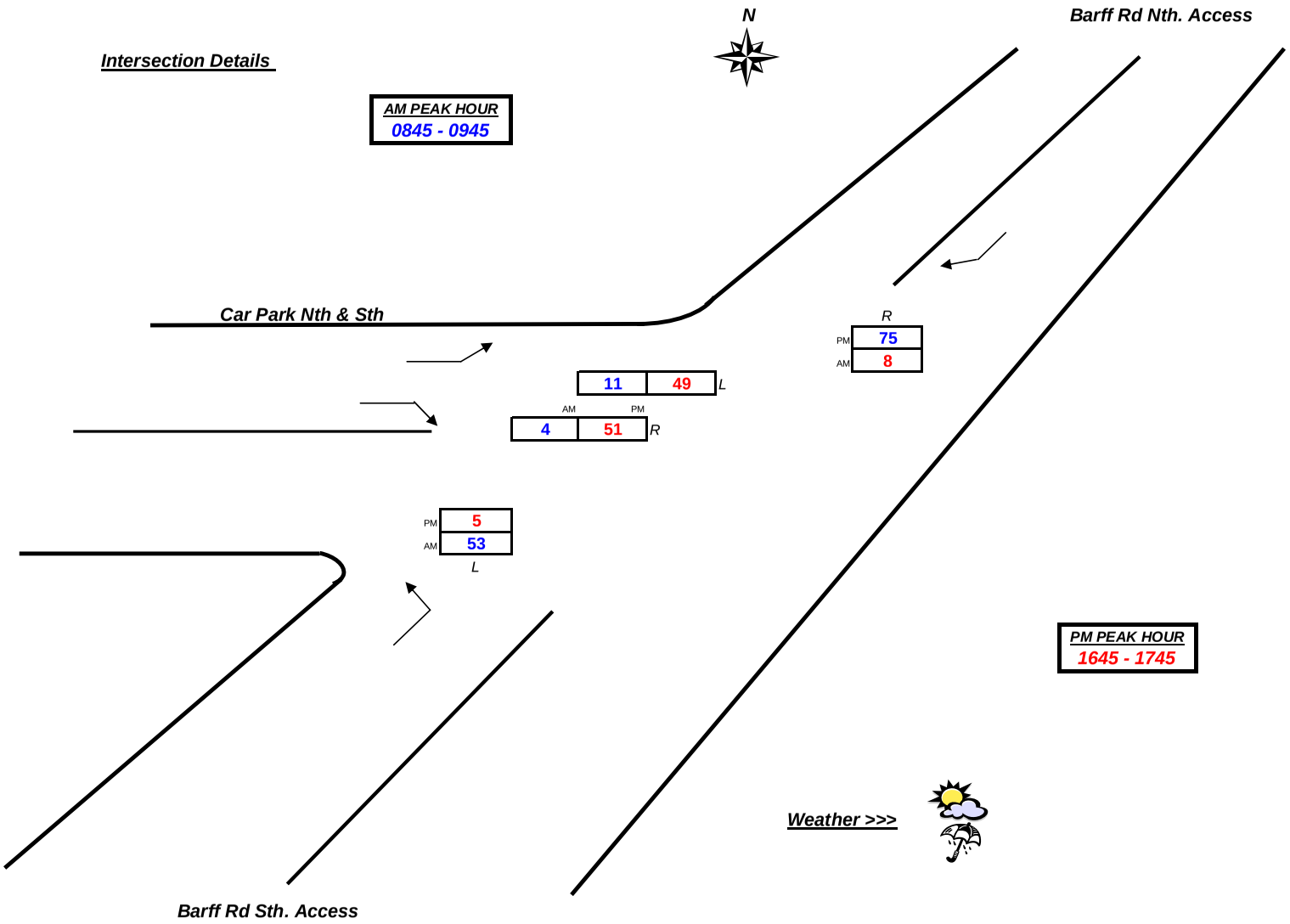




R.O.A.R. DATA
Reliable, Original & Authentic Results
Ph.88196847, Fax 88196849, Mob.0418-239019

Client : Halcrow MWT
Job No/Name : 2876 SYDNEY Uni Traffic & Pedestrian Surveys 2
Day/Date : Thursday 5th November 2009

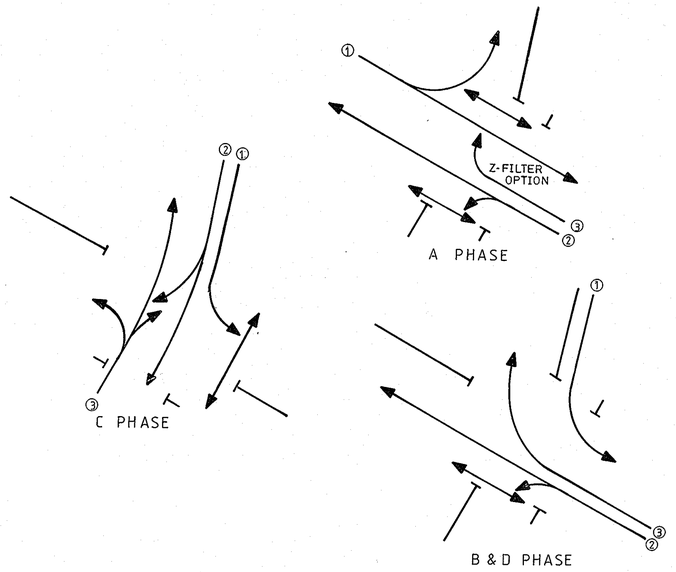
Intersection Details



Appendix E TCS Plan

Parramatta Road / Ross Street / Western Avenue Intersection

Date In Service 28-7-67
Reconstructed 6-12-72
Reconstructed



MOVEMENT DIAGRAMS

DETECTOR SPECIFICATION SCHEDULE

DETECTOR		SPECIFICATION				
A	FN	A(L)	A(E1)			
	SG	$\overline{A}$	A			
	DS	–	–			
$A-B-D_2$	FN	A(L)	A(E2)	B(E2)	D(E2)	
	SG	$\overline{A/B/D}$	A	B	D	
	DS	—	B(NXT).D(NXT)	A(NXT).D(NXT)	A(NXT).B(NXT)	
$A-B-D_1$ APPROACH & DEPARTURE	FN	B(PR)	D(PR)			
	SG	A	A			
	DS	Z–	Z–. Z+			
$A-B-D_1$ APPROACH	FN	A(L).B(L)	D(L)	B(L)	D(L)	A(E3)
	SG/PS	$\overline{A/B/D}$	$\overline{A/B/D}$	$\overline{B/D}$	$\overline{B/D}$	A
	DS	Z–	Z–. Z+	$\overline{Z}$–	$\overline{Z}$–. Z+	Z+.A–B–D1(PR). B(NEXT). D(NEXT)
B-C-D	FN	B(PR)	B(CL)	D(PR)	D(CL)	B(E1) / C(E1) / D(E1)
	SG	$\overline{B.C.D}$	C	$\overline{B.C.D}$	C	B / C / D
	DS	$\overline{C}$	B-C-D(NG)	Z+. $\overline{C}$	Z+.B-C-D(NG)	$\overline{C(NEXT).D(NEXT)}$ / $\overline{B(NEXT).D(NEXT)}$ / $\overline{B(NEXT).C(NEXT)}$
C1	FN	C(L)	C(E1)			
	SG	$\overline{C}$	C			
	DS	–	–			
C2	FN	C(L)	C(E3)			
	SG	$\overline{C}$	C			
	DS	–	–			
C PB	FN	C(PB)	B(L)			
	SG	$\overline{C.WALK}$	$\overline{C.C.WALK}$			
	DS	—	$\overline{A.B.D}$			
A PB	FN	A(PB).	C(L)			
	SG	$\overline{A.WALK}$ *	$\overline{A.A.WALK}$			
	DS	—	$\overline{B.C.D}$			
D-A-B PB	FN	A(PB)		C(L)		
	SG	$\overline{A/B/D}$. $\overline{D/A/B(WALK)}$		$\overline{A/B/D}$. $\overline{D/A/B}$ (WALK)		
	DS	$\overline{B.D}$		$\overline{C}$		

POST CHART

POST	TYPE	LENGTH	REMARKS
1	1	4·0	EXIST
2	1	4·0	EXIST
3	S.L.M.A.	-	EXIST
4	2	3·2	EXIST
5	6	-	EXIST
6	2	4·1	EXIST
7	6	-	EXIST
8	2	3·2	EXIST

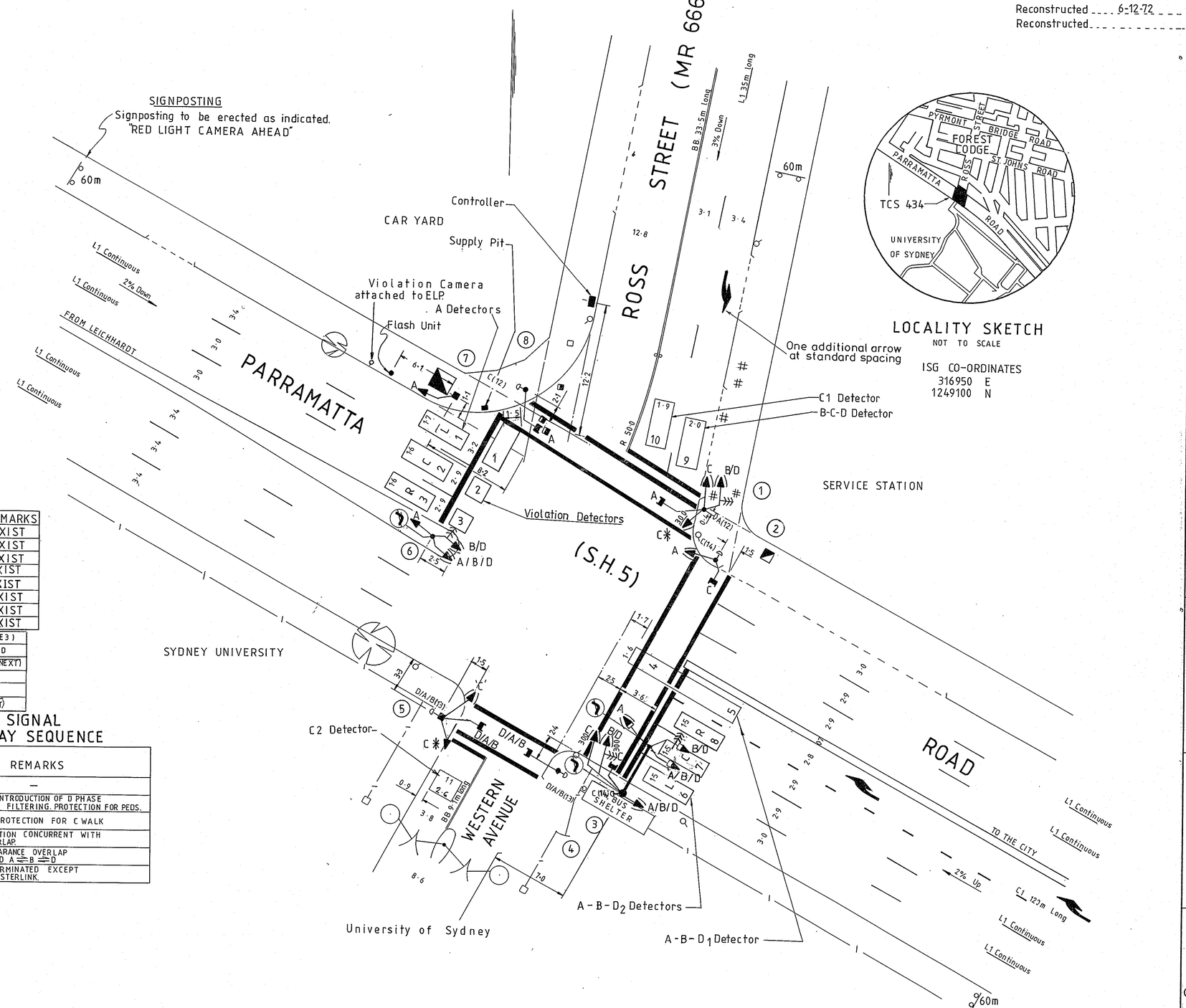
SPECIAL SIGNAL GROUP DISPLAY SEQUENCE

SIGNAL GROUP	TABLE TYPE	REMARKS
A/B/D	3	—
B/D (RT)	39	Z+ ALLOWS INTRODUCTION OF D PHASE Z– ALLOWS FILTERING. PROTECTION FOR PEDS.
B/D (LT)	12	TIMED PROTECTION FOR C WALK
D/A/B	PED	1. INTRODUCTION CONCURRENT WITH A/B/D OVERLAP
		2. WALK CLEARANCE OVERLAP PERMIT TED A ⇌ B ⇌ D
		3. TIMER TERMINATED EXCEPT UNDER MASTERLINK.

NOTES

1. Top of Walk/Don't Walk lanterns are mounted 3·0m above pavement level.
2. Special regulatory Stop Signal to be placed on posts 1 & 4.
3. This is a SCATS site.
4. This site is a Violation Camera Site.
5. Lanterns denoted by an asterisk are wired to a separate signal group.

SIGNPOSTING
Signposting to be erected as indicated.
"RED LIGHT CAMERA AHEAD"



LOCALITY SKETCH
NOT TO SCALE

ISG CO-ORDINATES
316950 E
1249100 N

PUBLIC UTILITY LEGEND

HYDRANT	□	ELECTRIC LIGHT POLE	○
STOP VALVE	◧	TELEPHONE POLE	◉
GAS VALVE	#	STAY POLE	⌀
SEWER MANHOLE	Ⓢ	TELEPHONE BOX	Ⓣ
TELECOM PIT	◪	TELECOM PILLAR	Ⓣ

DESIGN LAYOUT

A ORIGINAL ISSUE REDRAWN SY 3061 30-1-85 & 3416
Old median post no. 3 removed. Posts renumbered. New M.A. as post 3. New post chart. Detectors recut in Parramatta Rd. Red Signal Violation equipment installed in N.W. approach of P'matta Rd. K.B. 7-5-88
B ISSUE J/L SYN 4664 Pedestrian Crossing Installed across Ross St. and Western Ave. A.T. 20-03-92.
C ISSUE J/L EDC 34 3-7-92 Lamp monitoring for C lanterns added P.L.
D ISSUE J/L SYS 4805 Post 5 to be replaced with Type 6 post. A.T. 08-10-92
E ISSUE J/L SE 0044 LANE 1 C⊕ LEFT TURN ONLY L.J. 28-4-93
F ISSUE J/L SE580 POST 5 TYPE 2 WAS 6 ADDED W.E. & D.S. 25/05/95
G ISSUE J/L SS 34 Alterations to Movement diag. Detectors &c. SSGDS & Notes. GAP 25/05/99

REFERENCE PLANS			
Symbols & Abb.	VD003-6		
Standard Posit.	VD001-5	U.D.B. REF.	MAP14, F1
Det. Schedule Exp.	VD018-10	DRAWN	N.J.H. 13-7-66
Pres. Detectors	2C005-9	REDRAWN	K.B. 7-8-88
S.S.G. Dis. Seq.	VD018-8	CHECKED	G. YARLEY
		PASSED	G.T.V. G.K. AMOS

SURVEYOR .....
DATE .....
FLD. BK .....

THESE DRAWINGS HAVE BEEN TAKEN TO THE SITE OF THE WORK AND ARE RECOMMENDED
SENIOR ROAD DESIGN OFFICER
DATE 22/8/89

APPROVED
DESIGN ENGINEER
DATE 22/8/89

ROADS & TRAFFIC AUTHORITY OF N.S.W.

CITY OF SYDNEY
PARRAMATTA ROAD
AND
ROSS STREET
FOREST LODGE

DIVISION: SYDNEY
FILE No. 412.TS.324
No. OF SHEETS
SHEET No. 7
SUPERSEDES SHEET 1
ISSUE A B C D E F G
SCALE 1:200 0 1 2 3 4 5 10 METRES
Reg. No. 0005.412.VV.0434

SD 6285

SD 6285 — TRAFFIC CONTROL SYSTEM LAYOUT DRAWING SHEET ISSUED FEB 1977.