TRAFFIC, ENVIRONMENTAL & FORENSIC ENGINEERS
TEF CONSULTING

PO Box 215 Bondi NSW 2026
Phone (02) 9332 2024 / (02) 9523 9212
Fax (02) 9332 2022
Mobile 0414 978 067 / 0414 554 523
e-mail o.s@tefconsult.com.au / s.s@tefconsult.com.au
www http://tefconsult.com.au

AN ASSESSMENT OF TRAFFIC AND PARKING CONDITIONS FOR THE ST VINCENT'S RESEARCH PRECINCT CONCEPT PLAN

PREFERRED PROJECT REPORT

St. Vincent's & Mater Health Sydney

By

O.I. Sannikov

TEF Consulting

Report Document Control

Title	An assessment of traffic and parking conditions for the St Vincent's Research Precinct Concept Plan. Preferred Project Report
Date	23/02/10
Author(s)	O.I. Sannikov
Clients	St. Vincent's & Mater Health Sydney
Job No.	8169-1
Quality Control Reviewer	S.E. Samuels
Keywords	Traffic/ parking/ impact/development/research/medical centre/St Vincent's Research Precinct/Darlinghurst/
Disclaimer	**This report is believed to be true and correct at the time of writing. It is based on the information and data provided by the client and other relevant organisations during preparation. TEF Consulting does not accept any contractual, tortuous or other form of liability for any consequences arising from its use. People using the information in the report should apply and rely on their own skill and judgement to a particular issue they are considering.**

Contents Table

1 INTRODUCTION

Report title	An assessment of traffic and parking conditions for the St Vincent's Research Precinct (SVRP) Concept Plan - Preferred Project Report
Report purpose	• assessment of traffic and parking impacts of the proposal • advice on parking and loading/unloading provision • advice on access options
Client	Garvan Institute and St. Vincent's & Mater Health Sydney
Background information used for preparation of the present report	• information regarding the existing and proposed activities and modes of operation of each facility provided by their respective management bodies; • plans of the proposed development prepared by BVN Architecture and Daryl Jackson Robin Dyke Pty Ltd Architects • South Sydney City Council DCP 11 Transport Guidelines for Development (DCP) • requirements for the traffic and parking impact assessment report provided by NSW Roads and Traffic Authority (RTA) and Ministry of Transport (MoT) • results of site inspections carried out by TEF Consulting • results of traffic, parking and staff surveys and observations carried out by TEF Consulting. • results of various surveys carried out by TEF Consulting at other relevant developments previously • other documentation - refer to **Section 6 References** of the present report.
Consultation	• Members of the Project team • The Garvan Institute of Medical Research • Lowy Packer building, occupied by Victor Chang Cardiac Research Institute and the Centre of Applied Medical Research • RTA Assistance of these organisations is greatly appreciated.
Proposed development	• The proposed SVRP will comprise the following institutions ▪ Existing ▫ Victor Chang Cardiac Research Institute (**VCCRI**) located in the Lowy Packer building (**LPB**) ▫ Centre of Applied Medical Research (**CAMR**) located in the Lowy Packer building (**LPB**) ▫ The Garvan Institute of Medical Research (the **Garvan Institute**) ▪ Proposed ▫ Garvan St Vincent's Cancer Centre (**GSVCC)** ▫ University of NSW Virology Centre (**UNSWVC**)

2 EXISTING TRAFFIC AND PARKING SITUATION

Basis for analysis

- Analysis of information regarding the existing activities and modes of operation of the Garvan Institute and LPB provided by their respective management bodies
- Analysis of information regarding the proposed activities and modes of operation of GSVCC and UNSWVC
- Results of the site inspection
- Intersection traffic volume counts
- Counts of vehicles entering and leaving the site
- Car parking accumulation observations
- Questionnaire surveys of staff of the Garvan Institute and LPB

2.1 The site

Site

GSVCC

Western part of the St Vincent's Research Precinct

Victoria Street, Darlinghurst

UNSWVC

Southeastern part of the St Vincent's Research Precinct

Corner of Liverpool Street and West Street, Darlinghurst

Refer to **Figure 1** for the site location.

Existing developments

- Facilities currently on the SVRP site, to be demolished
  - A medical centre with 60 car parking spaces
  - A residential dwelling
  - Two clinics associated with the St Vincent's Hospital
  - St Vincent's Medical Students' Residence building
  - a car parking area for 26 spaces on the ground level
- Existing buildings on the SVRP site, to be retained
  - the Garvan Institute
  - Lowy Packer Building

2.2 Off-street car parking provision and demand

Off-street parking provision

- On the GSVCC site (to be demolished), access from Chaplin St
  - The medical centre's basement staff car park (60 spaces) with restricted access (roller door)
  - The clinics and the residential building have single and double car spots
- Buildings on the SVRP site, access from West St
  - the Garvan Institute – no parking provision on site, arrangements are made for some of the staff to park at the St Vincent's Hospital and commercial

car parks

- LPB – 52 staff car parking spaces – occupancy level 70-80% during a number of visits
  - 26 in the basement
  - 26 on the ground level

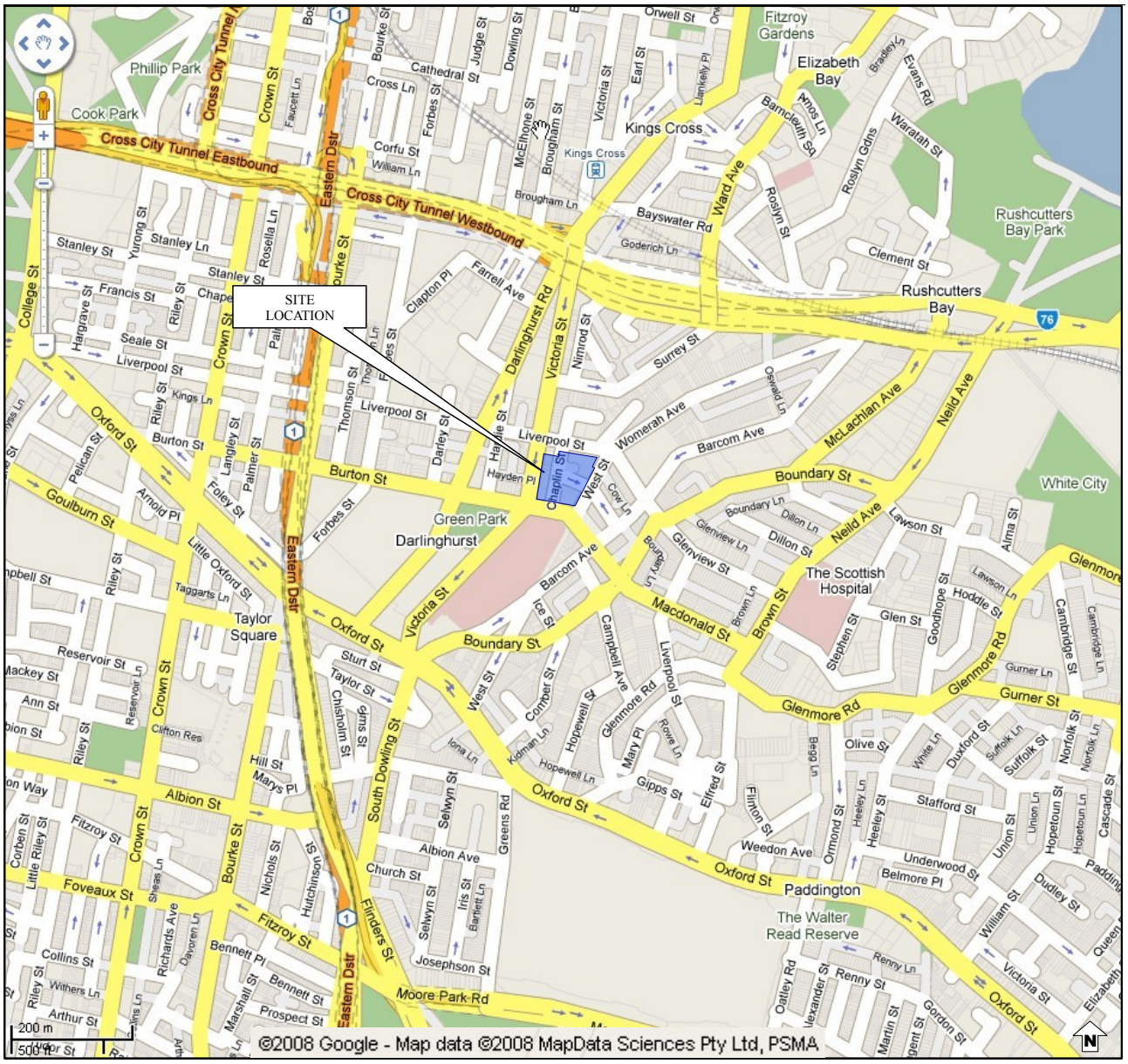


Figure 1. Site location.

2.3 On-street car parking provision and demand

On-street parking provision

- A great variety of parking restrictions exists in the streets surrounding SVRP – refer to **Figure 2**.
- Observations of on-street parking accumulation were undertaken by TEF

Consulting on a number of occasions.

- The results of these observations confirmed the conclusion made in URaP-TTW (2005a) that most streets are being well utilised while some period parking spaces are still consistently available during the day.

2.4 Street and access conditions

Characteristics of surrounding streets and access locations

- Street characteristics and traffic controls - refer to **Figure 3**.
- The site is located within a dense street network with good connections in all directions
- Main east-west links
  - Oxford Street (State Road 172)
  - William St / Kings Cross Tunnel / Edgecliff Road (State Road 173).
- Secondary east-west links
  - Burton Street
  - Liverpool Street
- Main north-south links
  - Victoria Street / South Dowling Street
  - Darlinghurst Road
  - Boundary Street

Intersection traffic volume counts

Location(s)	Refer to **Figure 4**
Time period (AM) 6:00 – 9:00	Friday 31 October 2008 peak hour occurred • 07:45 – 08:45
Time period (PM) 15:00 – 19:00	Thursday 30 October 2008 peak hour occurred • 17:30 – 18:30

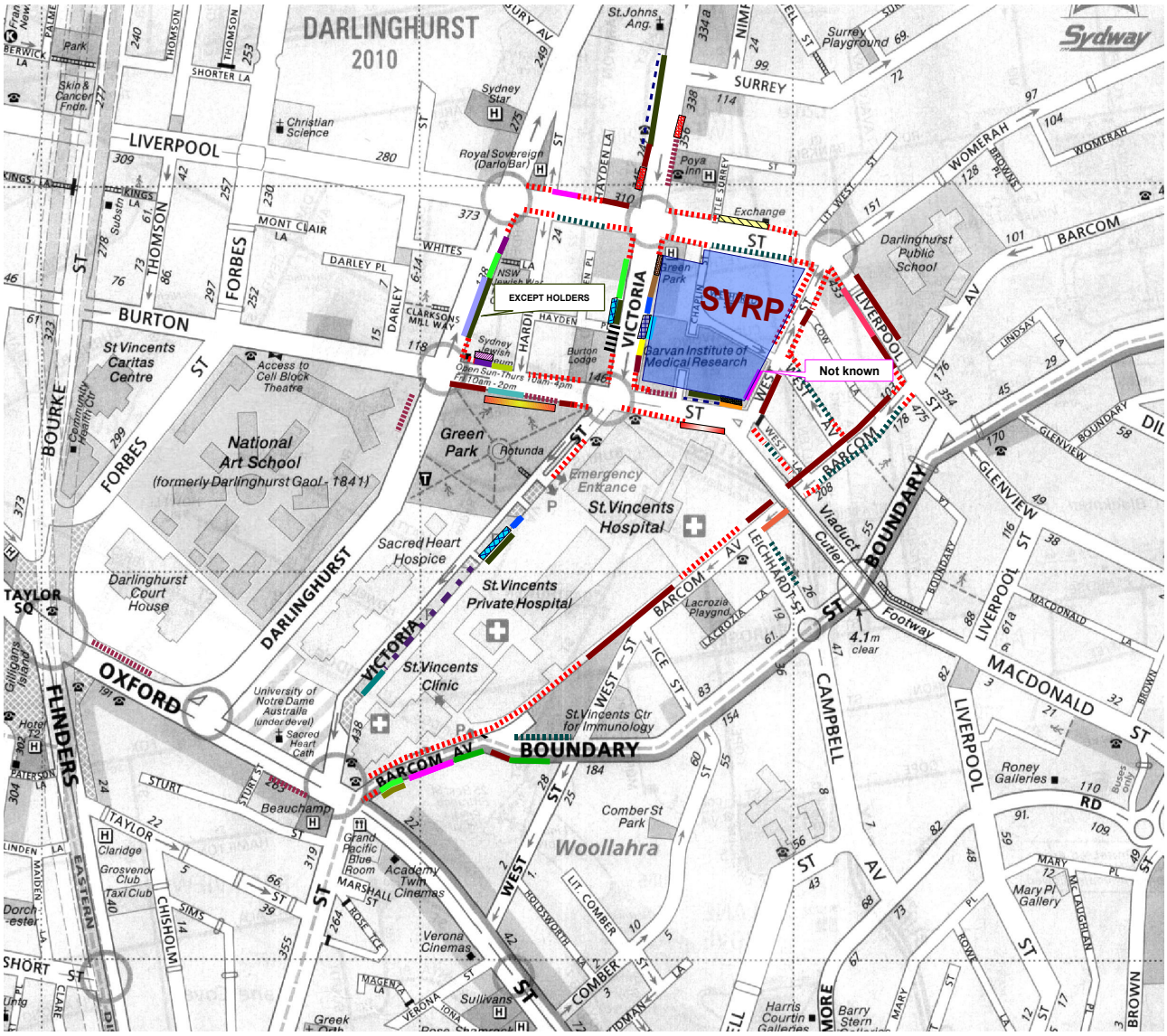
Peak hour traffic volumes are shown in **Figure 4**. Results of traffic volume surveys are included in **Appendix A**.

Intersection operation

SCATES and SIDRA INTERSECTION software packages were used to analyse the operation of key intersections.

The results are shown in **Table 2.1**.

The results indicate that intersections generally operate at satisfactory Levels of Service with spare capacity, except the intersection of Oxford St / Victoria St / South Dowling St / Barcom Ave, which experiences moderate capacity problems.



LEGEND

- No parking
- 1P 8am-10pm except residents
- NP 8am-6pm(Mon-Fr)
- unrestricted
- NO STOPPING
- NP 8:30am-6pm (Mon-Fr)
- 1P 8am-11pm except residents
- Load. Zone 8:30 am-6pm(Mon-Fr)
- 1p 8:30am-12:30pm Sat
- Load Zone ticket 8.30 am-6 pm(Mon-Fr);8.30pm-9.30am Sat
- Mail Zone 8am-9.30pm (Sun-Fr)
- Load Zone ticket 8:30am-6pm(Mon-Fr),8:30am-12:30pm(Sat)
- 4P 6pm-10pm (Sat-Sun & Pub.Holiday)
- Bus zone
- P 8am-6pm motor bikes only
- 4p ticket 8am-10pm
- 2p ticket 8am-6pm (Mon-Fr)
- 4p ticket 6pm-10pm(Mon-Fr); 8am-10pm Sat-Sun & Publ. Holiday
- DISABLED
- 2 P 8am-6pm (Mon-Fr) except residents
- 1P ticket 8am-6pm except residents
- 2p motor bikes only
- Loading Zone
- 4p ticket 6pm-10pm (Mon-Fr); 10am-10pm Sat; 8am-10pm Sun &Publ.Holiday
- Load.Zone 7am-6pm (Mon-Fr); 7am-10am Sat
- Work Zone 7am-6pm (Mon-Fr); 8am-2pm Sat
- 2p ticket 2pm-6pm (Mon-Fr); 8am-6pm Sun
- Bus Zone 7am-6pm (Mon-Fr); 8am-2pm Sat
- No parking 4pm-6pm(Mon-Fr)
- No parking 10pm-4pm (Mon-Fr) buses exc.15 min limit
- 2p 8.30 pm-4 pm (Mon-Fr)
- ½ P 8am-6pm(Mon-Fr)
- No Parking (Consular vehicles excepted)
- No Parking (Ambulance vehicles excepted)
- No Parking 7am-6pm(M-Sat)Telstra vehicles excepted

Figure 2. On-street parking restrictions

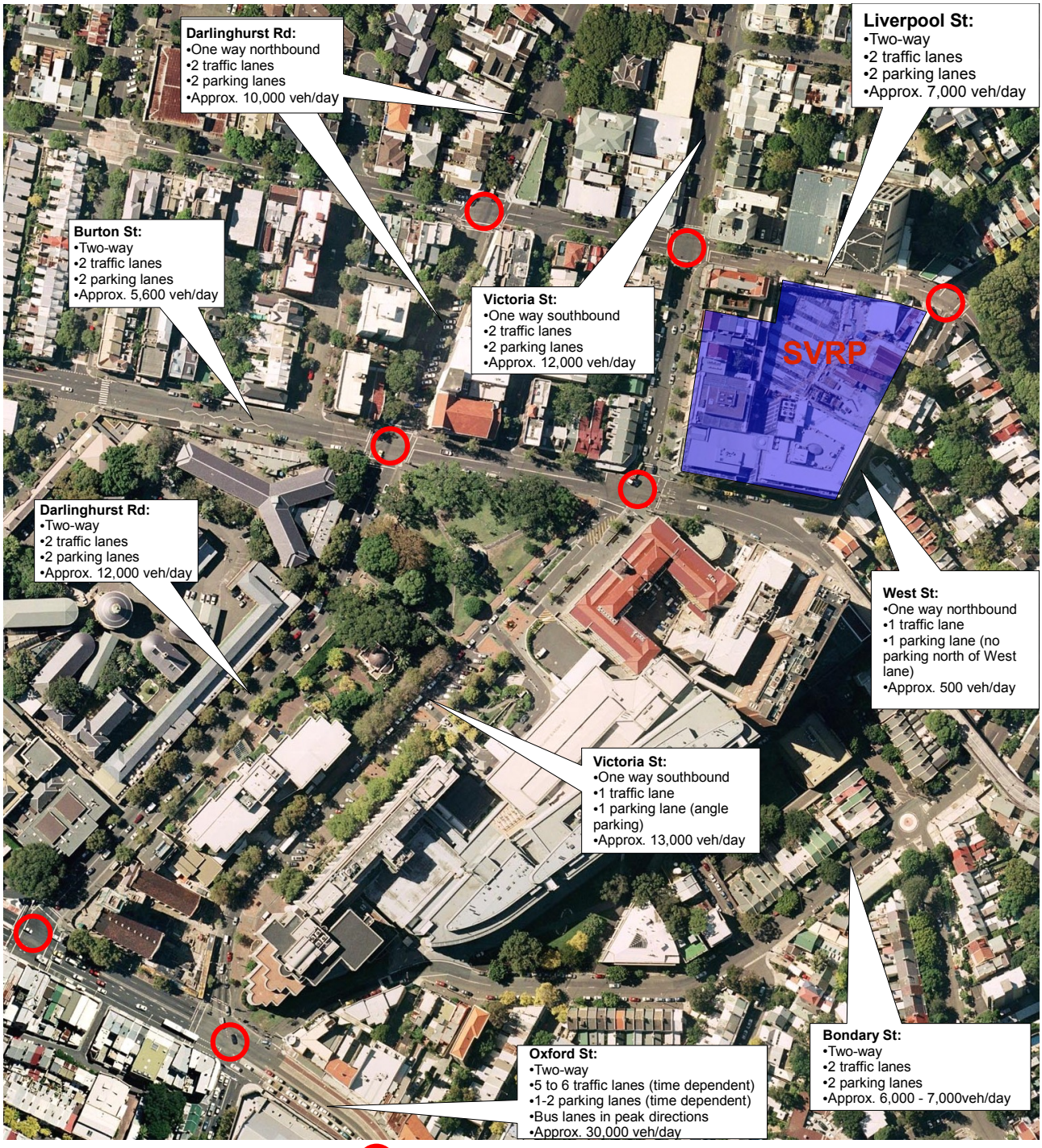


Figure 3. Street characteristics and traffic controls.

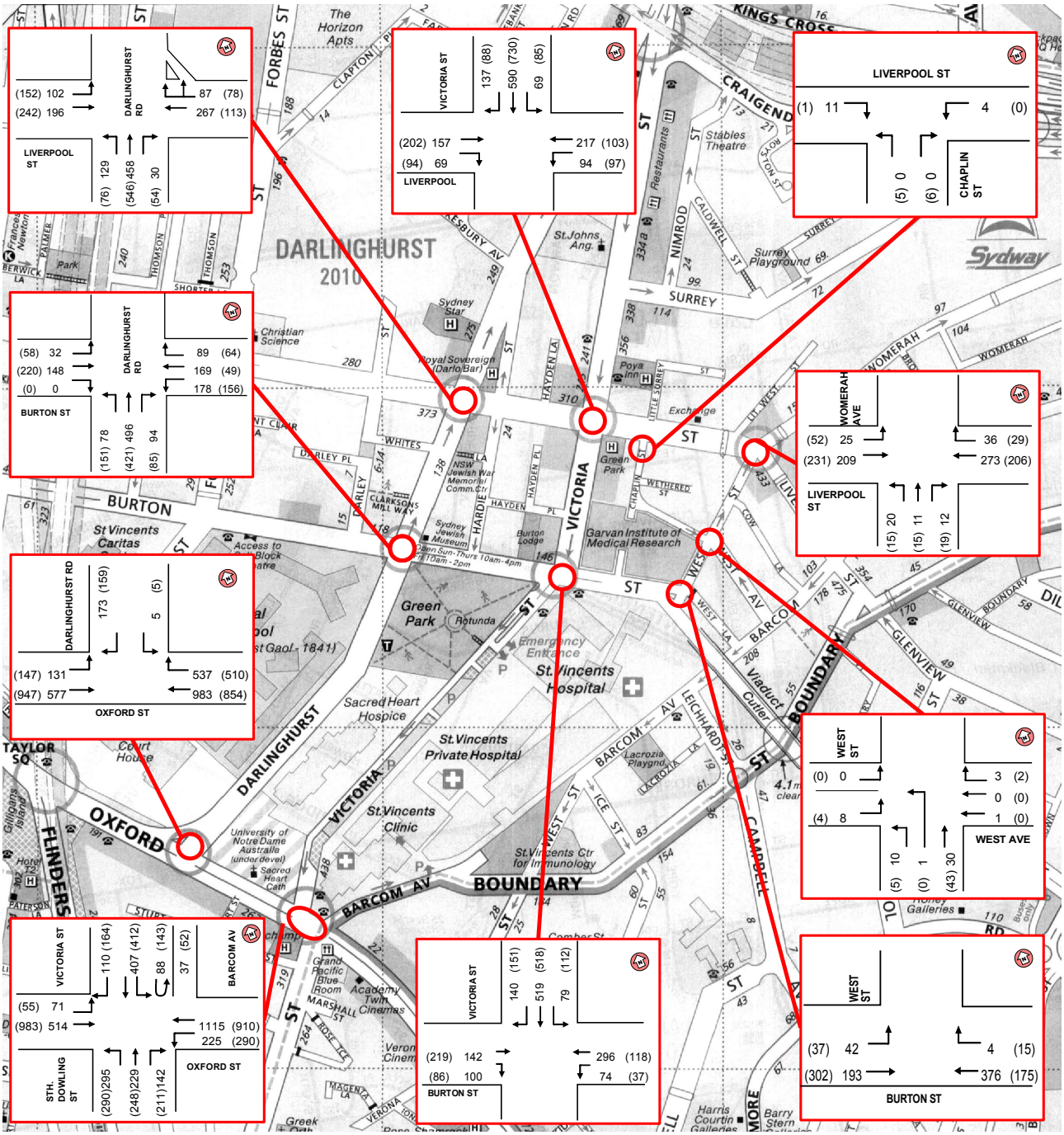


Figure 4. Existing peak hour intersection traffic volumes.

Table 2.1. Results of intersection modelling – existing situation.

	Darlinghurst St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Liverpool St	5.3	A	0.35	5.4	A	0.40
2526	Burton St	8.9	A	0.35	8.0	A	0.40
0697	Oxford St	9.7	A	0.75	11.4	A	0.74

	Victoria St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0022	Liverpool St	6.0	A	0.41	11.2	A	0.40
0188	Burton St	6.6	A	0.43	20.9	B	0.33
0131	Oxford St	18.0	B	0.89	47.4	D	0.92

	Liverpool St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Darlinghurst Rd	8.4	A	0.35	9.1	A	0.41
0022	Victoria St	5.9	A	0.58	5.2	A	0.59
0258	West St	1.9	A	0.20	2.2	A	0.23

	Oxford St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0697	Darlinghurst Rd	4.2	A	0.60	3.8	A	0.69
0131	Victoria St	17.7	B	0.81	18.1	B	0.86

Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout
A	< 14	Good operation
B	15 to 28	Good with acceptable delays & spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode

Source: RTA (2004)

2.5 Travel modes other than private car

Sources of information

- NSW Government Transport Info web site www.131500.com.au
- Web sites of Sydney City Council and Woollahra Municipal Council
- Results of the site inspection
- Results of the questionnaire surveys

Bus

- Refer to **Figure 5** for locations bus routes and stops.
- Routes 311 and 389 have bus stops near the site.
- Services on routes 311 and 389 run at 8 to 15 minute intervals during the peak commuter periods and at 15 to 20 minute intervals at other times during the day.
- Additional bus services run along Oxford Street; these provide high frequency services.
- **Figure 6** shows locations of the bus stops in relation to a 400 m radius circle from the SVRP. This distance is typically accepted as convenient for walking to bus stops.
- Results of questionnaire surveys indicate significant use of buses by staff of the Garvan Insititute and LPB – 16% share of all travel modes.

Train

- Refer to **Figure 6** for Kings Cross railway station location and footpath provision between the station and SVRP. Walking distance to the station is approximately 500 m (5 to 8 minutes walk) – within the 800 m distance typically considered as convenient for walking to/from train stations.
- Walking path between the Kings Cross station and SVRP is mostly under shop awnings
- Train services run at 5 minute intervals during the commuter peak hours.
- Results of questionnaire surveys indicate significant use of train by staff of the Garvan Insititute and LPB – 18% share of all travel modes.

Walking and cycling

- Refer to **Figure 6** for existing footpath and cycleway network.
- There are bicycle linkages in all directions to and from the SVRP.
- Results of questionnaire surveys indicate significant travel mode share for walking and cycling by staff of the Garvan Insititute and LPB – 8% and 14% respectively.

LEGEND

- Bus route No. 311
- Bus route No. 389
- Bus routes No. L82, 352, 378, 380
- Bus stop

Figure 5. Existing bus services.

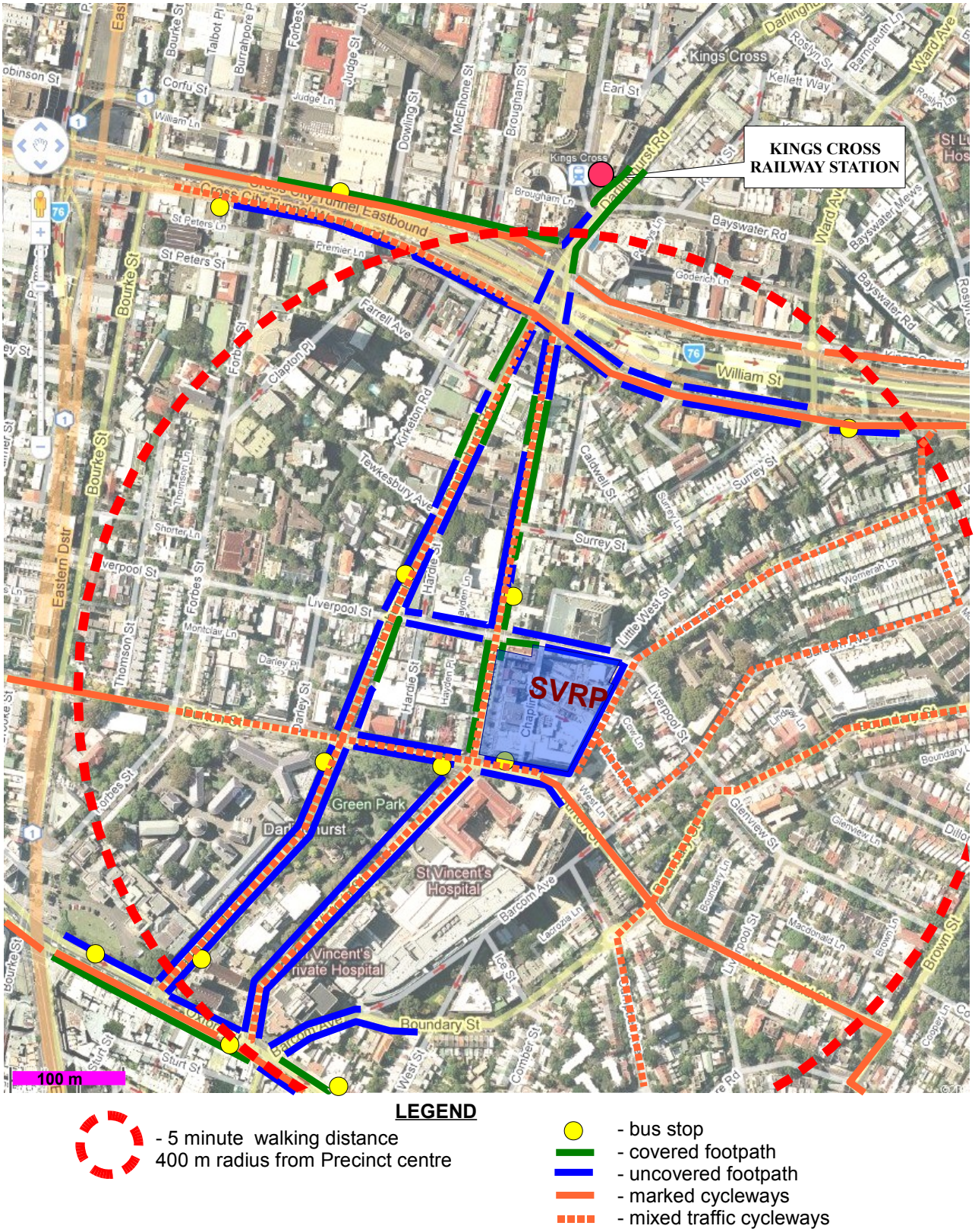


Figure 6. Pedestrian and bicycle linkages.

2.5.1 Surveys of staff of similar developments

Staff questionnaire survey	***Survey target population***	• Staff of the Garvan Institute and LPB • Developments chosen for the survey ▪ are located within the same block of land as the proposed GSVCC and UNSWVC ▪ have the same land use as the proposed GSVCC and UNSWVC
	Survey design	• A questionnaire survey form distributed to all employees • The respondents were asked questions about their work classification, mode of travel, time of arrival and departure, and, for car drivers, their parking location and approach and departure streets. • A sample questionnaire form is included in **Appendix B**. • Number of completed questionnaires - 141. • Sample size – approximately 30% of the total staff present on a typical day. It is considered to be a sample of sufficient size to be able to draw conclusions regarding the staff.
	Analysis outcome	• Staff travel modes - refer to **Figure 7.** • Personal car travel mode constituted 37% of the total. Note that a similar survey of staff of the St Vincent's Darlinghurst Campus (except the Garvan Institute and LPB) carried out by TEF Consulting in 2005 revealed that 54% of St Vincent's staff drove to work. This is likely due to the fact that the Garvan Institute and LPB are research facilities, operating similarly to offices. Unlike St Vincent's Hospital, they do not have shift staff (nurses) which require higher level of secure parking provision. • The proportion of car drivers arriving to and departing from work during the commuter peak hours ▪ 39% of all car drivers in the morning peak period ▪ 34% of all car drivers in the afternoon peak period • The above proportions have a direct effect on the likely traffic generation to and from the proposed car parking area. • Directional distribution of arrivals and departures on the street network – refer to **Figure 8**.

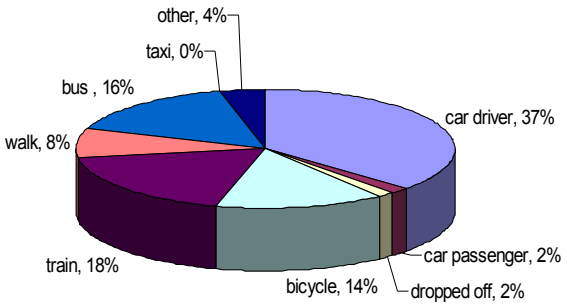


Figure 7. Travel modes of staff of the Garvan Institute and LPB.

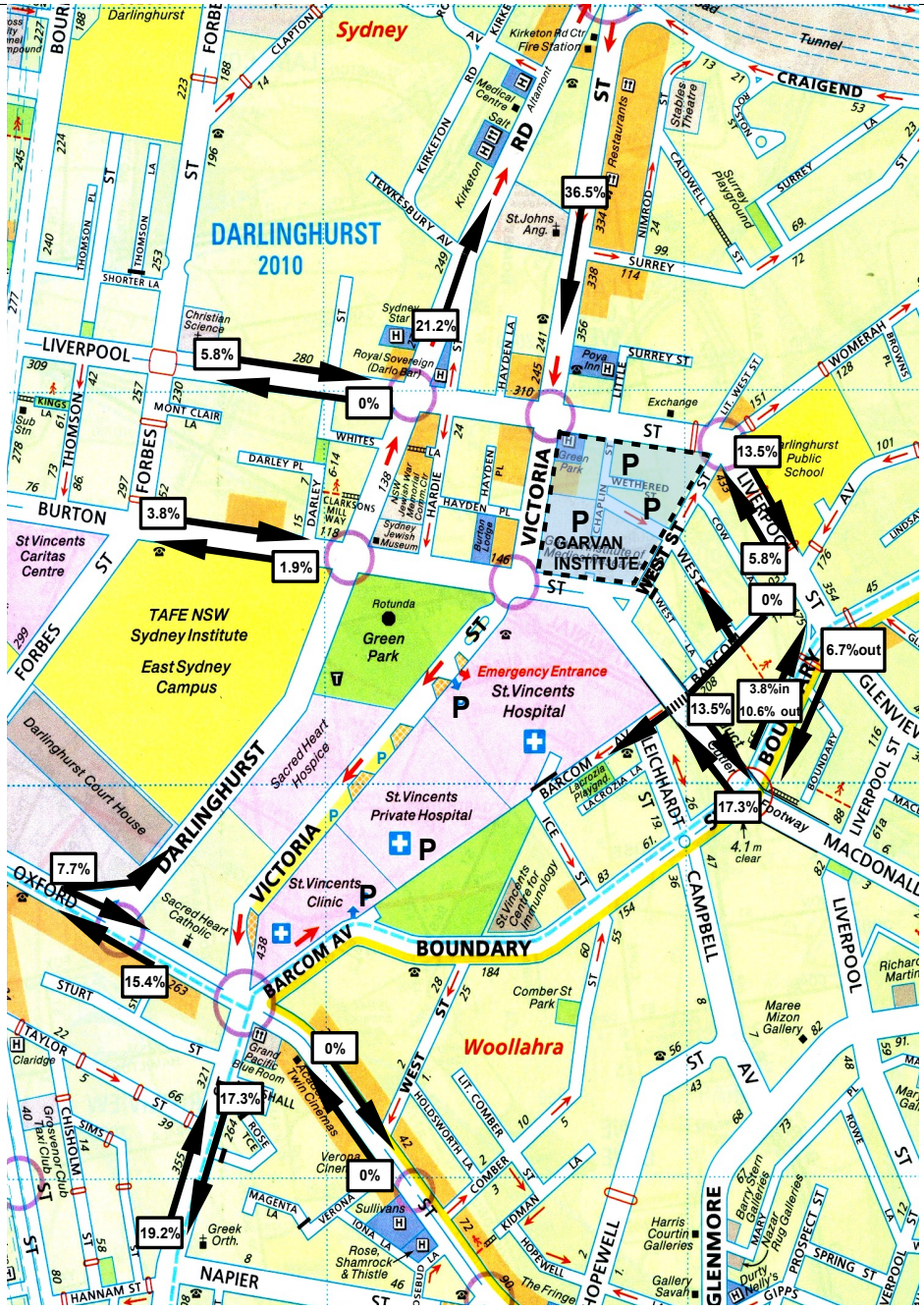


Figure 8. Traffic distribution based on the survey results.

2.6 Existing access arrangements

SVRP site, including the proposed GSVCC and UNSWVC

- All access points - refer to **Figure 9**
  - Main vehicular access from West Street - refer to **Figure 10**
  - Secondary vehicular access – Chaplin Street (only to the medical centre car park and private residential garages)

Figure 2. Existing access locations.

Figure 8. Existing driveways in West Street. View to the west from West Avenue.

3 PROPOSED DEVELOPMENT

Proposed redevelopment

- GSVCC will be a single, purpose built cancer research facility, containing
  - State-of-the-art research laboratories for 120 scientists
  - Core facilities for molecular genetics and molecular pathology
  - Cutting-edge microscopy and experimental imaging technologies
  - A Good Manufacturing Practice (GMP) laboratory for the development of novel cell- and antibody-based therapies
  - Purpose-designed bioinformatics and clinical data management facilities to provide high-level analyses of clinical information
  - Specially equipped multidisciplinary review suites where researchers and clinicians will meet to review individual cancer cases
  - Clinical trial co-ordination to increase the number of cancer patients taking part in clinical trials of new treatments
  - Facilities for holistic patient coordination and care, patient education and support groups.
  - An oncology clinic
  - Retail space
  - Total populatrion – approximately 250 scientists, clinicians and support staff
  - Gross Floor Area (GFA) - 11,458 sqm
  - Building location – refer to **Figure 9**.
- UNSWVC will be a single, purpose built virology research facility
  - The proposed new Centre would build on the high level work already underway in the field of HIV and AIDS and will expand into other vitally important areas of public health such as the treatment of viral hepatitis and sexual transmitted infections.
  - Total populatrion – approximately 260 scientists, clinicians and support staff
- Total car parking provision for all SVRP facilities will be up to 300 car parking spaces (refer to Sections **4.1.1** and **4.1.2** of the present report)

Building and car parking area design	Refer to the drawings prepared by BVN Architecture and Daryl Jackson Robin Dyke Pty Ltd Architects.

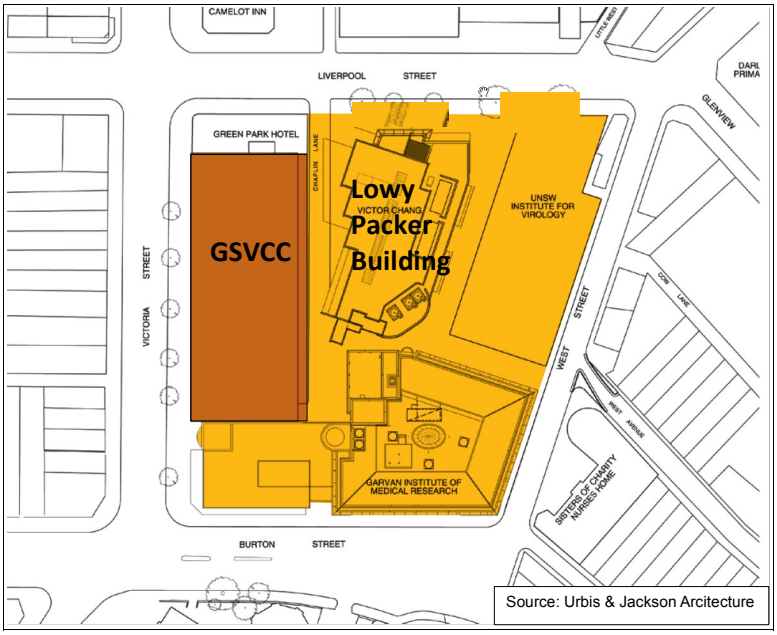


Figure 9. Proposed GSVCC and UNSWVC building location.

4 IMPACTS OF THE PROPOSED DEVELOPMENT

4.1 Parking demand and provision

4.1.1 Council's car parking requirements

Planning control document		Sydney City Council's (SCC) Development Control Plan 11 - Transport Guidelines for Development (DCP 11) • No specific requirements for research facilities. In the present author's opinion, in terms of traffic and parking generating activities this type of land use is similar to office / commercial land use • office/commercial use ▪ 1 space per 125 sq.m. GFA • medical centres ▪ 2 spaces per effective full time doctors • retail (small shops) ▪ 1 space per 50 sq.m. GFA DCP 11 states these requirements are guidelines rather than rigid car parking rates; however, parking provision above these rates is penalised by adding the "excess" parking area to the floor space, thus affecting the floor space ratio. DCP 11 states that in calculating parking requirements, rounding to the nearest whole number should be used.
Car parking calculations	***Basis for analysis***	The proposed additional developments on the SVRP site include GSVCC • office/commercial use (laboratories, offices, etc.) ▪ 8,525 sq.m. GFA • medical centre ▪ 16 consulting and interview rooms, 14 to 15 effective full time (EFT) doctors at assumed 90% occupancy • retail (small shop) ▪ 230 sq.m. GFA UNSWVC • office/commercial use (laboratories, offices, etc.) ▪ 5,531 sq.m. GFA
	Parking requirements / entitlements	Car parking provision as per DCP 11 **GSVCC** • office/commercial use (laboratories, offices, etc.) ▪ 8,525 sq.m. GFA /125 = 68 spaces • medical centre ▪ 14 to 15 EFT doctors x 2 = 29 spaces

- retail (small shop)
  - 230 sq.m. GFA / 50 = 5 spaces

a total of 68 + 29 + 5 = **102** car parking spaces.

UNSWVC

- office/commercial use (laboratories, offices, etc.)
  - 5,531 sq.m. GFA /125 = **44** spaces

The Garvan Institute

does not have its own parking provision, however it **is entitled to** have **80** car parking spaces as per its Development Consent.

Lowy Parker Building (VCCRI and **CAMR)**

- office/commercial use (laboratories, offices, etc.)
  - 9,354 sq.m. GFA /125 = **75** spaces

Total car parking provision based on DCP 11 and existing entitlements

Facility	Number of car parking spaces
GSVCC	102
UNSWVC	44
The Garvan Institute	80
Lowy Parker Building	75
Total	**301**

4.1.2 Proposed car parking provision

Location	Basement levels and the lower ground floor level of the new GSVCC and UNSWVC buildings.
Access	Using the existing driveway to the basement level of the LPB car park.
Number of car parking spaces	• Proposed car parking provision – a total of 300 car parking spaces in the basement car parking areas under LPB, GSVCC and UNSWVC ▪ 148 standard and 2 small car parking spaces under the GSVCC building ▪ 19 car parking spaces remaining in the existing LPB basement car park (existing 26 minus 7 car parking spaces lost due to design changes) ▪ 131 standard car parking spaces under the UNSWVC building • Provision for bicycles and motorcycles ▪ 10 motorcycle spaces

- 70 bicycle spaces

Compliance with parking controls	**Total** provision of **300** car parking **spaces complies with and is slightly less than the DCP 11** requirements and the existing site entitlements. Bicycle parking provision of 70 spaces significantly exceeds DCP 11 requirements (based on one space per 20 staff – 13 spaces) The proposed reduced car parking is aimed to reduce personal car travel.

Design checks

Item	Check	Result of assessment
Dimensions of car parking spaces, driveways and circulation roadways	AS/NZS 2890.1:2004 AS 2890.2-2002	Satisfactory or achievable Satisfactory or achievable
Vehicle manoeuvring	using AutoTrack 8.2 software	Satisfactory or achievable Refer to **Appendix C** for vehicle turning diagrams.

4.1.3 Proposed access to car parking areas

4.1.3.1 Design considerations

Driveway location	Using the existing driveway to the basement level of the LPB car park.

Driveway width requirements - AS/NZS 2890.1:2004		
	Car park user Class	Class 1 (refer to Table 1.1 of AS/NZS 2890.1:2004)
	Number of parking spaces serviced by the driveway	300
	Frontage road type	Local (West Street)
	Driveway Category	Category 2 (refer to Table 3.1 of AS/NZS 2890.1:2004)
	Access driveway width required	6.0 to 9.0 m combined
	Existing access driveway width	6.0 m combined
	Compliance with AS/NZS 2890.1:2004	**Complies**, no changes are necessary to the existing design

Queuing length requirements	***Minimum queuing length***	3 cars per lane (18.0 m)
	Desirable queuing length	1st 100 cars: 3% = 3 cars plus 2nd 100 cars: 2% = 2 cars, plus Additional cars: 1% = 1 car Total: 3 + 2 + 1 = 6 cars (36 m)
	Proposed queuing length	32 to 47 m depending on the control box location for door activation
	Compliance with AS/NZS 2890.1:2004	**Complies**, no changes are necessary to the existing design
Compliance with parking controls	**Total** provision of **300** car parking **spaces complies with the DCP 11** requirements and is less than 305 spaces as per DCP calculations. The proposed reduced car parking is aimed tofurther reduce personal car travel.	

4.1.3.2 Access location

Proposed driveway location	Using the existing driveway to the basement level of the LPB car park (West Street).	
Other considered access location options	off Victoria St	discarded due to unacceptable impact on • street traffic capacity • street parking conditions • urban design
	via Chaplin Street • full accesss instead of West Street • ingress only with egress via the existing exit in West Street	discarded as an inferior option to West Street access

Access location considerations

Design requirement and/or traffic engineering principle	**West Street access**	**Chaplin Street access**
Minimise number of access points	Retained as a single main access point, whilst minimising traffic to/from	Adds a second main access point

	Chaplin St (equipment maintenance vehicles and Green Park Hotel vehicles only)	
Locate access point on a street with lower traffic	Complies	Increases traffic at the Liverpool St/Chaplin St intersection, thus increasing the number of conflicts in the immediate vicinity of the Victoria St / Liverpool St intersection
Minimise conflicts with passing traffic	Minimal conflicts, due to one-way operation and low traffic volumes in West St	Need to prevent right hand turns from Liverpool St due to safety reasons Conflicts with queueing at Victoria St / Liverpool St intersection
Minimise impact on street parking conditions	No loss of parking	Likely to result in loss of street parking
Building design considerations	Allows for integration of buildings within SVRP	Affects linkages between the buildings
Car park design consideration	Provides opportunity for queuing within the site and compliance with AS in terms of gradients	Difficulty to contain quieing and to provide complying access gradients due to the site dimensional constraints

4.1.4 Travel modes other than private car

Supply and demand	**Walking**	Estimated number of employees	8% - 41 persons
		Provision	The development will take advantage of the existing very well developed footpath and cycleway network presented in **Figure 6** of the present report. The existing linkages have the following characteristics indicative of a very good level of service. • They are continuous throughout the area • They have functional width and are in good repair

		• Signalised and zebra crossings are provided • Streets are mostly level, without steep sections • Trees and awnings provide protection from sun and rain • Vehicle speeds are low • Main paths are safe at any time due to good lighting, continuous pedestrian traffic demand and high Police presence Direct pedestrian access is currently provided from Victoria Street to the Garvan Institute and from Liverpool Street to LPB. Pedestrian access to the UNSWVC building is proposed from Liverpool Street. The new GSVCC building will be provided with direct pedestrian access from Victoria Street. Internal linkages will be provided at the ground level to the other buildings in the Precinct through elevated links between the buildings.
	Adequacy for the increased demand	Adequate
Cycling	Estimated number of employees	14% - 71 persons
	Provision	The development will take advantage of the existing very well developed footpath and cycleway network presented in **Figure 6** of the present report. 70 bicycle parking spaces are provided within the development to encourage bicycle use.
	Adequacy for the increased demand	Adequate
Train	Estimated number of employees	18% - 92 persons, 36 of them arriving during the peak commuter hour
	Provision	Kings Cross train station within convenient walking distance
	Adequacy for the increased demand	Adequate, no need to upgrade services

Bus	Estimated number of employees	16% - 82 persons, 32 of them arriving during the peak commuter hour
	Provision	Refer to **Section 3.5** and **Figures 5** and **6** of the present report
	Adequacy for the increased demand	Adequate, no need to upgrade services

Measures to reduce private car use and to optimise off-street car parking use

Measures recommended for implementation

- Develop and produce a Transport Access Guide (TAG). TAG shall include information on public transport and cycleways (including nearest bicycle repair services). Distribute TAG to all existing staff. Include TAG into the induction package for all new employees and regular visitors (for example students). Make TAG available at the reception in each facility.
- Introduce a dedicated, readily visible section on public transport access on the websites of SVRP Institutes. Include a direct link to the public transport infoline website www.131500.com.au.
- Make all staff aware and encourage the use of www.131500.com.au by regular emails and by inclusion in TAG.
- Introduce a system which would inform staff members about other staff who reside in their neighbourhood, for the purposes of car pooling. This system should cover staff of all four facilities within the Precinct.
- Prepare and distribute a guide on health benefits of walking and cycling.
- Investigate a possibility of introducing shift times for certain staff, increasing the ratio of work starting and finishing times outside commuter peak periods.

Measures recommended for further consideration

- Employ a Travel Plan coordinator in charge of monitoring, development and implementation of measures to reduce car use.
- Provide a bicycle repair service on site (one for the whole Precinct).
- Develop and implement a system of teleworking, setting a benchmark for minimum teleworking time for each staff member.
- Approach one of the existing car share service providers (for example GoGet or FlexiCar) regarding possible cooperation and installation of a car share parking space near or within the Precinct.
- Implement a reverse incentive system of monetary reward, whereby a small amount is added to the staff member's wages on a daily basis but deducted at the end of the day this staff member's car was recorded as exiting the car park. This system had a considerable rate of success in the UK.
- Introduce cash based incentives, for example discounted travel passes, for staff.
- Implement a real time electronic display information system informing staff about the nearest times of bus and train departures. The system should incorporate service disruptions. As an extension, make this system available on the intranet for easy access from each workplace and accessible on mobile/smart phones.

4.2 Impacts on the road network

Additional traffic generation

Survey results

- Results of the surveys described in **Section 2.5.1** of the present report
  - The proportion of car drivers arriving to and departing from work during the commuter peak hours
    - 39% of all car drivers in the morning peak period
    - 34% of all car drivers in the afternoon peak period
  - origins and destinations staff and visitor trips and their directional distribution on the street network (refer to **Figure 8** of the present report).

Assumptions

- Due to the practical absence of long-term on-street parking in the vicinity of the site, additional car trips generated by GSVCC and UNSWVC will be determined by the practical capacity of the new car park and the pattern of arrivals/departures.
- The total proposed additional car parking capacity is

  300 new spaces – (52+60) exisiting spaces = 188 **spaces**
- The **practical capacity** of the proposed car park (the maximum number of cars parked at any one time) will be 95% of the total number of the available car spaces

  188 x 95% = **179 spaces**

  This is a typical situation in most large car parks, where up to 10% of car parking may be found vacant at any one time. Five percent underutilisation (95% practical capacity) is regarded as a conservatively low figure.
- Similarly to offices, most staff will arrive to work in the morning and will leave in the afternoon, with a very low number of trips in between. The total number of arrivals and departures will be equal to the practical capacity.
- **Morning peak hour arrivals** constitute 39% of total morning arrivals

  179 trips x 39% = **70 trips/hr**
- **Morning peak departures** were assumed to be 10% of the incoming traffic (**7 trips/hr)**, these were added to the arrival trips.
- **Afternoon peak hour departures** constitute 34% of total afternoon departures

  179 trips x 34% = **61 trips/hr**
- **Afternoon peak hour arrivals** were assumed to be 20% of the incoming traffic (**12 trips/hr**), these were added to the departure trips.

	Validation	• Additional traffic generation rates estimated above were compared with traffic generation based on the modal share from the questionnaire survey results. • The total approximate number of additional staff on site on a typical busy day would be 250 (GSVCC) + 260 (UNSWVC) = 510. • The car mode share is ▪ 37% car drivers (189 cars parked / 189 car trips), plus ▪ 2% dropped off (10 car trips) ▪ a total of 39% of all staff, or 199 car trips • The above calculated car parking demand of 189 cars is greater than the proposed car parking provision of 146 spaces for GSVCC and UNSWVC calculated in accordance with DCP 11. This underprovision of car parking is aimed to reduce the private car travel mode share.
Traffic distribution on the street network	Assumption	• Origins and destinations staff and visitor trips and their directional distribution on the street network will be the same as those obtained from the questionnaire survey results.
	Additional traffic volumes on the street network.	• Refer to **Figure 10**.

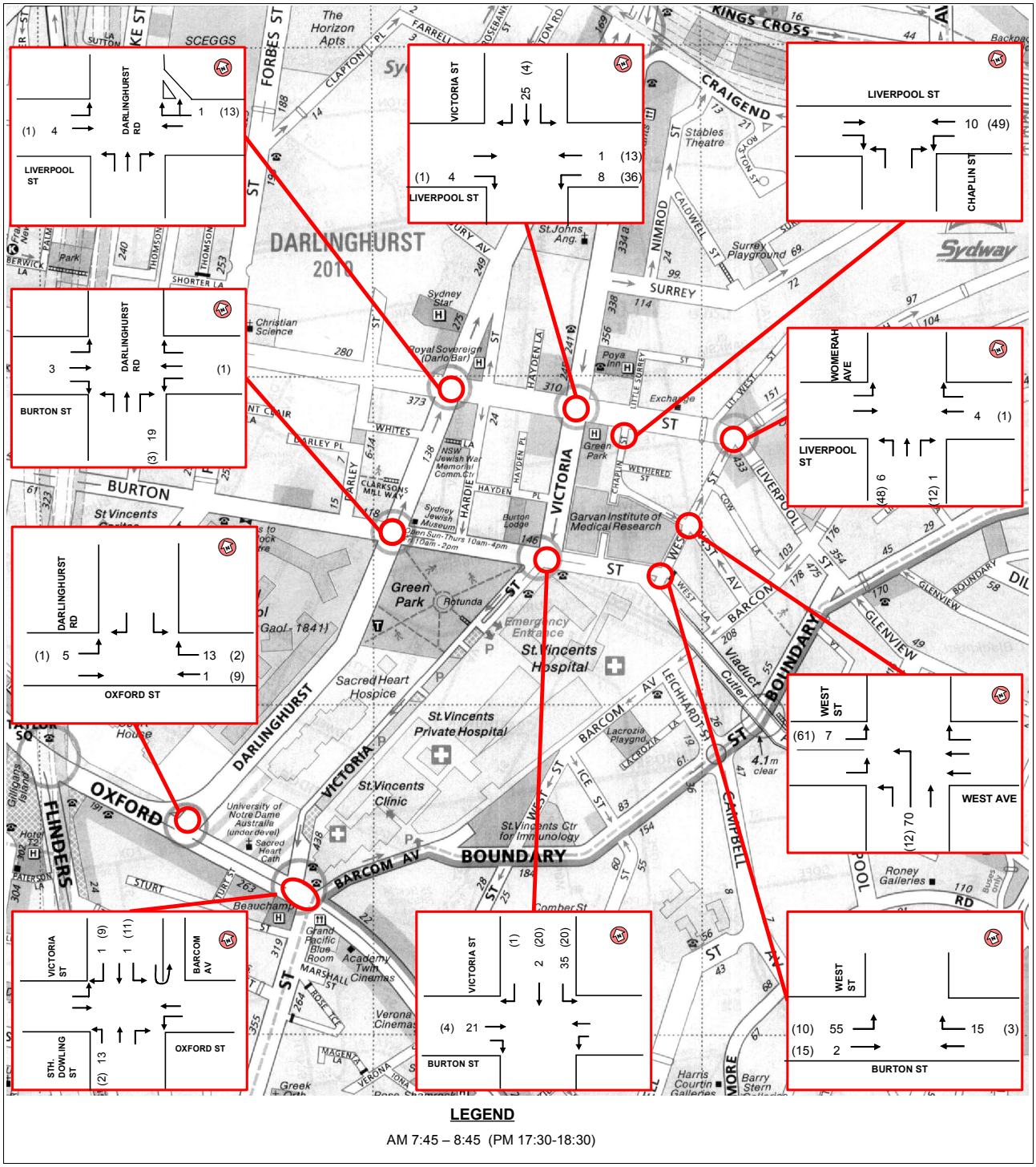


Figure 10. Additional traffic volumes on the street network as a result of SVRP redevelopment.

Impact on existing traffic flows

Additional traffic, when distributed on the road network, will constitute a very minor proportion of the existing traffic flows on most intersections, within typical hourly and daily traffic fluctuations.

Intersections on	% increase on affected intersection approaches
Oxford Street	1% to 5%
Darlinghurst Road	1% to 4%
Victoria Street (other than Oxford St)	2% to 7% (except the Liverpool St approach in the afternoon peak, 25%)

Operation of intersections

SCATES software package was used to analyse the operation of critical intersections after GSVCC and UNSWVC development. Separate SCATES models were developed for each street in the network.

For sensitivity analysis, the estimated additional traffic generation was increased in proportion to the full car parking capacity within the Precinct (300 cars).

The results are shown in **Table 4.2**, together with the results of assessment of the existing intersection operation for comparison.

The results indicate that, even with estimated additional traffic increased proportionally to the full car parking capacity of 300 cars, intersections will continue to operate at the same Levels of Service as at present, with minimal increases in average delays and queuing.

Environmental capacity of West Street

- Street type – local
- Desired environmental capacity – 200-300 veh/h (RTA, 2002)
- Existing traffic flow – 40-50 veh/h
- After GSVCC and UNSWVC – 130-150 veh/h – well within the environmental capacity

Table 4.2. Results of analysis of intersection operation – existing and after GSVCC and UNSWVC **development**

	Darlinghurst St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Liverpool St	5.3	A	0.35	5.4	A	0.40
2526	Burton St	8.9	A	0.35	8.0	A	0.40
0697	Oxford St	9.7	A	0.75	11.4	A	0.74

	Victoria St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0022	Liverpool St	6.0	A	0.41	11.2	A	0.40
0188	Burton St	6.6	A	0.43	20.9	B	0.33
0131	Oxford St	18.0	B	0.89	47.4	D	0.92

	Liverpool St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Darlinghurst Rd	8.4	A	0.35	9.1	A	0.41
0022	Victoria St	5.9	A	0.58	5.2	A	0.59
0258	West St	1.9	A	0.20	2.2	A	0.23

	Oxford St	Existing					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0697	Darlinghurst Rd	4.2	A	0.60	3.8	A	0.69
0131	Victoria St	17.7	B	0.81	18.1	B	0.86

	Darlinghurst St	with 300 additional spaces					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Liverpool St	5.3	A	0.35	5.5	A	0.42
2526	Burton St	9.1	A	0.36	8.1	A	0.41
0697	Oxford St	9.7	A	0.75	11.5	A	0.75

	Victoria St	with SVRP 300					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0022	Liverpool St	6.0	A	0.43	11.0	A	0.44
0188	Burton St	6.4	A	0.43	19.9	B	0.34
0131	Oxford St	18.0	B	0.89	49.6	D	0.94

	Liverpool St	with SVRP 300					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0024	Darlinghurst Rd	7.8	A	0.33	8.2	A	0.37
0022	Victoria St	6.0	A	0.62	6.5	A	0.64
0258	West St	2.2	A	0.21	4.4	A	0.30

	Oxford St	with SVRP 300					
TCS	Intersection	AM			PM		
		AVD	LOS	DS	AVD	LOS	DS
0697	Darlinghurst Rd	4.2	A	0.61	3.8	A	0.69
0131	Victoria St	18.1	B	0.81	18.6	B	0.87

Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout
A	< 14	Good operation
B	15 to 28	Good with acceptable delays & spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode

Source: RTA (2004)

4.3 Servicing requirements

Additional servicing requirements

Basis for the analysis	Consultation with and advice received from the loading dock manager and the representatives of the Garvan Institute and LPB. The assessment of the current loading dock demand was verified based on the surveillance video record over a three-day period.	
Results of the analysis	A detailed table for each type of delivery was prepared based on these consultations, showing the existing and the future demand in terms of types of vehicles, frequency of deliveries, times of arrival and duration of stay. Refer to **Appendix D**.	
Summary of the existing situation	Majority of delivery/servicing vehicles	Medium Rigid Vehicle (MRV) or smaller
	Deliveries/servicing by Heavy Rigid Vehicle (HRVs, 12 m long)	• Gases (cylinders), • Contaminated waste, • ad hoc equipment deliveries typical frequency is up to two HRVs per week, with a maximum of two per day simultaneous arrivals of two HRVs is highly unlikely and can be managed
	Deliveries/servicing by non-HRVs	Morning is the busiest period, however it is manageable
Estimated demand after GSVCC and UNSWVC	There will be a slight increase in frequency of some deliveries, mostly from approximately one delivery per week to two deliveries per week. The majority of the deliveries/servicing will be carried out by the same number of vehicles, carrying increased loads. This is likely to increase servicing times for some deliveries and waste pickups. Refer to **Appendix D** for details.	
Capacity requirements after GSVCC and UNSWVC	Based on the advice provided by the representatives of the Garvan Institute and LPB, there will be no need to increase the capacity of the loading dock. Based on the results of the analysis by TEF Consulting, an additional HRV space will be desirable.	

Loading dock design	The design of the existing loading dock was approved by the Sydney City Council for the use by HRVs as part of the Development Approval for LPB. It is noted that, based on the survey results, some heavy vehicles reverse into the loading dock. This situation can be improved by provision of a separate entry driveway and conversion of the existing two-way driveway into the exit only driveway. Turning diagrams in **Appendix C** demonstrate possible heavy vehicle manoeuvres. The author of the present report is satisfied that provision of the second loading dock driveway is possible, with full compliance with the Australian Standard requirements. Detailed design and further checks will be required at the Project Application stage.

4.4 Access for emergency vehicles

Ambulance	The Emergency Department of the St Vincent's Hospital is literally across the street
Fire brigade station	Within 300 m from the site
Police	Two Police stations are within a few minutes drive
Conclusion	SVRP is well provided for in terms of emergency vehicle accessibility. Refer to **Figure 11**.

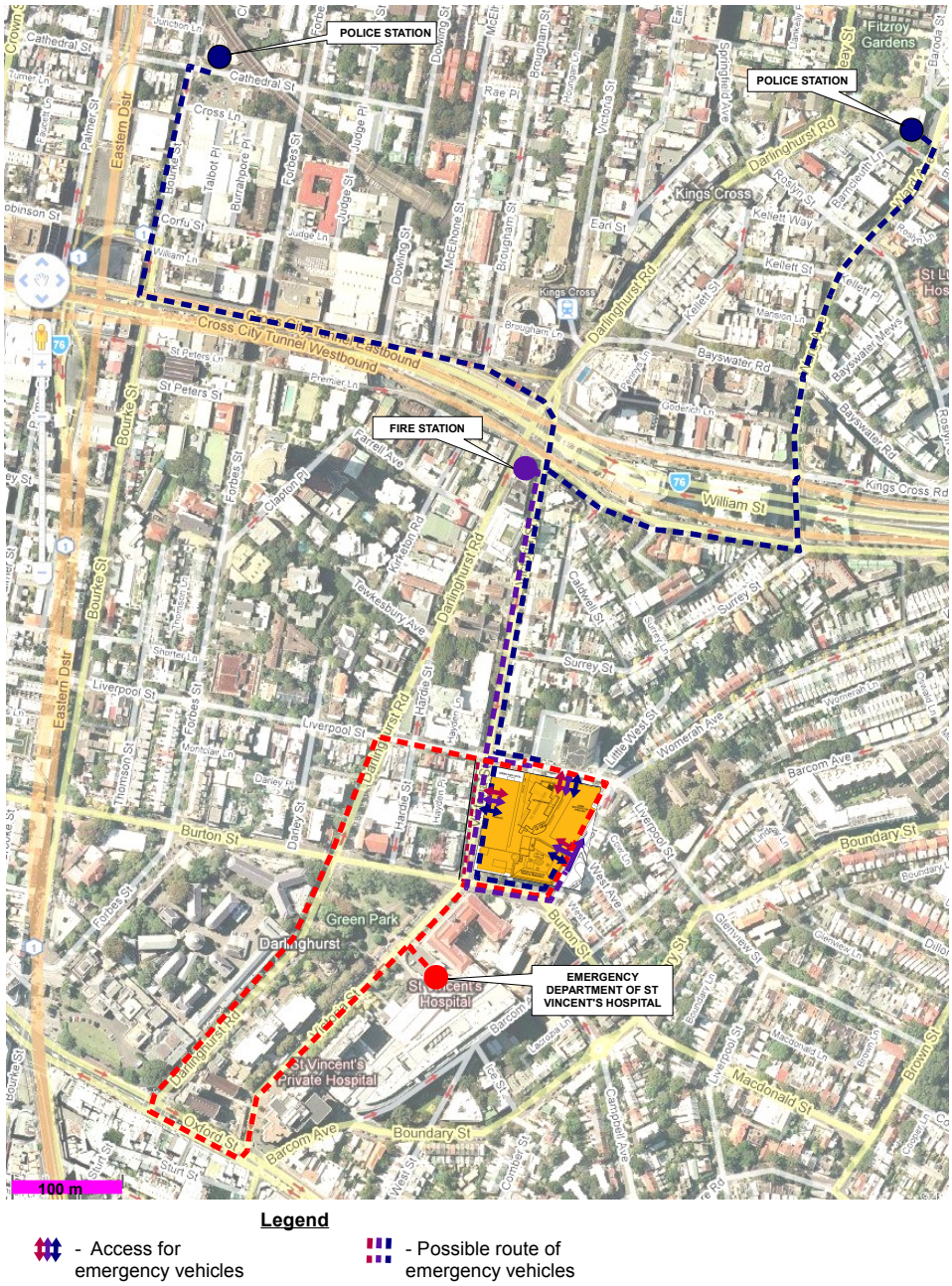


Figure 11. Access for emergency vehicles.

5 CONCLUSIONS AND RECOMMENDATIONS

Proposal	The proposed additional developments on the SVRP site include GSVCC • office/commercial use (laboratories, offices, etc.) ▪ 8,525 sq.m. GFA • medical centre ▪ 16 consulting and interview rooms, 14 to 15 effective full time (EFT) doctors at assumed 90% occupancy • retail (small shop) ▪ 230 sq.m. GFA UNSWVC • office/commercial use (laboratories, offices, etc.) • 5,531 sq.m. GFA
Requirements of DCP 11	A maximum of 301 car parking spaces (including prior approval for 80 spaces for the Garvan Institute and 75 spaces for the Lowy Parker Building calculated as per DCP requirements)
Proposed car parking provision	A total of 300 car parking spaces
Compliance with Council's DCP	Complies
Parking impacts	No parking impacts on surrounding streets
Traffic impacts	Additional traffic generated as a result of GSVCC and UNSWVC development will not affect operation of the street network.
Conclusion	The proposal is supported on traffic and parking grounds.

6 REFERENCES

- RTA (2002). Guide to traffic generating developments: Issue 2.2. RTA, Sydney, NSW.
- Austroads (2005) Guide to Traffic Engineering Practice —Part 5: Intersections at Grade
- Urbis & Jackson Architecture (December 2008) “St Vincent's and Mater Health Sydney. Medical Research Precinct Plan”. Draft report.
- Aurora Projects (2005) Report of Findings of the Darlinghurst Campus Parking Review for St Vincents and Mater Health Sydney.
- TRANSPORT & URBAN PLANNING (November 2007) Draft Report. City East tTraffic Study
- URaP – T T W (2005) Traffic and Parking Report for ST VINCENT’S RESEARCH & BIOTECHNOLOGY PRECINCT
- URaP – T T W (2005) Traffic and Parking Report for ST VINCENT’S RESEARCH & BIOTECHNOLOGY – SITE A
- South Sydney City Council DCP 11 Transport Guidelines for Development

Appendix A

Results of traffic surveys

No. 8169 INTERVAL 15

CLIENT

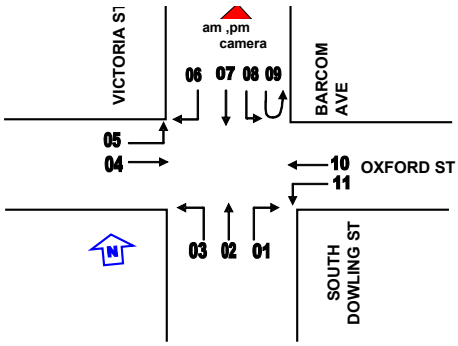
DATE 30/10/2008
31/10/2008

DAY Thursday
Friday

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS Anastasia, Anna



FROM	TO	1	2	3	4	5	6	7	8	9	10	11	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL
6:00 -	6:15	23	30	67	53	2	18	23	8	1	66	18	309
6:15 -	6:30	23	45	78	84	7	15	33	14	1	88	21	409
6:30 -	6:45	26	48	100	126	7	17	44	14	5	100	14	501
6:45 -	7:00	39	61	112	134	7	20	49	15	8	171	25	641
7:00 -	7:15	34	58	145	145	8	28	62	16	7	178	33	714
7:15 -	7:30	33	59	82	138	13	27	70	18	10	196	37	683
7:30 -	7:45	49	62	91	134	11	20	80	21	11	208	36	723
7:45 -	8:00	31	57	75	130	21	26	79	28	10	278	43	778
8:00 -	8:15	43	67	88	104	16	30	106	22	10	272	58	816
8:15 -	8:30	36	44	56	154	23	26	114	14	8	303	67	845
8:30 -	8:45	32	61	76	126	11	28	108	24	9	262	57	794
8:45 -	9:00	33	57	69	113	15	18	110	22	14	267	48	766
TOTAL		*402*	*649*	*1039*	*1441*	*141*	*273*	*878*	*216*	*94*	*2389*	*457*	7979

FROM	TO	1	2	3	4	5	6	7	8	9	10	11	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL
15:00 -	15:15	46	40	60	146	15	44	90	29	16	215	64	765
15:15 -	15:30	45	58	80	153	13	31	120	33	16	196	62	807
15:30 -	15:45	40	38	68	172	18	43	121	26	6	221	55	808
15:45 -	16:00	40	48	67	185	13	40	114	27	18	203	74	829
16:00 -	16:15	40	58	69	148	10	38	118	28	18	193	65	785
16:15 -	16:30	30	46	57	170	4	41	94	27	12	210	75	766
16:30 -	16:45	43	41	80	188	8	52	117	30	15	223	64	861
16:45 -	17:00	48	66	70	218	22	41	106	24	10	239	75	919
17:00 -	17:15	40	53	55	195	21	47	119	42	19	220	55	866
17:15 -	17:30	55	68	63	230	6	36	104	31	12	212	79	896
17:30 -	17:45	37	56	83	208	14	41	120	47	12	200	60	878
17:45 -	18:00	56	73	76	251	13	44	87	25	13	244	76	958
18:00 -	18:15	69	60	62	256	14	46	115	40	15	224	82	983
18:15 -	18:30	49	59	69	268	14	33	90	31	12	242	72	939
18:30 -	18:45	47	66	101	195	10	35	94	30	6	183	66	833
18:45 -	19:00	44	44	72	246	16	51	86	24	10	221	52	866
TOTAL		*729*	*874*	*1132*	*3229*	*211*	*663*	*1695*	*494*	*210*	*3446*	*1076*	13759

HOURLY COUNTS

FROM	TO	1	2	3	4	5	6	7	8	9	10	11	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL
6:00 -	7:00	111	184	357	397	23	70	149	51	15	425	78	1860
6:15 -	7:15	122	212	435	489	29	80	188	59	21	537	93	2265
6:30 -	7:30	132	226	439	543	35	92	225	63	30	645	109	2539
6:45 -	7:45	155	240	430	551	39	95	261	70	36	753	131	2761
7:00 -	8:00	147	236	393	547	53	101	291	83	38	860	149	2898
7:15 -	8:15	156	245	336	506	61	103	335	89	41	954	174	3000
7:30 -	8:30	159	230	310	522	71	102	379	85	39	1061	204	3162
7:45 -	8:45	142	229	295	514	71	110	407	88	37	1115	225	3233
8:00 -	9:00	144	229	289	497	65	102	438	82	41	1104	230	3221

FROM	TO	1	2	3	4	5	6	7	8	9	10	11	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL
15:00 -	16:00	171	184	275	656	59	158	445	115	56	835	255	3209
15:15 -	16:15	165	202	284	658	54	152	473	114	58	813	256	3229
15:30 -	16:30	150	190	261	675	45	162	447	108	54	827	269	3188
15:45 -	16:45	153	193	273	691	35	171	443	112	63	829	278	3241
16:00 -	17:00	161	211	276	724	44	172	435	109	55	865	279	3331
16:15 -	17:15	161	206	262	771	55	181	436	123	56	892	269	3412
16:30 -	17:30	186	228	268	831	57	176	446	127	56	894	273	3542
16:45 -	17:45	180	243	271	851	63	165	449	144	53	871	269	3559
17:00 -	18:00	188	250	277	884	54	168	430	145	56	876	270	3598
17:15 -	18:15	217	257	284	945	47	167	426	143	52	880	297	3715
17:30 -	18:30	211	248	290	983	55	164	412	143	52	910	290	3758
17:45 -	18:45	221	258	308	970	51	158	386	126	46	893	296	3713
18:00 -	19:00	209	229	304	965	54	165	385	125	43	870	272	3621

No. 8169 INTERVAL 15

CLIENT

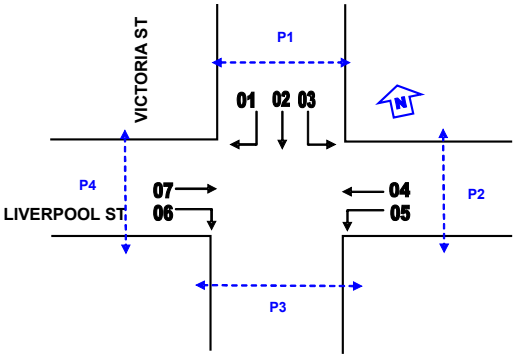
DATE 31/10/2008

DAY Friday

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS Karpel N.



FROM	TO	1	2	3	4	5	6	7	TOTAL	P1	P2	P3	P4	TOTAL
		ALL	ALL	ALL	ALL	ALL	ALL	ALL		ALL	ALL	ALL	ALL	
6:00	6:15	12	56	9	6	4	6	8	101	3	11	0	0	14
6:15	6:30	9	64	3	8	6	1	4	95	1	22	4	2	29
6:30	6:45	14	96	10	12	12	7	16	167	6	52	7	1	66
6:45	7:00	7	89	20	16	15	5	6	158	4	36	5	3	48
7:00	7:15	23	100	11	17	8	8	19	186	7	36	5	1	49
7:15	7:30	26	113	15	20	19	14	11	218	14	32	9	3	58
7:30	7:45	31	126	14	36	28	9	17	261	11	52	9	5	77
7:45	8:00	32	129	8	43	24	5	43	284	10	81	12	9	112
8:00	8:15	42	165	25	63	19	30	48	392	26	91	18	18	153
8:15	8:30	34	143	17	50	24	19	43	330	27	103	16	19	165
8:30	8:45	29	153	19	61	27	15	23	327	14	108	33	16	171
8:45	9:00	43	163	30	44	28	23	34	365	22	125	29	24	200
TOTAL		302	1397	181	376	214	142	272	2884	145	749	147	101	1142

FROM	TO	1	2	3	4	5	6	7	TOTAL	P1	P2	P3	P4	TOTAL
		ALL	ALL	ALL	ALL	ALL	ALL	ALL		ALL	ALL	ALL	ALL	
15:00	15:15	16	93	23	15	10	20	11	188	8	41	4	11	64
15:15	15:30	20	149	18	24	32	33	53	329	36	79	8	22	145
15:30	15:45	8	129	14	13	17	18	37	236	30	86	12	9	137
15:45	16:00	22	187	5	21	30	26	30	321	28	81	10	18	137
16:00	16:15	33	178	22	25	26	15	25	324	13	63	9	9	94
16:15	16:30	17	183	9	15	20	20	32	296	29	58	4	7	98
16:30	16:45	37	179	11	19	25	14	37	322	30	96	7	16	149
16:45	17:00	25	154	12	39	27	15	30	302	27	77	6	8	118
17:00	17:15	27	141	18	28	25	25	25	289	31	83	12	19	145
17:15	17:30	11	199	4	27	31	22	48	342	33	94	19	14	160
17:30	17:45	22	177	20	30	32	21	60	362	29	113	28	25	195
17:45	18:00	21	187	13	27	20	19	36	323	22	87	18	14	141
18:00	18:15	19	183	25	28	27	27	59	368	26	77	30	11	144
18:15	18:30	26	183	27	18	18	27	47	346	37	92	5	19	153
18:30	18:45	27	111	15	35	35	13	45	281	29	83	20	19	151
18:45	19:00	31	185	18	30	26	31	21	342	37	102	31	29	199
TOTAL		362	2618	254	394	401	346	596	4971	445	1312	223	250	2230

HOURLY COUNTS

FROM	TO	1	2	3	4	5	6	7	TOTAL	P1	P2	P3	P4	TOTAL
		ALL	ALL	ALL	ALL	ALL	ALL	ALL		ALL	ALL	ALL	ALL	
6:00	7:00	42	305	42	42	37	19	34	521	14	121	16	6	157
6:15	7:15	53	349	44	53	41	21	45	606	18	146	21	7	192
6:30	7:30	70	398	56	65	54	34	52	729	31	156	26	8	221
6:45	7:45	87	428	60	89	70	36	53	823	36	156	28	12	232
7:00	8:00	112	468	48	116	79	36	90	949	42	201	35	18	296
7:15	8:15	131	533	62	162	90	58	119	1155	61	256	48	35	400
7:30	8:30	139	563	64	192	95	63	151	1267	74	327	55	51	507
7:45	8:45	137	590	69	217	94	69	157	1333	77	383	79	62	601
8:00	9:00	148	624	91	218	98	87	148	1414	89	427	96	77	689

FROM	TO	1	2	3	4	5	6	7	TOTAL	P1	P2	P3	P4	TOTAL
		ALL	ALL	ALL	ALL	ALL	ALL	ALL		ALL	ALL	ALL	ALL	
15:00	16:00	66	558	60	73	89	97	131	1074	102	287	34	60	483
15:15	16:15	83	643	59	83	105	92	145	1210	107	309	39	58	513
15:30	16:30	80	677	50	74	93	79	124	1177	100	288	35	43	466
15:45	16:45	109	727	47	80	101	75	124	1263	100	298	30	50	478
16:00	17:00	112	694	54	98	98	64	124	1244	99	294	26	40	459
16:15	17:15	106	657	50	101	97	74	124	1209	117	314	29	50	510
16:30	17:30	100	673	45	113	108	76	140	1255	121	350	44	57	572
16:45	17:45	85	671	54	124	115	83	163	1295	120	367	65	66	618
17:00	18:00	81	704	55	112	108	87	169	1316	115	377	77	72	641
17:15	18:15	73	746	62	112	110	89	203	1395	110	371	95	64	640
17:30	18:30	88	730	85	103	97	94	202	1399	114	369	81	69	633
17:45	18:45	93	664	80	108	100	86	187	1318	114	339	73	63	589
18:00	19:00	103	662	85	111	106	98	172	1337	129	354	86	78	647

No. 8169 INTERVAL 15

CLIENT

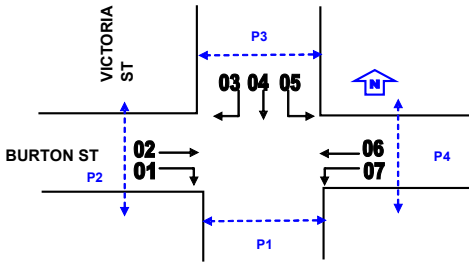
DATE 31/10/2008

DAY Fridey

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS D.Kalinin



FROM	TO	1	2	3	4	5	6	7		P1	P2	P3	P4	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	ALL	TOTAL
6:00	6:15	5	8	6	42	7	8	1	77	2	8	1	9	20
6:15	6:30	14	7	5	56	11	8	4	105	3	6	5	15	29
6:30	6:45	18	8	9	70	11	14	5	135	3	11	9	46	69
6:45	7:00	26	18	8	92	8	18	4	174	4	14	8	41	67
7:00	7:15	32	13	12	94	12	20	11	194	6	13	10	46	75
7:15	7:30	27	23	19	105	14	41	9	238	4	13	13	41	71
7:30	7:45	22	27	23	115	11	62	14	274	18	15	11	61	105
7:45	8:00	27	28	32	106	13	61	18	285	9	15	23	68	115
8:00	8:15	28	44	34	143	34	94	20	397	24	18	23	63	128
8:15	8:30	14	43	33	131	15	80	15	331	13	23	21	79	136
8:30	8:45	31	27	41	139	17	61	21	337	19	18	21	96	154
8:45	9:00	20	32	35	129	20	63	19	318	9	26	16	74	125
TOTAL		*264*	*278*	*257*	*1222*	*173*	*530*	*141*	2865	*114*	*180*	*161*	*639*	1094

FROM	TO	1	2	3	4	5	6	7		P2	P3	P4	P1	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	ALL	TOTAL
15:00	15:15	11	25	21	58	18	12	6	151	5	5	4	72	86
15:15	15:30	22	32	26	115	56	27	16	294	11	10	8	97	126
15:30	15:45	30	34	28	128	11	31	8	270	10	30	14	86	140
15:45	16:00	28	27	43	137	29	47	8	319	8	19	23	91	141
16:00	16:15	24	31	51	133	19	27	8	293	9	20	25	97	151
16:15	16:30	24	27	51	140	23	35	8	308	15	19	18	94	146
16:30	16:45	27	48	40	129	27	38	7	316	13	13	21	76	123
16:45	17:00	32	43	32	126	26	27	9	295	12	18	14	88	132
17:00	17:15	33	54	45	112	30	27	15	316	11	15	35	106	167
17:15	17:30	27	45	32	165	38	34	12	353	16	10	12	104	142
17:30	17:45	21	49	39	114	26	31	7	287	7	20	18	78	123
17:45	18:00	21	48	36	117	40	17	6	285	4	23	14	62	103
18:00	18:15	23	66	37	152	22	37	13	350	18	28	10	101	157
18:15	18:30	21	56	39	135	24	33	11	319	13	19	20	82	134
18:30	18:45	31	51	38	124	22	34	11	311	18	12	15	87	132
18:45	19:00	28	24	38	109	21	27	10	257	9	16	1	79	105
TOTAL		*403*	*660*	*596*	*1994*	*432*	*484*	*155*	*4724*	*179*	*277*	*252*	*1400*	2108

HOURLY COUNTS

FROM	TO	1	2	3	4	5	6	7		P2	P3	P4	P1	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	ALL	TOTAL
6:00	7:00	63	41	28	260	37	48	14	491	12	39	23	111	185
6:15	7:15	90	46	34	312	42	60	24	608	16	44	32	148	240
6:30	7:30	103	62	48	361	45	93	29	741	17	51	40	174	282
6:45	7:45	107	81	62	406	45	141	38	880	32	55	42	189	318
7:00	8:00	108	91	86	420	50	184	52	991	37	56	57	216	366
7:15	8:15	104	122	108	469	72	258	61	1194	55	61	70	233	419
7:30	8:30	91	142	122	495	73	297	67	1287	64	71	78	271	484
7:45	8:45	100	142	140	519	79	296	74	1350	65	74	88	306	533
8:00	9:00	93	146	143	542	86	298	75	1383	65	85	81	312	543

FROM	TO	1	2	3	4	5	6	7		P2	P3	P4	P1	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	ALL	TOTAL
15:00	16:00	91	118	118	438	114	117	38	1034	34	64	49	346	493
15:15	16:15	104	124	148	513	115	132	40	1176	38	79	70	371	558
15:30	16:30	106	119	173	538	82	140	32	1190	42	88	80	368	578
15:45	16:45	103	133	185	539	98	147	31	1236	45	71	87	358	561
16:00	17:00	107	149	174	528	95	127	32	1212	49	70	78	355	552
16:15	17:15	116	172	168	507	106	127	39	1235	51	65	88	364	568
16:30	17:30	119	190	149	532	121	126	43	1280	52	56	82	374	564
16:45	17:45	113	191	148	517	120	119	43	1251	46	63	79	376	564
17:00	18:00	102	196	152	508	134	109	40	1241	38	68	79	350	535
17:15	18:15	92	208	144	548	126	119	38	1275	45	81	54	345	525
17:30	18:30	86	219	151	518	112	118	37	1241	42	90	62	323	517
17:45	18:45	96	221	150	528	108	121	41	1265	53	82	59	332	526
18:00	19:00	103	197	152	520	89	131	45	1237	58	75	46	349	528

No. 8169 INTERVAL 15

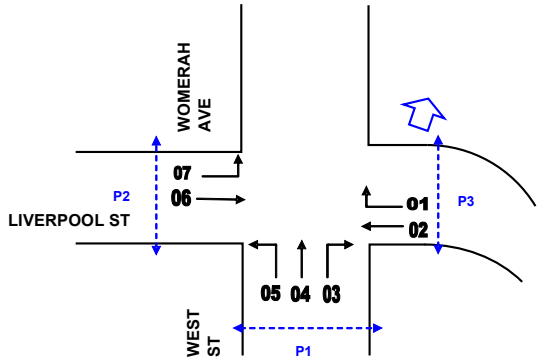
CLIENT

DATE 31/10/2008

DAY Friday

LOCATION St Vincent's Pricent
WEATHER

OBSERVERS O.Zbaras



FROM	TO	1	2	3	4	5	6	7		P1	P2	P3	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	TOTAL
6:00 -	6:15	0	8	0	0	1	7	0	16	0	0	0	0
6:15 -	6:30	3	12	0	1	3	10	7	36	7	2	2	11
6:30 -	6:45	1	18	0	0	1	16	3	39	4	3	2	9
6:45 -	7:00	3	33	1	0	2	13	3	55	2	0	0	2
7:00 -	7:15	2	29	0	1	4	18	7	61	2	1	0	3
7:15 -	7:30	3	30	1	0	9	18	3	64	0	0	1	1
7:30 -	7:45	8	55	1	4	8	30	5	111	10	10	4	24
7:45 -	8:00	13	65	2	1	7	51	4	143	12	2	4	18
8:00 -	8:15	7	85	2	3	4	75	4	180	12	3	2	17
8:15 -	8:30	8	65	4	5	4	48	8	142	11	6	7	24
8:30 -	8:45	8	58	4	2	5	35	9	121	6	1	10	17
8:45 -	9:00	9	39	4	1	6	28	14	101	4	0	4	8
TOTAL		*65*	*497*	*19*	*18*	*54*	*349*	*67*	1069	*70*	*28*	*36*	134

FROM	TO	1	2	3	4	5	6	7		P1	P2	P3	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	TOTAL
15:00 -	15:15	5	0	6	3	9	0	6	29	3	4	5	12
15:15 -	15:30	1	0	6	2	6	0	6	21	3	1	2	6
15:30 -	15:45	8	27	2	2	6	26	3	74	1	2	2	5
15:45 -	16:00	6	49	4	2	8	28	6	103	1	4	6	11
16:00 -	16:15	5	64	3	2	5	40	8	127	1	3	5	9
16:15 -	16:30	5	48	5	3	2	47	13	123	2	1	4	7
16:30 -	16:45	7	47	5	3	3	45	1	111	0	3	1	4
16:45 -	17:00	10	50	4	1	6	48	3	122	2	4	3	9
17:00 -	17:15	4	45	5	3	4	42	7	110	3	0	4	7
17:15 -	17:30	7	59	8	0	3	56	13	146	7	9	5	21
17:30 -	17:45	11	63	4	2	5	59	14	158	5	2	2	9
17:45 -	18:00	4	38	4	2	1	48	4	101	9	4	6	19
18:00 -	18:15	6	54	5	5	6	66	17	159	6	5	4	15
18:15 -	18:30	8	51	6	6	3	58	17	149	8	6	3	17
18:30 -	18:45	3	58	3	1	7	48	8	128	7	4	4	15
18:45 -	19:00	1	42	3	3	5	0	10	64	6	4	1	11
TOTAL		*91*	*695*	*73*	*40*	*79*	*611*	*136*	1725	*64*	*56*	*57*	177

HOURLY COUNTS

FROM	TO	1	2	3	4	5	6	7		P1	P2	P3	
		ALL	ALL	ALL	ALL	ALL	ALL	ALL	TOTAL	ALL	ALL	ALL	TOTAL
6:00 -	7:00	7	71	1	1	7	46	13	146	13	5	4	22
6:15 -	7:15	9	92	1	2	10	57	20	191	15	6	4	25
6:30 -	7:30	9	110	2	1	16	65	16	219	8	4	3	15
6:45 -	7:45	16	147	3	5	23	79	18	291	14	11	5	30
7:00 -	8:00	26	179	4	6	28	117	19	379	24	13	9	46
7:15 -	8:15	31	235	6	8	28	174	16	498	34	15	11	60
7:30 -	8:30	36	270	9	13	23	204	21	576	45	21	17	83
7:45 -	8:45	36	273	12	11	20	209	25	586	41	12	23	76
8:00 -	9:00	32	247	14	11	19	186	35	544	33	10	23	66

FROM	TO	1	2	3	4	5	6	7		P1	P2	P3	
		ALL	ALL	ALL	HV	HV	HV	HV	TOTAL	ALL	ALL	ALL	TOTAL
15:00 -	16:00	20	76	18	9	29	54	21	227	8	11	15	34
15:15 -	16:15	20	140	15	8	25	94	23	325	6	10	15	31
15:30 -	16:30	24	188	14	9	21	141	30	427	5	10	17	32
15:45 -	16:45	23	208	17	10	18	160	28	464	4	11	16	31
16:00 -	17:00	27	209	17	9	16	180	25	483	5	11	13	29
16:15 -	17:15	26	190	19	10	15	182	24	466	7	8	12	27
16:30 -	17:30	28	201	22	7	16	191	24	489	12	16	13	41
16:45 -	17:45	32	217	21	6	18	205	37	536	17	15	14	46
17:00 -	18:00	26	205	21	7	13	205	38	515	24	15	17	56
17:15 -	18:15	28	214	21	9	15	229	48	564	27	20	17	64
17:30 -	18:30	29	206	19	15	15	231	52	567	28	17	15	60
17:45 -	18:45	21	201	18	14	17	220	46	537	30	19	17	66
18:00 -	19:00	18	205	17	15	21	172	52	500	27	19	12	58

No. 8169 INTERVAL 15

CLIENT

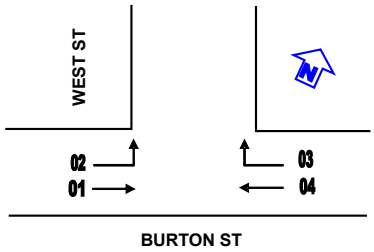
DATE 31/10/2008

DAY Friday

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS E.Mikhailik



not counted

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
6:00	-	6:15	10	2	0	8	20
6:15	-	6:30	14	2	2	12	30
6:30	-	6:45	16	2	0	16	34
6:45	-	7:00	19	8	0	29	56
7:00	-	7:15	15	3	2	25	45
7:15	-	7:30	32	6	2	54	94
7:30	-	7:45	27	7	4	67	105
7:45	-	8:00	35	12	0	76	123
8:00	-	8:15	65	7	0	112	184
8:15	-	8:30	61	12	2	106	181
8:30	-	8:45	32	11	2	82	127
8:45	-	9:00	34	15	4	85	138
TOTAL			*360*	*87*	*18*	*672*	*1137*

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
15:00	-	15:15	68	5	8	68	149
15:15	-	15:30	59	16	0	45	120
15:30	-	15:45	52	3	1	42	98
15:45	-	16:00	43	8	3	59	113
16:00	-	16:15	51	6	4	42	103
16:15	-	16:30	52	6	2	43	103
16:30	-	16:45	61	5	2	47	115
16:45	-	17:00	62	9	2	45	118
17:00	-	17:15					0
17:15	-	17:30	67	10	0	52	129
17:30	-	17:45	79	8	2	42	131
17:45	-	18:00	76	8	3	28	115
18:00	-	18:15	74	11	3	53	141
18:15	-	18:30	73	10	7	52	142
18:30		18:45	51	10	1	43	105
18:45		19:00	66	5	2	51	124
TOTAL			*934*	*120*	*40*	*712*	*1806*

HOURLY COUNTS

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
6:00	-	7:00	59	14	2	65	140
6:15	-	7:15	64	15	4	82	165
6:30	-	7:30	82	19	4	124	229
6:45	-	7:45	93	24	8	175	300
7:00	-	8:00	109	28	8	222	367
7:15	-	8:15	159	32	6	309	506
7:30	-	8:30	188	38	6	361	593
7:45	-	8:45	193	42	4	376	615
8:00	-	9:00	192	45	8	385	630

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
15:00	-	16:00	222	32	12	214	480
15:15	-	16:15	205	33	8	188	434
15:30	-	16:30	198	23	10	186	417
15:45	-	16:45	207	25	11	191	434
16:00	-	17:00	226	26	10	177	439
16:15	-	17:15	175	20	6	135	336
16:30	-	17:30	190	24	4	144	362
16:45	-	17:45	208	27	4	139	378
17:00	-	18:00	222	26	5	122	375
17:15	-	18:15	296	37	8	175	516
17:30	-	18:30	302	37	15	175	529
17:45	-	18:45	274	39	14	176	503
18:00	-	19:00	264	36	13	199	512

CLIENT

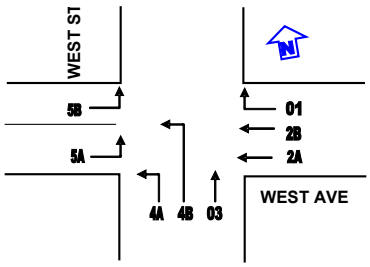
DATE 31/10/2008

DAY Friday

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS E.Haldey



FROM	TO	1	2		3		4			5			TOTAL	P West	P West	TOTAL
		ALL	2a	2b	ALL	HV	4a	4A-HV	4b	5a	5A-HV	5b		ALL	ALL	
6:00	6:15	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0
6:15	6:30	0	0	0	2	1	1	0	0	0	0	0	3	1	2	3
6:30	6:45	0	0	0	1	0	0	0	1	0	0	0	2	0	3	3
6:45	7:00	1	1	0	0	1	4	0	1	0	0	0	7	1	0	1
7:00	7:15	1	0	0	4	0	1	0	1	1	0	0	8	2	1	3
7:15	7:30	3	0	0	7		0	1	0	0	0	0	10	0	2	2
7:30	7:45	1	0	0	9	1	2	1	0	1	1	0	13	5	2	7
7:45	8:00	1	0	0	6	1	3	1	0	1	0	0	11	4	1	5
8:00	8:15	1	0	0	5	0	0	0	0	2	0	0	8	0	2	2
8:15	8:30	1	0	0	9	0	1	1	1	2	0	0	14	5	5	10
8:30	8:45	0	1	0	8	1	4	0	0	2	1	0	15	1	2	3
8:45	9:00	2	0	0	13	1	3	0	0	1	0	0	19	1	6	7
TOTAL		*11*	*2*	*0*	*64*	*6*	*21*	*4*	*4*	*10*	*2*	*0*	*112*	*20*	*26*	*46*

FROM	TO	1	2		3		4			5			TOTAL	P West	P West	TOTAL
		ALL	2a	2b	ALL	HV	4a	4a-HV	4b	5a	5a-HV	5b		ALL	ALL	
15:00	15:15	2	0	0	6	0	0	0	0	4	0	0	12	0	0	0
15:15	15:30	2	1	0	15	0	2	0	0	2	0	0	22	2	0	2
15:30	15:45	3	0	0	7	2	0	0	0	3	0	1	14	0	0	0
15:45	16:00	1	0	0	7	0	0	0	0	0	0	1	9	4	0	4
16:00	16:15	1	0	0	10	0	0	0	0	1	0	0	12	3	3	6
16:15	16:30	1	0	0	7	0	0	0	0	0	0	0	8	6	3	9
16:30	16:45	4	0	0	6	0	0	0	0	2	0	0	12	5	5	10
16:45	17:00	1	0	0	10	0	0	0	0	0	0	0	11	6	1	7
17:00	17:15	1	0	0	11	0	0	0	0	2	0	0	14	4	5	9
17:15	17:30	1	0	0	7	0	2	0	0	0	0	0	10	1	1	2
17:30	17:45	0	0	0	9	0	1	0	0	0	0	0	10	2	4	6
17:45	18:00	1	0	0	7	0	2	0	0	1	0	0	11	1	4	5
18:00	18:15	0	0	0	13	0	0	0	0	3	0	0	16	3	2	5
18:15	18:30	1	0	0	14	0	2	0	0	0	0	0	17	4	1	5
18:30	18:45	0	0	0	9	0	1	0	0	2	0	0	12	2	4	6
18:45	19:00	3	0	0	9	0	0	0	0	1	0	0	13	0	5	5
TOTAL		*22*	*1*	*0*	*147*	*2*	*10*	*0*	*0*	*21*	*0*	*2*	*203*	*43*	*38*	*81*

HOURLY COUNTS

FROM	TO	1	2		3		4			5			TOTAL	P West	P West	TOTAL
		ALL	2a	2b	ALL	HV	4a	4a-HV	4b	5a	5a-HV	5b		ALL	ALL	
6:00	7:00	1	1	0	3	2	7	0	2	0	0	0	14	2	5	7
6:15	7:15	2	1	0	7	2	6	0	3	1	0	0	20	4	6	10
6:30	7:30	5	1	0	12	1	5	1	3	1	0	0	27	3	6	9
6:45	7:45	6	1	0	20	2	7	2	2	2	1	0	38	8	5	13
7:00	8:00	6	0	0	26	2	6	3	1	3	1	0	42	11	6	17
7:15	8:15	6	0	0	27	2	5	3	0	4	1	0	42	9	7	16
7:30	8:30	4	0	0	29	2	6	3	1	6	1	0	46	14	10	24
7:45	8:45	3	1	0	28	2	8	2	1	7	1	0	48	10	10	20
8:00	9:00	4	1	0	35	2	8	1	1	7	1	0	56	7	15	22

FROM	TO	1	2		3		4			5			TOTAL	P West	P West	TOTAL
		ALL	2a	2b	ALL	HV	4a	4a-HV	4b	5a	5a-HV	5b		ALL	ALL	
15:00	16:00	8	1	0	35	2	2	0	0	9	0	2	57	6	0	6
15:15	16:15	7	1	0	39	2	2	0	0	6	0	2	57	9	3	12
15:30	16:30	6	0	0	31	2	0	0	0	4	0	2	43	13	6	19
15:45	16:45	7	0	0	30	0	0	0	0	3	0	1	41	18	11	29
16:00	17:00	7	0	0	33	0	0	0	0	3	0	0	43	20	12	32
16:15	17:15	7	0	0	34	0	0	0	0	4	0	0	45	21	14	35
16:30	17:30	7	0	0	34	0	2	0	0	4	0	0	47	16	12	28
16:45	17:45	3	0	0	37	0	3	0	0	2	0	0	45	13	11	24
17:00	18:00	3	0	0	34	0	5	0	0	3	0	0	45	8	14	22
17:15	18:15	2	0	0	36	0	5	0	0	4	0	0	47	7	11	18
17:30	18:30	2	0	0	43	0	5	0	0	4	0	0	54	10	11	21
17:45	18:45	2	0	0	43	0	5	0	0	6	0	0	56	10	11	21
18:00	19:00	4	0	0	45	0	3	0	0	6	0	0	58	9	12	21

No. 8169 INTERVAL 15

CLIENT

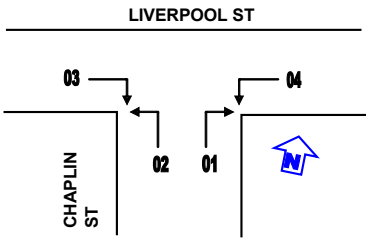
DATE 31/10/2008

DAY Friday

LOCATION St Vincent's Precinct

WEATHER

OBSERVERS Nastya



FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
			not counted				
6:00	-	6:15					
6:15	-	6:30	0	1	0	0	1
6:30	-	6:45	0	0	1	0	1
6:45	-	7:00	0	0	0	1	1
7:00	-	7:15	1	0	2	0	3
7:15	-	7:30	0	0	2	2	4
7:30	-	7:45	0	0	1	1	2
7:45	-	8:00	0	0	2	0	2
8:00	-	8:15	0	0	2	0	2
8:15	-	8:30	0	0	3	1	4
8:30	-	8:45	0	0	4	3	7
8:45	-	9:00	1	0	1	5	7
TOTAL			*2*	*1*	*18*	*13*	*34*

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
15:00	-	15:15	0	3	1	1	5
15:15	-	15:30	0	2	1	0	3
15:30	-	15:45	0	0	0	0	0
15:45	-	16:00	0	0	1	0	1
16:00	-	16:15	2	3	1	0	6
16:15	-	16:30	3	1	1	0	5
16:30	-	16:45	1	1	0	0	2
16:45	-	17:00	0	1	0	0	1
17:00	-	17:15	1	3	0	0	4
17:15	-	17:30	1	1	0	0	2
17:30	-	17:45	1	2	0	0	3
17:45	-	18:00	2	1	0	0	3
18:00	-	18:15	2	2	0	0	4
18:15	-	18:30	1	0	1	0	2
18:30	-	18:45	4	1	0	0	5
18:45	-	19:00	0	1	0	0	1
TOTAL			*18*	*22*	*6*	*1*	*47*

HOURLY COUNTS

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
6:00	-	7:00	0	1	1	1	
6:15	-	7:15	1	1	3	1	6
6:30	-	7:30	1	0	5	3	9
6:45	-	7:45	1	0	5	4	10
7:00	-	8:00	1	0	7	3	11
7:15	-	8:15	0	0	7	3	10
7:30	-	8:30	0	0	8	2	10
7:45	-	8:45	0	0	11	4	15
8:00	-	9:00	1	0	10	9	20

FROM		TO	1 ALL	2 ALL	3 ALL	4 ALL	TOTAL
15:00	-	16:00	0	5	3	1	9
15:15	-	16:15	2	5	3	0	10
15:30	-	16:30	5	6	0	0	11
15:45	-	16:45	6	5	3	0	14
16:00	-	17:00	6	6	2	0	14
16:15	-	17:15	6	6	0	0	12
16:30	-	17:30	3	6	0	0	9
16:45	-	17:45	3	7	0	0	10
17:00	-	18:00	5	7	0	0	12
17:15	-	18:15	6	6	0	0	12
17:30	-	18:30	6	5	1	0	12
17:45	-	18:45	9	4	1	0	14
18:00	-	19:00	7	4	1	0	12

Appendix B

Questionnaire survey form

TRAFFIC AND PARKING SURVEY

A study of existing parking patterns of staff, patients and visitors associated with St. Vincent's Precinct is being completed to adequately plan and design future parking facilities. It is very important that you complete this questionnaire no later than Friday 7 November **2008** and return it to the reception desk.

Please fill in the appropriate circles completely (HB pencil is preferred option)

Example: correct ⬬ incorrect ⊗ ☑ ⬬ ⊛

Which classification best describes your status?

Doctor	⊙
Manager	⊙
Administrative Staff	⊙
Scientist	⊙
Engineering	⊙
Security	⊙
Student	⊙
Cleaning	⊙
Visitor	⊙
Other (specify)	⊙

____

What time do you normally

if you work different shifts, please repy for this week's shift

start work		finish work	
6:00 - 7:00 am	⊙	2:00 - 3:00 pm	⊙
7:00 - 8:00 am	⊙	3:00 - 4:00 pm	⊙
8:00 - 9:00 am	⊙	4:00 - 5:00 pm	⊙
9:00 am - 10:00 am	⊙	5:00 - 6:00 pm	⊙
		6:00 - 7:00 pm	⊙
3:00 - 4:00 pm	⊙	7:00 - 8:00 pm	⊙
4:00 - 5:00 pm	⊙		⊙
5:00 - 6:00 pm	⊙	Other (specify)	⊙
6:00 - 7:00 pm	⊙	______________	
7:00 pm - 8:00 pm	⊙		
Other (specify)	⊙		
______________			

How do you normally travel to the Institute?:

car driver	⊙
car passenger	⊙
dropped off	⊙
bicycle	⊙
train	⊙
walk	⊙
bus	⊙
taxi	⊙
Other (specify)	⊙

____

SEE NOTE BELOW

PLEASE REFER TO MAP OVERLEAF FOR QUESTIONS BELOW

If you are a CAR DRIVER, where do you normally park?

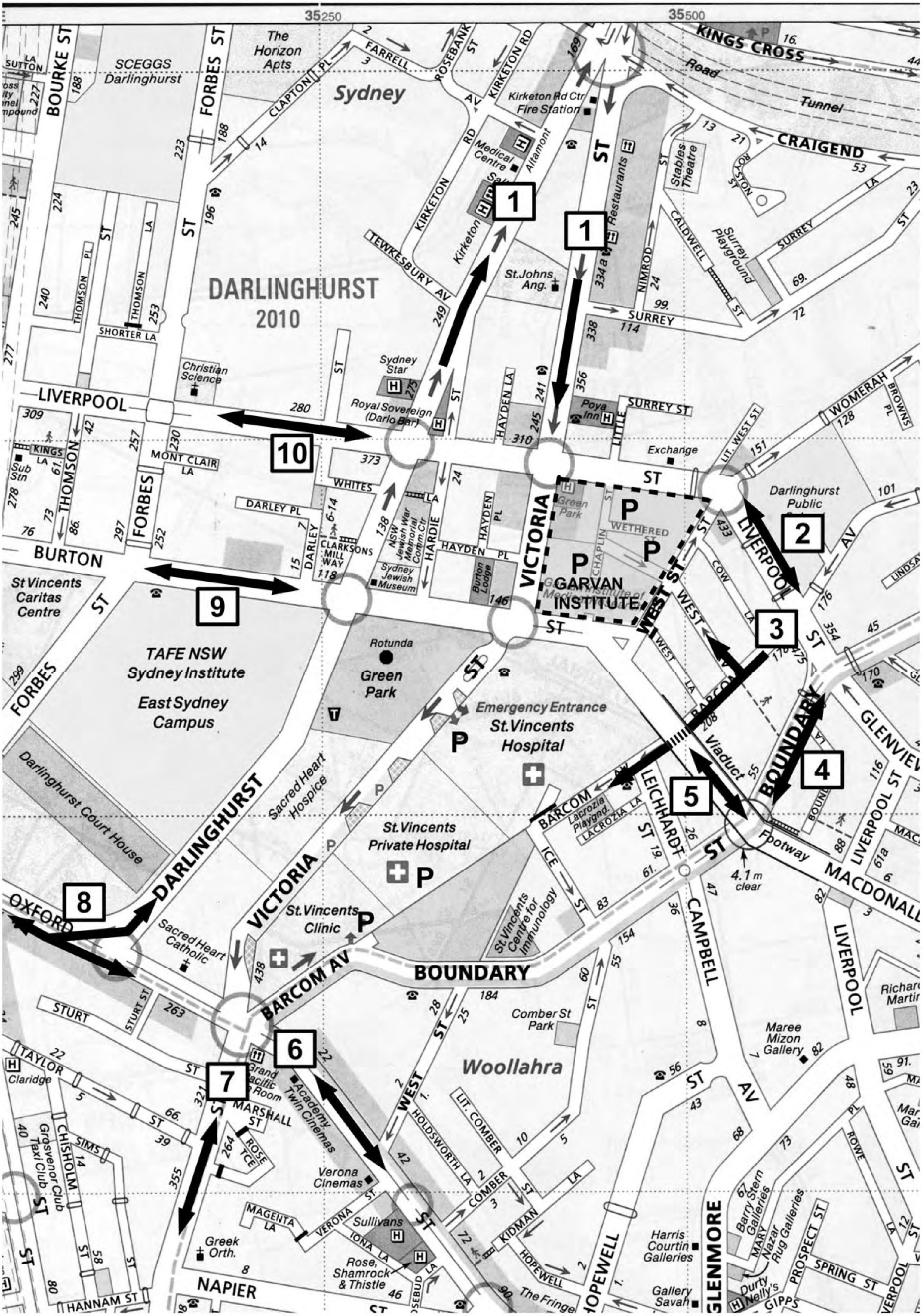
Lowy Parker Bldg car park	⊙
St.Vincent's Hospital (Grimes)	⊙
St.Vincent's Private Hospital	⊙
St.Vincent's Clinic	⊙
Victoria Street	⊙
West Street	⊙
Liverpool Street	⊙
Burton Street	⊙
Other (specify)	⊙
______________	⊙

If you are a CAR DRIVER, which direction do you normally

COME FROM		GO TO	
1	⊙	1	⊙
2	⊙	2	⊙
3	⊙	3	⊙
4	⊙	4	⊙
5	⊙	5	⊙
6	⊙	6	⊙
7	⊙	7	⊙
8	⊙	8	⊙
9	⊙	9	⊙
10	⊙	10	⊙

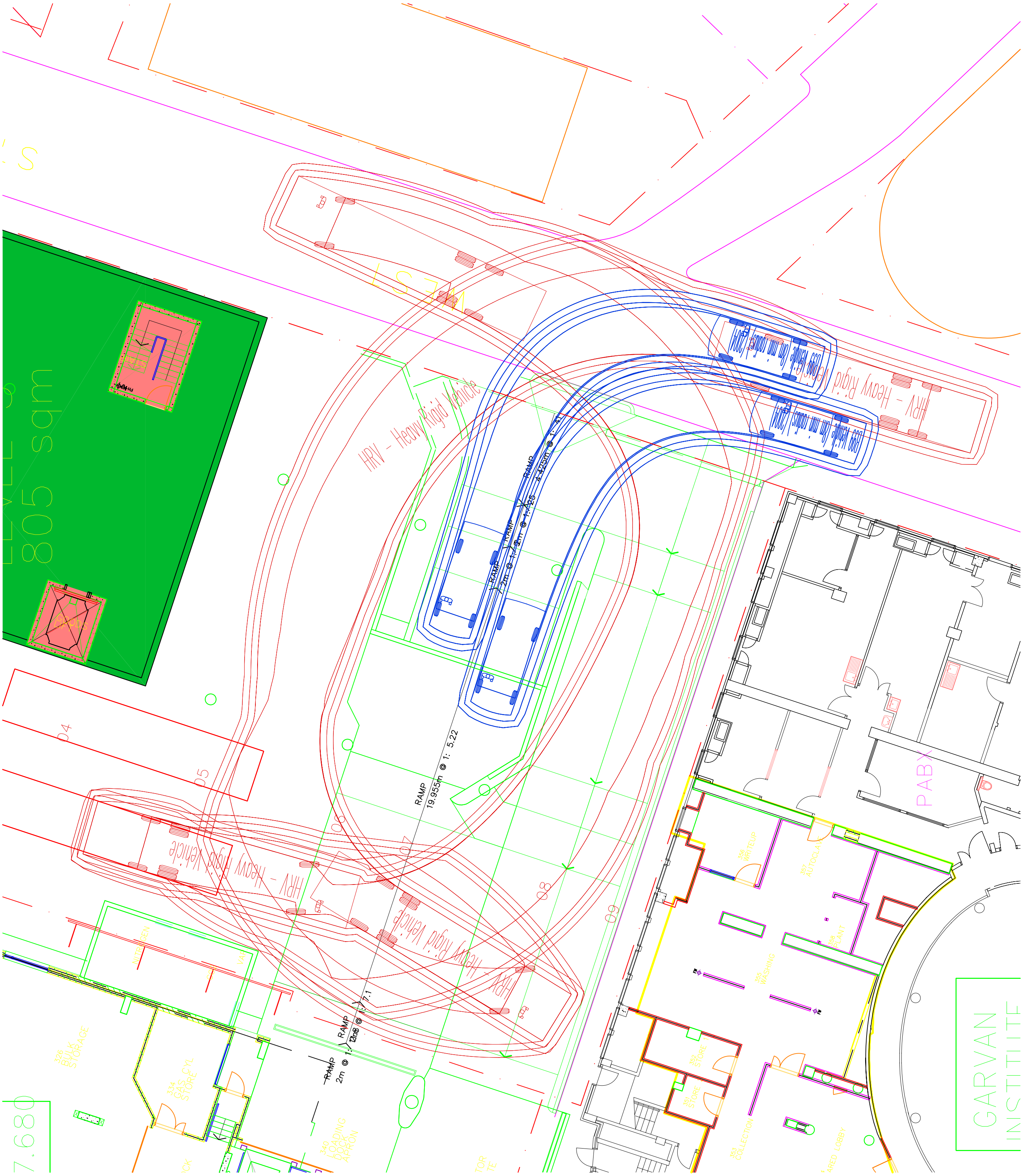
Note: "Car passenger" means car is parked on site or near, "dropped off" means car leaves the site once you have been dropped off

If you have any questions, please direct them to Mr Oleg Sannikov, TEF Consulting, on 02 93322024 or 0414 978 067


35250
35500
KINGS CROSS
Road
Tunnel
CRAIGEND
BOURKE ST
SUTTON LA
SCEGGS Darlinghurst
FORBES ST
The Horizon Apts
FARRELL
CLAPTON PL
ROSEBANK ST
KIRKETON RD
Sydney
Kirkelon Rd Ctr Fire Station
Medical Centre
Altamont
KIRKETON
Kirkelon
TEWKESBURY AV
St.Johns Ang.
Restaurants
Stables Theatre
CALDWELL
NIMROD
Surrey Playground
SURREY
ROSLYN
THOMSON PL
THOMSON LA
SHORTER LA
DARLINGHURST 2010
Christian Science
Sydney Star
Royal Sovereign (Darlo Bar)
HAYDEN LA
Poya Inn
SURREY ST
LITTLE
LIT. WEST ST
WOMERAH
BROWNS PL
LIVERPOOL
KINGS LA
THOMSON
MONT CLAIR LA
Exchange
Darlinghurst Public
WHITES
DARLEY PL
FORBES
DARLEY
CLARKSONS MILL WAY
NSW Jewish War Memorial Comm.Ctr
Sydney Jewish Museum
HARDIE
HAYDEN
HAYDEN PL
Burton Lodge
VICTORIA
Green Park
CHAPLIN ST
WETHERED ST
GARVAN INSTITUTE
WEST ST
COW LA
BURTON
St Vincents Caritas Centre
TAFE NSW Sydney Institute
East Sydney Campus
Rotunda
Green Park
Emergency Entrance St.Vincents Hospital
Darlinghurst Court House
Sacred Heart Hospice
BARCOM AV
Viaduct
BOUNDARY
GLENVIEW
LIVERPOOL ST
LEICHHARDT
Lacrozia Playgnd.
LACROZIA LA
ICE ST
St.Vincents Private Hospital
DARLINGHURST
OXFORD
Sacred Heart Catholic
St.Vincents Clinic
St.Vincents Centre for Immunology
Footway
4.1 m clear
MACDONALD
CAMPBELL
BARCOM AV
BOUNDARY
STURT
STURT ST
Comber St Park
Woollahra
Maree Mizon Gallery
TAYLOR ST
Claridge
Grand Pacific Room
Academy Twin Cinemas
WEST ST
HOLDSWORTH LA
LIT. COMBER
MARSHALL ST
ROSE TCE
CHISHOLM
SIMS
Grosvenor Club Taxi Club
Verona Cinemas
VERONA ST
MAGENTA LA
Sullivans
IONA LA
COMBER
KIDMAN
HOPEWELL
Harris Courtin Galleries
GLENMORE
Barry Stern Galleries
MARY
Nazar Rug Galleries
PROSPECT ST
SPRING ST
ROWE
Greek Orth.
Rose, Shamrock & Thistle
ROSEBUD LA
NAPIER
HANNAM ST
The Fringe
Gallery Savah
Durty Nelly's
GIPPS
1
2
3
4
5
6
7
8
9
10

Appendix C

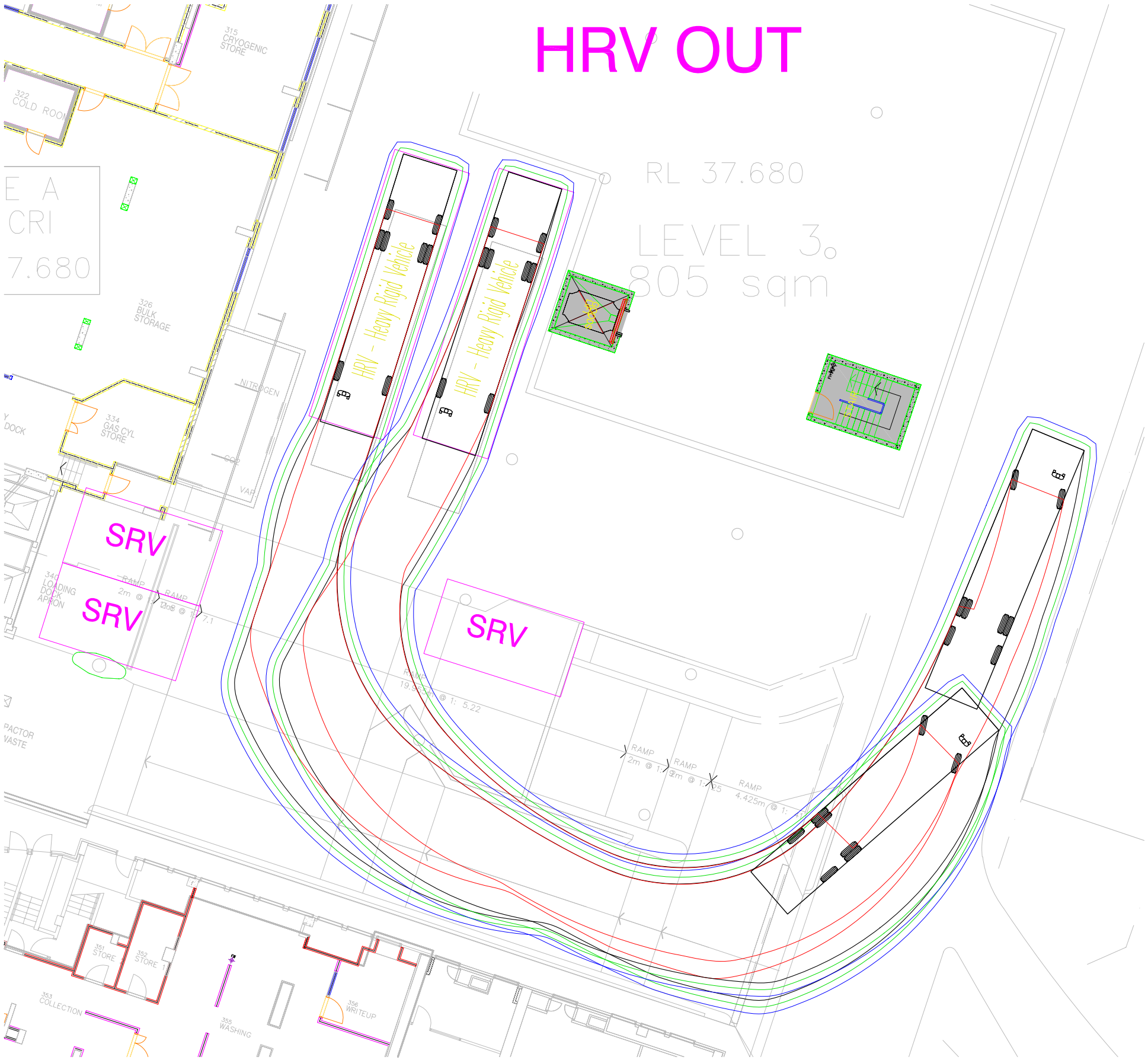
Vehicle turning diagrams


805 sqm
HRV - Heavy Rigid Vehicle
HRV - Heavy Rigid Vehicle
HRV - Heavy Rigid Vehicle
RAMP
19.955m @ 1: 5.22
RAMP
4.425m @ 1: 4
PABX
GARVAN
INSTITUTE

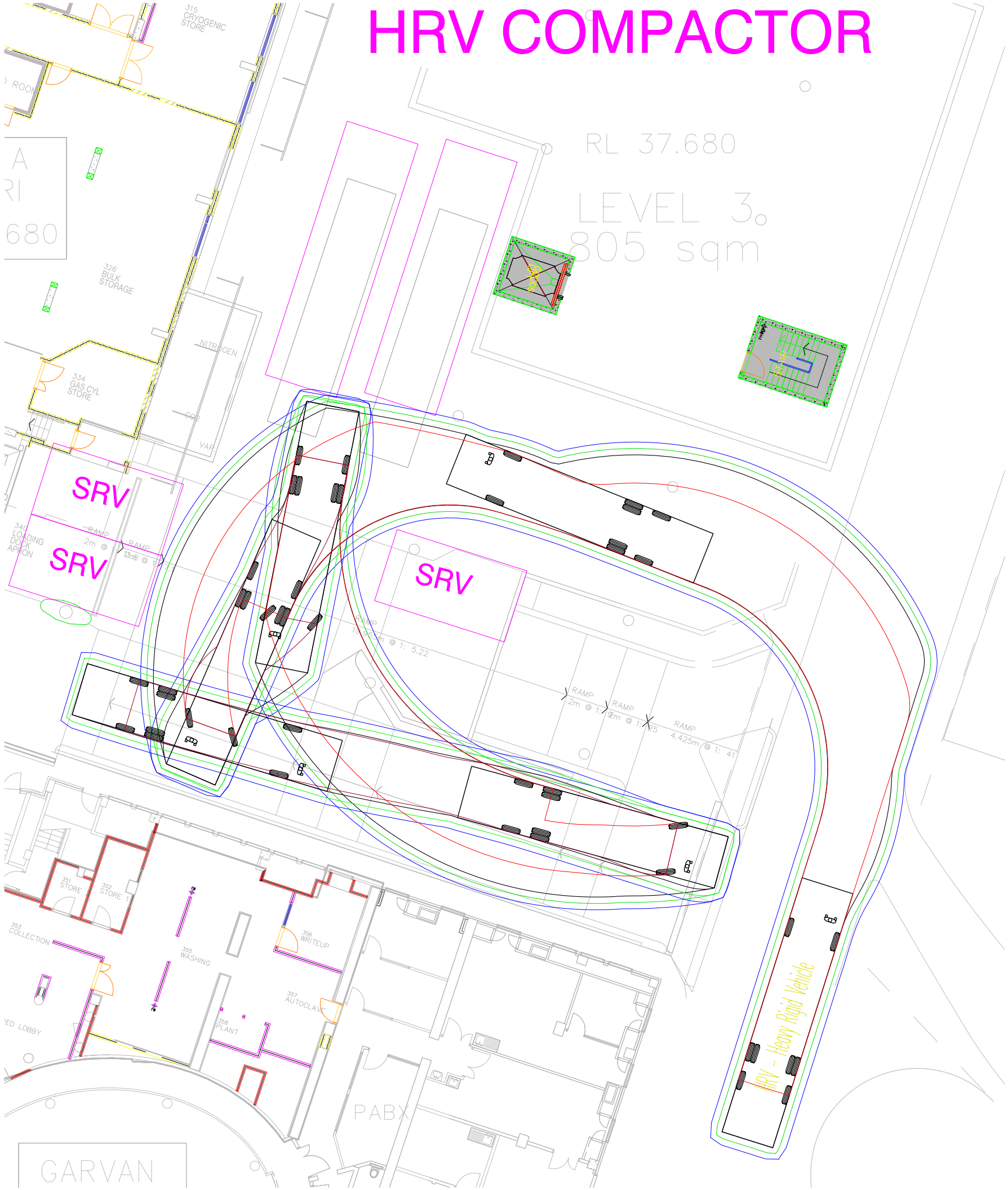
HRV IN


SRV
SRV
SRV
HRV - Heavy Rigid Vehicle
HRV - Heavy Rigid Vehicle
RL 37.680
LEVEL 3
805 sqm
RAMP
19.955m @ 1: 5.22
RAMP
2m @ 1:
RAMP
3m @ 1:
RAMP
4.425m @ 1: 41
314 COOL RM
315 CRYOGENIC STORE
322 COLD ROOM
326 BULK STORAGE
334 GAS CYL STORE
340 LOADING DOCK APRON
351 STORE
352 STORE
353 COLLECTION
354 SHARED LOBBY
356 WRITEUP
357 AUTOCLAVE
358 WASHING
358 PLANT
PABX
GARVAN INSTITUTE

HRV OUT


315 CRYOGENIC STORE
322 COLD ROOM
326 BULK STORAGE
334 GAS CYL STORE
NITROGEN
CO2
VAP
DOCK
344 LOADING DOCK APRON
RAMP 2m @ 1: 7.1
RAMP 2m @ 1: 7.1
SRV
SRV
SRV
HRV - Heavy Rigid Vehicle
HRV - Heavy Rigid Vehicle
RL 37.680
LEVEL 3
805 sqm
RAMP 19.685m @ 1: 5.22
RAMP 2m @ 1: 7.1
RAMP 2m @ 1: 7.5
RAMP 4.425m @ 1:
PACTOR
VASTE
351 STORE
352 STORE 1
353 COLLECTION
355 WASHING
356 WRITEUP

HRV COMPACTOR



Appendix D

Service vehicle activities

				Service					
				Duration	Service	Garvan & LP Bldg	Existing	plus	plus
	Activity	Unit/Vessel	vehicle type	(min)	Frequency	SVRBP		GSVCC	UNSWVC
	WASTE 7am - 4pm								
	General Waste	Compactor	MRV	15	F	15m3	1/10 days; being called day before, typically at night (but sometimes can arrive 9am-11am)	retain compactus, **increase frequency 1/7d;**	
	Animal Waste	660L	MRV	20	Wx3	5 bins each time	Lunch time	**negligible change** 8am-10am	
	Animal Carcass	240L	MRV	20	inc. in contaminated			**negligible change**	
	Paper/Cardboard	Compactor	MRV	15	W Fridays	15m3	Same day as Compactor	retain compactus, **increase frequency 2/week**	
	Polystyrene (included in compactor above)		SRV	15	inc. in paper compactor				
	Commingled Recycle	240L	MRV	30	W	8-10 bins	One truck - before 10am	add 3 bins, new total 11-14 (**same truck**)	
	Contaminated Waste	240L Yellow bins	HRV	40-45	D	12-15	6am	add 5 bins, new total 20 (**same truck)**	
	Chemical		SRV	45-90	2M			**same,** on call; business hours	
	Large/Bulky Waste	truck/skip at dock	MRV	120	2M		same on call	ad hoc, deal with as generated	
	fem hygiene		van	60	F	51 bins	same on call	would retain a fortnightly service, 9am-10am, Monday	
	Plastic Recycle	240L	MRV	15 min	W	4 bins	same truck - before 10am		
	GASES 8am - 4pm								
	LN2 small tank	BULK	MRV,	45	W, Tue	2300L/week	will be 2/W	expect minimal change to this, retain existing 3pm; (3000L)	
	CO2 small tank	BULK	MRV,	45	W, FRI	1000/Month	Routine run, top up	add 500L month, retain existing, increase frequency of fill, 11am	
	N2	cylinders	MRV, HRV	20	2/W	8G size/week	Tues., Fri	plus 2G/week, total 4G/week. **Future same truck**	
Same truck	CO2	cylinders (BU)	MRV, HRV				normally by 9am-9:30am or occasionally lunch time	no change, back up only. **Future same truck**	
	O2	cylinders	MRV, HRV	20					
		packs	MRV, HRV		F	9XG size/F		**no change**	
	other	cylinders	MRV, HRV	20	M	2D/E size		**Ad hoc - future same**	
	Dry Ice	25kg esky	SRV	10	Wx3	85kg/week	9am typical, sometimes lunch time; M, W, F	increase kg quantity, **frequency is the same in future, but 2 eskies**	
	DELIVERIES 8am - 4pm								
	courier	small box/esky	van	5	D	20-30	Same couriers trying to have them all before lunch time	**no change** , by 1pm	
	large deliveries	pallet	HRV/MRV	15-45	W		Any time from 10am-2pm	no change	
	animal feed/bedding	pallet	HRV	30	F			no change 4:30pm	
	live animals		Van	20-45	Wx3	30 boxes		no change (1) 11am tue / thu (2) ad hoc	
	large equipment	wheeled in	Van, MRV, HRV	20	M			no change manageable, can be told time	
	building works	various	Van, MRV, HRV	45	2M			no change	
	mail		Van	5			10am	no change	
	staff catering/events/ vending machines		Van, SRV	30	2M				
	Linen	wheeled in	Van	15	W		11am	same frequency, increase quantity	
	Pigs		Van		F				
	Milk	SRV	5 min		2/W		early am	drop off crate, no change	
		Van			D	Daily			
		SRV	Small Rigid Truck (6.4m)		Wx3	3 /week			
		MRV	Medium (8.8m)		Wx2	2 /week			
		HRV	Heavy (12m)		W	Weekly			
					F	Fortnightly			
					M	Monthly			
					2M	Every 2 months			
					3M	Every 3 months			

Assumed same effect as GSVCCC