

PLANNING PROJECT MANAGEMENT ENGINEERING CERTIFICATION





Traffic and Parking Impact Assessment Report

Greenwich Hospital 97-115 River Road, Greenwich

> Our Ref: CC140088 October 2018

barkerryanstewart.com.au



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Project No.	CC140088						
Author	EA						
Checked	GB						
Approved	GB						

Rev No.	Status	Date	Comments					
1	Draft	1.11.2017						
2	Draft	15.03.2018	Client comments					
3	Final	27.03.2018						
4	Final	09.10.2018	Client Amendments					

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List of Abbreviations, Figures and Tables

Abbreviations

AS/NZS2890.1	Australian Standards, 'AS/NZS 2890.1:2004 Off-Street Car Parking'
AS2890.2	Australian Standards, 'AS 2890.2:2002 Off-Street Commercial Vehicle Facilities'
AS/NZS2890.6	Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'
DCP	Lane Cove City Council DCP 2010
RMS	Roads and Maritime Services
RMS Guide	RMS Guide to Traffic Generating Developments 2002
Housing for Seniors Disability) 2004	SEPPState Environmental Planning Policy (Housing for Seniors and People with a

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1 Executive Summary

Barker Ryan Stewart has prepared this Traffic and Parking Impact Assessment Report in accordance with the requirements of the Lane Cove Council DCP 2010 and the Road and Maritime Service's 'Guide to *Traffic Generating Developments*' to accompany a Development Application for new hospital campus and independent seniors' living units.

The proposed internal road network is considered practical and safe ensuring that all traffic generated by the development can enter and exit the site in a forward direction. The estimated required parking is able to be generally accommodated on-site.

The eastern unsignalised access on River Road is proposed to preclude right turns as requested by RMS. All internal traffic will still be able to access the signalised intersection for a controlled entry/exit.

Taking into account the estimated traffic generation from the proposed development, existing traffic flow conditions and speed environment along River Road, it is considered that the expected increase in traffic generated would have a minimal impact on the safety and operating efficiency to the road frontage.

There would be no nexus or warrant to upgrade River Road as a result of any additional traffic generated by the development.

The Traffic and Parking Impact Assessment concludes that the subject site is suitable for the proposed intensification of use of the site in relation to the impact of traffic, vehicle access, parking and safety considerations. The development is considered to have negligible effect on the safety and operating outcome of the surrounding transport network.

2 Introduction

Barker Ryan Stewart have been engaged by HammondCare to prepare a Traffic and Parking Impact Assessment Report to accompany a State Significant Development application for hospital and aged care facilities, and independent living units.

The purpose of this report is to assess and address traffic, access and car parking impacts as a result of the proposed development. This can be briefly outlined as follows:

- The expected traffic generation to/from the proposed development.
- The impact of the proposed development on the road network.
- Intersection analysis based on traffic counts.
- Vehicle parking provisions.
- Access design requirements.
- Vehicular requirements for delivery, waste collection and emergency services.

3 Existing Conditions

3.1 Site Location

The proposed development is located at 97 – 115 River Road, Greenwich, the real property descriptions are Lots 3 and 4 DP 584287, as shown in Figure 1. The site is currently zoned SP2 Infrastructure (Health Services Facility) in Lane Cove Local Environmental Plan 2009. The site has an area of approximately 3.376ha.



Figure 1: Site Location (source: NSW Land & Property Information SIX Maps)

3.2 Existing Development

Lot 3 includes the main hospital buildings car parking and service areas. The existing buildings range between 1 and 5 storeys and are interconnected through internal corridors and external pathways. The various buildings include:

- Main hospital building providing palliative care, cancer rehabilitation, general rehabilitation health care services;
- Blue Gum Lodge providing pain clinic healthcare services; and
- Riverglen Unit a 20 bed acute care facility for older people in the acute phase of a mental health disorder.

In total the site currently provides 78 hospital beds together with specialist medical rooms.

Lot 4 which includes "Pallister" House and gardens. "Pallister" House is State Heritage listed and currently houses the administration for the hospital.

The site has road frontages to River Road and St Vincents Road. There are two existing vehicle accesses on River Road and one access via St Vincents Road.

Car parking is provided at grade at various locations across the site.

Existing trees are located primarily around the site perimeter and within the Pallister House heritage curtilage. The area occupied by the hospital buildings and car parking is generally clear of trees and contains lawn and shrubs.

The topography rises towards the centre of the site from the south-eastern and south-western property boundaries. The south—western part of the site falls away steeply towards Gore Creek.



Figure 2: Aerial Photo of Site (source: NearMap 22 August 2017 image)

3.3 Existing Road Conditions

<u>River Road</u>

River Road is the main frontage road adjacent to the site that runs east-west. It's generally a three-lane – two eastbound, one westbound – arterial road under the authority and management of RMS. There is an additional left turning lane at the approach to the site's signalised intersection for a length of approximately 100m including taper. The overall carriageway width is approximately 10 to 12m excluding the widening to facilitate the left turning lane. A school speed zone encompasses the site's River Road frontage with an otherwise default urban speed zone of 50km/h outside school hours. The kerb and gutter is located only on the northern side of the road; and partly along the southern side of the road between the two site entries. There are pedestrian paths on both sides of the road. The south side path is offset from the road due to the level difference between the top of batter adjacent to the site, and the street level. There is a fence alongside the path that protects pedestrians from falling.

The site has two accesses on River Road: the main signalised access and an unsignalised access within the left turning bay on the approach to the main access. It is noted that there are sight distance constraints on River Road due to the crest 100m to the east of the unsignalised access.

St Vincents Road

St Vincents Road is the adjacent road bordering the east side of the site with a carriageway of approximately 9m and unsigned speed limit of 50km/h. St Vincents Road forms a staggered T-junction with River Road. There is kerb and gutter on both sides of the road, and a back-of-kerb pedestrian footpath located only on the western side of the road.

The site's gated access is opened only between the hours of 7am to 7pm weekdays.

3.4 Existing Parking

All existing onsite parking is at-grade. Many of the spaces are informal, while others' have faded line marking. The site currently provides more than 150 spaces.



3.5 Traffic Flows and Volumes

ROAR Data Pty Ltd was engaged to collect traffic volumes at the site's accesses, with the addition of the intersection of River Road and St Vincents Road. These locations are depicted in the figure below.



Figure 3: Traffic survey locations

The peak hour turning movement summaries are shown below. The full results are attached in Appendix A.









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0715 - 0815	16	4	16	33	1449	68	28	0	4	35	677	16	2346	1615 - 1715	17	3	22	16	611	55	46	3	7	14	1212	18	2024
0730 - 0830	19	2	15	32	1404	68	35	0	4	38	712	17	2346	1630 - 1730	18	3	20	19	601	46	41	5	8	15	1234	14	2024
0745 - 0845	22	1	10	35	1433	65	39	0	4	42	744	25	2420	1645 - 1745	21	3	23	19	657	39	46	3	8	17	1327	14	2177
0800 - 0900	32	2	13	46	1448	65	43	1	6	42	740	45	2483	1700 - 1800	22	1	25	18	730	38	41	4	8	16	1272	22	2197
PEAK HOUR	32	2	13	46	1448	65	43	1	6	42	740	45	2483	PEAK HOUR	22	1	25	18	730	38	41	4	8	16	1272	22	2197
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Figure 6: Traffic counts - Turning movements at the intersection of River Road and St Vincents Road



Figure 7: Traffic counts - Turning movements at the gated access on the eastern side of the property

It is noted that the traffic count locations experience slightly different peak hours. By combining the hourly totals, the peak morning hour occurs between 8am – 9am and the peak afternoon hour occurs between 5pm-6pm. The proposed development impacts will be assessed against these hours.

AM peak hour	Combined volumes
7:00-7:15	6492
7:15-8:15	7180
7:30-7:30	7280
7:45-8:45	7240
8:00-9:00	7324

PM peak hour	Combined volumes
4:00-5:00	5933
4:15-5:15	6035
4:30-5:30	6088
4:45-5:45	6460
5:00-6:00	6501

Figure 8: Traffic counts - Combined hourly volumes

3.6 Public Transport and Cyclists.

The site is located along one single bus route: 261 City to Lane Cove, which runs between Kings Wharf via Wynyard railway station and Chatswood railway station. The bus stop is located immediately east of the signalised access on River Road, which would also facilitate safe pedestrian crossing of the road. The bus map is attached in Appendix B.

There is a cycle path on River Road that terminates at St Vincents Road and continues north. Considering the proposed development's likely customers, cycling would realistically be a mode of transport for staff living within the general area, or catching a train from St Leonards or Wollstonecraft.



Figure 9: RMS CyclewayFinder map

4 Proposed Development

4.1 Development Description

The proposal replaces existing hospital accommodation with a campus of:

- 150 new inpatient beds, including a 15-place hospice;
- Inpatient and outpatient support services and areas necessary to provide a modern, attractive health facility consistent with Hammond Care's high standard of care;
- 89 new independent living units (ILUs).
- Pallister House, the State Heritage listed building, will be retained and continue to fulfil its present functions.
- Parking to be provided in accordance with Lane Cove Council DCP and SEPP requirements.
- The removal of right turn manoeuvres from the unsignalised access on River Road.

4.2 Access

The proposed development will generally maintain the existing access arrangement, with the exception of the unsignalised eastern access on River Road – this access will be restricted to left in/left out to address the sight distance deficiency to the east due to the crest.

To facilitate eastbound traffic, the internal road system will enable traffic from all access points to the site to offer the option to exit via the signalised access. This will allow any exiting vehicle to be able to conduct a controlled right turn into River Road.

The entry/exit driveways are designed to comply with AS/NZS 2890.1-2004 Parking Facilities – Off Street Car Parking, AS 2890.2-2002 Parking Facilities – Off Street Commercial Vehicle Facilities and Council's DCP requirements.

The proposed driveway locations comply with Figure 3.3 – Minimum Sight Distance for Pedestrian Safety AS/NZS 2890.1 and the proposed driveway gradients comply with AS/NZS 2890.1.

4.3 Parking

As outlined above it is proposed to provide an approximate total 329 parking spaces across all of the site's proposed uses.

The proposed parking facilities will be designed in accordance with the requirements AS/NZS 2890.1, AS 2890.2 and AS/NZS 2890.6 – Off-street Parking for People with Disabilities.

4.4 Service Vehicles

Waste collection and large deliveries will be conducted from the dock on the eastern side of the development accessed via internal road that is to be constructed as a part of the development.

Waste and delivery vehicles are not expected to affect general traffic within the site as the internal road will operate two-way.

4.5 State Environmental Planning Policy (Infrastructure)

From 'State Environmental Planning Policy (Infrastructure) 2007, Schedule 3 – Traffic Generating Development', referral of the proposed development is required to RMS. A meeting was held on 25 October 2017 between RMS and the project team.

RMS cited no specific requirements prior to submission of the State Significant Development application. It was noted by RMS that the sight distance existing the unsignalised intersection was insufficient, and it was agreed that this access would operate left in/left out.

5 Car Parking Assessment

5.1 Parking requirements

The proposed access and car parking provision has been assessed against Lane Cove Council's DCP 2016 and SEPP (Housing for Seniors or People with a Disability) 2004.

- Self-contained dwellings (SEPP):
 - At least 0.5 spaces for each bedroom where the development application is not made by a social housing provider.
- Hospital (DCP):
 - o 1 space per registered medical practitioner; plus
 - 1 space per 2 employees;
 - 1 space per 3 beds; including
 - o 1 disabled space per 25 car spaces.
- Medical centre (DCP):
 - o 1 space per healthcare professional; plus
 - 1 space per 2 employees;
 - 1 space per 3 rooms; including
 - 1 disabled space per 10 car spaces.

The figure below calculates the parking requirement based off the DCP and Housing for Seniors SEPP. The proposed number of staff is 174 in total, of which 170 will be hospital staff. Approximately 30% will be a registered medical practitioner or healthcare professional.

Land Use	DCP/SEPP Requirement	Proposed Parking Provision
Dwellings (89 units)	89 ÷ 2 = 44.5 ≈ 45	
Hospital		
(56 specialists)	56 × 1 = 56	Parking to be provided in
(114 employees)	114 ÷ 2 = 57	accordance with the DCP and
(150 beds)	150 ÷ 3 = 50	SEPP requirements
	Total = 163	
Total	181	

Table 1: Car parking requirements and provision

5.2 Parking assessment

The proposed provision of parking spaces is expected to meet the minimum requirement of 45 spaces for the seniors' living units in accordance with the SEPP (Housing for Seniors or People with a Disability). The proposed development is anticipated to provide one space per unit plus a nominal 18 visitor spaces due to the single bus that services the site.

It is considered that appropriate parking will be provided in relation to the hospital parking requirement, taking in to account there are 78 existing hospital bed/specialist rooms and the proposed increase to 150 beds/rooms. It is expected that the 163 hospital parking spaces will be provided in accordance with the DCP requirements.

Due to the clientele and lack of public transportation options, a higher number of visitors and patients are likely to drive than the 30% indicated in the DCP. Therefore, the parking provision envisages to consider the proportionate increase of beds/rooms as a more realistic metric for site's specific use and location.

Considering the above, the proposed development will not likely have any adverse impact on the onstreet parking, with the expected demand for parking generated by the proposed to be accommodated on-site.

6 Traffic Assessment

6.1 Traffic Generation

6.1.1 Existing Development

The traffic counts taken capture the existing vehicles that access the site during the peak periods.

From the traffic counts the total vehicles incoming is 60 in the morning and 18 in the afternoon (78 total); outgoing vehicles are 25 in the morning and 55 in the afternoon (80 in total).

6.1.2 Proposed Development

Using a proportionate increase of the existing hospital peak hour trips and the RMS Guide for the seniors' living component, the proposed estimated traffic volumes generated by the proposed development are outlined below.

Existing beds/rooms = 78; proposed beds/rooms = 150 - therefore there is a 92% increase.

All of the existing turns to and from the site will be increased to reflect an additional 100% conservative rounding up on the existing turning counts to a total of 156 in the morning and 160 in the afternoon. The seniors' living generation based on the RMS Guide is outlined below.

Table 2: Proposed development - traffic generation

Use	Peak hour rate	Peak hour trips
Seniors' living	0.2 / room	18
(89 units)		

In total, the post development traffic generation will be 174 in the morning and 178 in the afternoon, an increase of 96 and 98 respectively.

6.1.3 Traffic Distribution

Due to the right turning bans on the eastern access, the post development right turn movements have been shifted to the signalised western access.

The traffic distribution calculations are shown in the following figures.



Figure 10: Western access traffic distribution



Figure 11: River Road/St Vincents Road traffic distribution

6.2 Impact of Generated Traffic

SIDRA analysis has been conducted along the impacted intersections along River Road at the signalised western access and St Vincents Road. The full output is attached in Appendix C.

River Road/Western Access

The post development impacts of shifting maneuvers from the eastern access plus post development traffic increases shows no drop in the level of service (LOS) in both peak hour periods. As the signals are actuated, there is minimal impact on the large volume of through traffic along River Road.

River Road/St Vincents Road

The post development from St Vincents Road access using the intersection at River Road also shows no drop in the level of service (LOS) in both peak hour periods. There is however a noticeable change in the average delay for right turn and through movements from the minor road. This is due to the relatively large increase in traffic on these movements forecast by the conservative assumption that additional traffic generated from the Eastern, Western and St Vincents Road accesses will be split 50-50 between the north and eastern legs of the site. In practice, drivers show a clear preference for using River Road and are thus less likely to travel to and from the north leg to the site. Drivers accessing the site also have the option of using the signalised Western Access on River Road, avoiding the need to make right turn / through movements prove too great. This rational behavior of drivers optimizing their travel times is not reflected in the model as SIDRA is a micro-analytic tool. As such there aren't any significant traffic impacts anticipated at the River Road / St Vincents Road intersection.

7 Conclusion

This Traffic and Parking Impact Assessment has been prepared in accordance with the requirements of the Lane Cove Council DCP 2010, the Road and Maritime Services (RMS) 'Guide to Traffic Generating Developments' to accompany a Development Application to Lane Cove Council for the development of a new hospital campus and senior's living.

The proposed internal road network is considered practical and safe ensuring that all traffic generated by the development can enter and exit the site in a forward direction. The estimated required parking is able to be generally accommodated on-site.

Taking into account the estimated traffic generation from the proposed development, existing traffic flow conditions and speed environment along River Road, it is considered that the expected increase in traffic generated would have a minimal impact on the safety and operating efficiency to the road frontage.

There would be no nexus or warrant to upgrade River Road as a result of any additional traffic generated by the development.

The Traffic and Parking Impact Assessment concludes that the subject site is suitable for the proposed intensification of use of the site in relation to the impact of traffic, vehicle access, parking and safety considerations. The development is considered to have negligible effect on the safety and operating outcome of the surrounding transport network.

8 References

Australian Standards, 'AS/NZS 2890.1:2004 Off-Street Car Parking'.

Australian Standards, 'AS 2890.2:2002 Off-Street Commercial Vehicle Facilities'.

Australian Standards, 'AS/NZS 2890.6:2002 Off-Street Parking for People with Disabilities'.

Roads and Maritime Services, 'Guide to Traffic Generating Developments' Version 2.2 dated October 2002.

Roads and Maritime Services, 'Guide to Traffic Modelling' Version 1.0 dated February 2013.

Austroads 'Guide to Traffic Engineering Practice, Intersections at Grade – Part 5'.

NSW Department of Planning, 'SEPP (Infrastructure) 2007'.

Lane Cove Council DCP 2010.

Appendix A

Traffic Counts



River Rd & St Vincents Rd

То

Earl Aninipoc

at **BarkerRyanStewart**

your results for

GREENWICH Hospital Counts

supplied by

R.O.A.R. DATA Pty. Ltd.



St Vincents Rd

R.O.A.R. DATA

0745 - 0845

0800 - 090

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : BarkerRyanStewart

Job No/Name

Day/Date

: 6595 GREENWICH HOSPITAL Counts

: Thursday 12th October 2017

All	1	IORTH	1	,	WEST		्	SOUTH	1		EAST	·		All	NORTH WEST		NORTH WEST SOUTH F			SOUTH			EAST		1		
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0715 - 0730	3	3	7	9	365	14	10	0	0	7	172	5	595	1615 - 1630	5	1	5	2	190	19	15	0	1	5	287	10	540
0730 - 0745	1	1	5	7	338	17	4	0	1	4	132	3	513	1630 - 1645	5	0	3	4	132	15	11	2	0	3	268	5	448
0745 - 0800	5	0	3	3	368	14	8	0	1	10	174	3	589	1645 - 1700	3	2	5	9	140	7	14	0	1	3	329	1	514
0800 - 0815	7	0	1	14	378	23	6	0	2	14	199	5	649	1700 - 1715	4	0	9	1	149	14	6	1	5	3	328	2	522
0815 - 0830	6	1	6	8	320	14	17	0	0	10	207	6	595	1715 - 1730	6	1	3	5	180	10	10	2	2	6	309	6	540
0830 - 0845	4	0	0	10	367	14	8	0	1	8	164	11	587	1730 - 1745	8	0	6	4	188	8	16	0	0	5	361	5	601
0845 - 0900	15	1	6	14	383	14	12	1	3	10	170	23	652	1745 - 1800	4	0	7	8	213	6	9	1	1	2	274	9	534
Period End	48	6	29	68	2797	125	73		8	70	1346	64	4635	Period End	38	4	41	35	1377	93	88	6	11	30	2437	45	4205
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0700 - 0800	16	4	16	22	1349	60	30	0	2	28	606	19	2152	1600 - 1700	16	3	16	17	647	55	47	2	3	14	1165	23	2008
0715 - 0815	16	4	16	33	1449	68	28	0	4	35	677	16	2346	1615 - 1715	17	3	22	16	611	55	46	3	7	14	1212	18	2024
0730 - 0830	19	2	15	32	1404	68	35	0	4	38	712	17	2346	1630 - 1730	18	3	20	19	601	46	41	5	8	15	1234	14	2024

PEAK HOUR 45 2483 PEAK HOUR 16 1272 22 2197

2420 1645 - 1745

1700 - 18







R.O.A.R DATA Reliable, Original & Authentic Results

Client

: BarkerRyanStewart

<u>PM</u>

Job No/Name : 6595 GREENWICH HOSPITAL Counts

Day/Date : Thursday 12th October 2017

Ph.88196847, Mob.0418-239019

<u>AM</u>







То



at **BarkerRyanStewart**

your results for

GREENWICH Hospital Counts

supplied by

St Vincents Rd Access

R.O.A.R. DATA Pty. Ltd.



R.O.A.R. DATA

Reliable, Original & Authentic Results Ph.88196847, Mob.0418-239019

All Vehicles

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0715 - 0730	18	6	0	0	1	7	32
0730 - 0745	17	3	0	0	3	5	28
0745 - 0800	16	7	0	0 0 8		8	31
0800 - 0815	26	13	0	1	1	6	47
0815 - 0830	15	5	1	1	2	16	40
0830 - 0845	14	10	1	0	1	8	34
0845 - 0900	21	3	1	3	2	13	43
Period End	147	49	3	5	10	71	285

	NORTH		WE	WEST		UTH	
	St Vincents		Access		St Vincents		
Peak Per	Ţ	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
0700 - 0800	71	18	0	0	4	28	121
0715 - 0815	77	29	0	1	5	26	138
0730 - 0830	74	28	1	2	6	35	146
0745 - 0845	71	35	2	2	4	38	152
0800 - 0900	76	31	3	5	6	43	164



Client : BarkerRyanStewart

Job No/Name : 6595 GREENWICH HOSPITAL Counts

: Thursday 12th October 2017

All Vehicles

Day/Date

	NO	RTH	WE	EST	SO	JTH	
	St Vin	cents	Access		St Vincents		
Time Per	Ţ	<u>R</u>	L	<u>R</u>	L	Ī	TOTAL
1600 - 1615	8	1	4	0	0	6	19
1615 - 1630	18	2	3	2	0	10	35
1630 - 1645	10	2	7	3	1	5	28
1645 - 1700	11	2	2	0	0	11	26
1700 - 1715	15	2	5	6	0	6	34
1715 - 1730	16	0	0	3	1	15	35
1730 - 1745	12	0	0	0	0	13	25
1745 - 1800	13	1	0	0	0	8	22
Period End	103	10	21	14	2	74	224

	NORTH		WE	WEST		JTH	
	St Vin	cents	Acc	ess	St Vincents		
Peak Per	Ţ	<u>R</u>	L	<u>R</u>	L	T	TOTAL
1600 - 1700	47	7	16	5	1	32	108
1615 - 1715	54	8	17	11	1	32	123
1630 - 1730	52	6	14	12	2	37	123
1645 - 1745	54	4	7	9	1	45	120
1700 - 1800	56	3	5	9	1	42	116





R.O.A.R DATA

Reliable, Original & Authentic Results Ph.88196847, Mob.0418-239019



<u>PM</u>

<u>AM</u>

St Vincents Rd & Access





River Rd & Eastern Access

То

Earl Aninipoc

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Client : BarkerRyanStewart Job No/Name : 6595 GREENWICH HOSPITAL Counts Day/Date : Thursday 12th October 2017



R.O.A.R. DATA



Reliable, Original & Authentic Results Ph.88196847, Mob.0418-239019

All Vehicles

							_
	W	EST	SO	UTH	EAST		
	Rive	er Rd	Eas	Eastern		er Rd	
Time Per	Ţ	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
0700 - 0715	281	1	0	1	3	121	407
0715 - 0730	397	1	0	0	3	179	580
0730 - 0745	376	0	1	0	1	161	539
0745 - 0800	375	1	1	0	2	184	563
0800 - 0815	429	0	0	0	1	211	641
0815 - 0830	380	0	0	0	1	237	618
0830 - 0845	321	0	0	0	2	156	479
0845 - 0900	375	0	0	0	1	185	561
Period End	2934	3	2	1	14	1434	4388

	WEST		SO	UTH	EAST		
	Rive	er Rd	Eastern		River Rd		
Peak Per	Ţ	<u>R</u>	L	<u>R</u>	L	Ī	TOTAL
0700 - 0800	1429	3	2	1	9	645	2089
0715 - 0815	1577	2	2	0	7	735	2323
0730 - 0830	1560	1	2	0	5	793	2361
0745 - 0845	1505	1	1	0	6	788	2301
0800 - 0900	1505	0	0	0	5	789	2299





Client : BarkerRyanStewart

Job No/Name : 6595 GREENWICH HOSPITAL Counts

Day/Date : Thursday 12th October 2017

All Vehicles

	WEST		SO	JTH	EA	ST	
	Rive	River Rd		Eastern		er Rd	
Time Per	T	<u>R</u>	L	<u>R</u>	L	T	TOTAL
1600 - 1615	169	0	0	0	3	307	479
1615 - 1630	172	0	0	0	0	253	425
1630 - 1645	166	0	0	0	0	317	483
1645 - 1700	159	0	0	0	1	315	475
1700 - 1715	188	0	0	0	1	326	515
1715 - 1730	176	0	0	0	0	282	458
1730 - 1745	226	1	0	0	0	376	603
1745 - 1800	210	0	0	0	0	280	490
Period End	1466	1	0	0	5	2456	3928

		WEST		SO	SOUTH		\ST	
_		Rive	r Rd	Eastern		River Rd		
	Peak Per	T	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
	1600 - 1700	666	0	0	0	4	1192	1862
	1615 - 1715	685	0	0	0	2	1211	1898
	1630 - 1730	689	0	0	0	2	1240	1931
	1645 - 1745	749	1	0	0	2	1299	2051
	1700 - 1800	800	1	0	0	1	1264	2066

PEAK HR	800	1	0	0	1	1264	2066







<u>AM</u>

Client : BarkerRyanStewart Job No/Name : 6595 GREENWICH HOSPITAL Counts Day/Date : Thursday 12th October 2017

<u>PM</u>



River Rd & Eastern Access



River Rd & Western Access

То

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Intersection Details Obtained via satellite May be incorrect





Western Access

R.O.A.R. DATA

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All Vehicles

	W	EST	SO	UTH	EA	ST	
	Rive	er Rd	Western		River Rd		
Time Per	Ţ	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
0700 - 0715	282	4	0	0	3	122	411
0715 - 0730	395	4	1	3	1	183	587
0730 - 0745	378	4	1	3	4	165	555
0745 - 0800	380	5	1	2	2	187	577
0800 - 0815	428	5	2	3	2	214	654
0815 - 0830	394	2	2	1	3	239	641
0830 - 0845	329	3	0	1	1	161	495
0845 - 0900	384	2	1	0	3	198	588
Period End	2970	29	8	13	19	1469	4508

	WEST		SO	SOUTH		EAST	
	Rive	er Rd	Western		River Rd		
Peak Per	Ī	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
0700 - 0800	1435	17	3	8	10	657	2130
0715 - 0815	1581	18	5	11	9	749	2373
0730 - 0830	1580	16	6	9	11	805	2427
0745 - 0845	1531	15	5	7	8	801	2367
0800 - 0900	1535	12	5	5	9	812	2378





Client : BarkerRyanStewart

Job No/Name : 6595 GREENWICH HOSPITAL Counts

Day/Date : Thursday 12th October 2017

All Vehicles

	WEST		SO	UTH	EA	ST	
	Rive	River Rd		Western		er Rd	
Time Per	F	<u>R</u>	L	<u>R</u>	L	Ţ	TOTAL
1600 - 1615	173	1	8	9	1	308	500
1615 - 1630	176	2	11	10	2	257	458
1630 - 1645	168	2	9	7	1	321	508
1645 - 1700	161	1	5	2	1	319	489
1700 - 1715	191	2	3	7	1	331	535
1715 - 1730	179	3	4	7	0	285	478
1730 - 1745	228	0	1	2	0	379	610
1745 - 1800	209	1	2	3	1	283	499
Period End	1485	12	43	47	7	2483	4077

		WEST		SOUTH		EAST		
		Rive	River Rd		Western		er Rd	
Pea	k Per	T	<u>R</u>	L	<u>R</u>	L	<u>T</u>	TOTAL
1600	- 1700	678	6	33	28	5	1205	1955
1615	- 1715	696	7	28	26	5	1228	1990
1630	- 1730	699	8	21	23	3	1256	2010
1645	- 1745	759	6	13	18	2	1314	2112
1700	- 1800	807	6	10	19	2	1278	2122

PEAK HR	807	6	10	19	2	1278	2122







<u>AM</u>

Client : BarkerRyanStewart Job No/Name : 6595 GREENWICH HOSPITAL Counts Day/Date : Thursday 12th October 2017

<u>PM</u>



River Rd & Western Access

Appendix B

Bus Map

Bus route map





Appendix C

SIDRA Analysis

Site: 101 [River Rd X Access - AM - Ex]

River Rd X Access - AM - Ex

Signals - Actuated Isolated Cycle Time = 51 seconds (Practical Cycle Time)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South:	RoadName											
1	L2	2	5.0	0.013	25.0	LOS B	0.1	0.5	0.87	0.61	27.7	
3	R2	1	5.0	0.013	25.1	LOS B	0.1	0.5	0.87	0.61	22.7	
Approa	ch	3	5.0	0.013	25.1	LOS B	0.1	0.5	0.87	0.61	26.4	
East: R	liver Rd											
4	L2	5	5.0	0.118	7.7	LOS A	1.4	10.2	0.41	0.35	35.5	
5	T1	835	5.0	0.591	6.0	LOS A	10.4	76.2	0.59	0.53	36.7	
Approa	ch	840	5.0	0.591	6.1	LOS A	10.4	76.2	0.59	0.53	36.7	
West: F	River Rd											
11	T1	1642	5.0	0.695	7.1	LOS A	13.7	100.0	0.70	0.63	36.2	
12	R2	1	5.0	0.695	10.7	LOS A	13.6	99.6	0.70	0.63	35.2	
Approa	ch	1643	5.0	0.695	7.1	LOS A	13.7	100.0	0.70	0.63	36.2	
All Veh	icles	2486	5.0	0.695	6.8	LOS A	13.7	100.0	0.66	0.60	36.4	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	ment Performance - Pedestrians							
Mov	Description	Demand	Average	Level of	Average Back	c of Queue	Prop.	Effective
ID	Description	Flow ped/h	Delay sec	Service	Pedestrian ped	Distance m	Queued	Stop Rate per ped
P1	South Full Crossing	53	5.7	LOS A	0.0	0.0	0.47	0.47
P2	East Full Crossing	53	19.9	LOS B	0.1	0.1	0.88	0.88
P4	West Full Crossing	53	19.9	LOS B	0.1	0.1	0.88	0.88
All Pec	lestrians	158	15.2	LOS B			0.75	0.75

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Site: 101 [River Rd X Access - AM - Post Dev]

River Rd X Access - AM - Ex

Signals - Actuated Isolated Cycle Time = 51 seconds (Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h		
South:	RoadName)											
1	L2	6	0.0	0.147	27.2	LOS B	0.8	5.5	0.91	0.70	26.9		
3	R2	26	0.0	0.147	27.3	LOS B	0.8	5.5	0.91	0.70	21.9		
Approa	ich	33	0.0	0.147	27.2	LOS B	0.8	5.5	0.91	0.70	23.1		
East: F	liver Rd												
4	L2	13	0.0	0.113	7.2	LOS A	1.3	9.4	0.39	0.34	35.8		
5	T1	843	0.0	0.566	5.4	LOS A	10.0	69.8	0.56	0.50	37.1		
Approa	ich	856	0.0	0.566	5.4	LOS A	10.0	69.8	0.56	0.50	37.1		
West: F	River Rd												
11	T1	1642	0.0	0.705	6.9	LOS A	14.5	101.5	0.70	0.64	36.3		
12	R2	37	0.0	0.705	10.7	LOS A	13.3	93.3	0.71	0.65	35.1		
Approa	ich	1679	0.0	0.705	7.0	LOS A	14.5	101.5	0.70	0.64	36.3		
All Veh	icles	2567	0.0	0.705	6.7	LOS A	14.5	101.5	0.65	0.59	36.4		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	ment Performance - Pedestrians							
Mov	Description	Demand	Average	Level of	Average Back	of Queue	Prop.	Effective
ID	Description	Flow ped/h	Delay sec	Service	Pedestrian ped	Distance m	Queued	Stop Rate per ped
P1	South Full Crossing	53	5.2	LOS A	0.0	0.0	0.45	0.45
P2	East Full Crossing	53	19.9	LOS B	0.1	0.1	0.88	0.88
P4	West Full Crossing	53	19.9	LOS B	0.1	0.1	0.88	0.88
All Ped	lestrians	158	15.0	LOS B			0.74	0.74

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Site: 101 [River Rd X Access - PM - Ex]

River Rd X Access - AM - Ex

Signals - Actuated Isolated Cycle Time = 59 seconds (Practical Cycle Time)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South:	RoadName											
1	L2	1	5.0	0.010	29.4	LOS C	0.1	0.4	0.88	0.60	26.2	
3	R2	1	5.0	0.010	29.4	LOS C	0.1	0.4	0.88	0.60	21.1	
Approa	ch	2	5.0	0.010	29.4	LOS C	0.1	0.4	0.88	0.60	24.1	
East: R	iver Rd											
4	L2	1	5.0	0.182	7.3	LOS A	2.4	17.9	0.38	0.32	36.0	
5	T1	1331	5.0	0.908	11.4	LOS A	29.4	214.4	0.75	0.75	34.3	
Approa	ch	1332	5.0	0.908	11.4	LOS A	29.4	214.4	0.75	0.75	34.3	
West: F	River Rd											
11	T1	842	5.0	0.332	4.4	LOS A	5.1	37.1	0.43	0.38	37.6	
12	R2	1	5.0	0.332	8.0	LOS A	5.0	36.5	0.43	0.38	36.8	
Approa	ch	843	5.0	0.332	4.4	LOS A	5.1	37.1	0.43	0.38	37.6	
All Veh	icles	2177	5.0	0.908	8.7	LOS A	29.4	214.4	0.63	0.61	35.5	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	ment Performance - Pedestrians							
Mov	Description	Demand	Average	Level of	Average Back	of Queue	Prop.	Effective
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate
		pea/n	sec		pea	m		per pea
P1	South Full Crossing	53	4.9	LOS A	0.0	0.0	0.41	0.41
P2	East Full Crossing	53	23.9	LOS C	0.1	0.1	0.90	0.90
P4	West Full Crossing	53	23.9	LOS C	0.1	0.1	0.90	0.90
All Pec	lestrians	158	17.5	LOS B			0.74	0.74

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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Site: 101 [River Rd X Access - PM - Post Dev]

River Rd X Access - AM - Ex

Signals - Actuated Isolated Cycle Time = 61 seconds (Practical Cycle Time)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h		
South:	RoadName	e											
1	L2	1	5.0	0.207	32.2	LOS C	1.2	9.1	0.92	0.71	25.3		
3	R2	42	5.0	0.207	32.3	LOS C	1.2	9.1	0.92	0.71	20.2		
Approa	ich	43	5.0	0.207	32.3	LOS C	1.2	9.1	0.92	0.71	20.4		
East: F	River Rd												
4	L2	9	5.0	0.182	7.2	LOS A	2.5	18.2	0.37	0.32	36.0		
5	T1	1341	5.0	0.912	11.9	LOS A	30.9	225.6	0.74	0.75	34.1		
Approa	ich	1351	5.0	0.912	11.9	LOS A	30.9	225.6	0.74	0.75	34.1		
West: F	River Rd												
11	T1	842	5.0	0.327	4.3	LOS A	5.1	37.0	0.42	0.37	37.7		
12	R2	1	5.0	0.327	7.8	LOS A	5.0	36.4	0.42	0.37	36.9		
Approa	ich	843	5.0	0.327	4.3	LOS A	5.1	37.0	0.42	0.37	37.7		
All Veh	icles	2237	5.0	0.912	9.4	LOS A	30.9	225.6	0.62	0.60	35.1		

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Move	ment Performance - Pedestrians							
Mov		Demand	Average	Level of	Average Back	c of Queue	Prop.	Effective
ID	Description	Flow	Delay	Service	Pedestrian	Distance	Queued	Stop Rate
		ped/h	sec		ped	m		per ped
P1	South Full Crossing	53	4.7	LOS A	0.0	0.0	0.39	0.39
P2	East Full Crossing	53	24.8	LOS C	0.1	0.1	0.90	0.90
P4	West Full Crossing	53	24.8	LOS C	0.1	0.1	0.90	0.90
All Pec	lestrians	158	18.1	LOS B			0.73	0.73

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay) Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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V Site: 101 [River Rd X St Vincents Rd - AM - Ex]

River Rd X St Vincents Rd - AM - Ex Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South:	St Vince	ents Rd										
1	L2	45	0.0	0.069	8.8	LOS A	0.2	1.7	0.62	0.81	38.9	
2	T1	1	0.0	1.031	843.4	LOS F	3.1	21.5	1.00	1.10	0.9	
3	R2	6	0.0	1.031	1005.7	LOS F	3.1	21.5	1.00	1.10	1.4	
Approa	ach	53	0.0	1.031	145.1	LOS F	3.1	21.5	0.67	0.85	9.1	
East: F	River Rd											
4	L2	44	5.0	0.835	73.8	LOS F	30.7	223.9	1.00	0.07	23.0	
5	T1	779	5.0	0.835	33.1	LOS C	30.7	223.9	1.00	0.07	25.5	
6	R2	47	5.0	0.835	77.6	LOS F	30.7	223.9	1.00	0.07	15.4	
Approa	ach	871	5.0	0.835	37.6	NA	30.7	223.9	1.00	0.07	24.9	
North:	St Vince	nts Rd										
7	L2	34	0.0	0.056	8.8	LOS A	0.2	1.4	0.65	0.82	36.2	
8	T1	2	0.0	2.340	1683.8	LOS F	11.3	79.1	1.00	1.26	0.5	
9	R2	14	0.0	2.340	1770.8	LOS F	11.3	79.1	1.00	1.26	0.6	
Approa	ach	49	0.0	2.340	567.4	LOS F	11.3	79.1	0.76	0.96	1.5	
West:	River Rd											
10	L2	48	5.0	0.474	5.6	LOS A	0.0	0.0	0.00	0.03	33.6	
11	T1	1524	5.0	0.474	1.0	LOS A	2.5	18.4	0.14	0.05	56.5	
12	R2	68	5.0	0.474	14.9	LOS B	2.5	18.4	0.31	0.07	49.3	
Approa	ach	1641	5.0	0.474	1.8	NA	2.5	18.4	0.14	0.05	55.4	
All Veh	nicles	2614	4.8	2.340	27.3	NA	30.7	223.9	0.45	0.09	28.7	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 101 [River Rd X St Vincents Rd - AM - Post Dev]

River Rd X St Vincents Rd - AM - Ex Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h	
South:	St Vince	ents Rd										
1	L2	45	0.0	0.071	8.9	LOS A	0.2	1.7	0.63	0.82	38.8	
2	T1	2	0.0	1.453	1121.1	LOS F	5.5	38.3	1.00	1.18	0.7	
3	R2	7	0.0	1.453	1238.4	LOS F	5.5	38.3	1.00	1.18	1.1	
Approa	ach	55	0.0	1.453	217.2	LOS F	5.5	38.3	0.69	0.88	5.9	
East: F	River Rd											
4	L2	60	5.0	0.887	85.8	LOS F	38.1	278.3	1.00	0.07	19.7	
5	T1	791	5.0	0.887	42.9	LOS D	38.1	278.3	1.00	0.07	21.9	
6	R2	47	5.0	0.887	91.2	LOS F	38.1	278.3	1.00	0.07	13.1	
Approa	ach	898	5.0	0.887	48.3	NA	38.1	278.3	1.00	0.07	21.3	
North:	St Vince	nts Rd										
7	L2	34	0.0	0.057	8.8	LOS A	0.2	1.4	0.65	0.83	36.1	
8	T1	18	0.0	6.071	4824.1	LOS F	36.9	258.5	1.00	1.39	0.2	
9	R2	25	0.0	6.071	4854.2	LOS F	36.9	258.5	1.00	1.39	0.2	
Approa	ach	77	0.0	6.071	2723.2	LOS F	36.9	258.5	0.85	1.14	0.3	
West:	River Rd	l i i i i i i i i i i i i i i i i i i i										
10	L2	65	5.0	0.486	5.6	LOS A	0.0	0.0	0.00	0.04	33.5	
11	T1	1541	5.0	0.486	1.1	LOS A	2.7	19.8	0.15	0.05	56.2	
12	R2	68	5.0	0.486	15.8	LOS B	2.7	19.8	0.32	0.07	48.9	
Approa	ach	1675	5.0	0.486	1.9	NA	2.7	19.8	0.15	0.06	54.8	
All Veh	nicles	2704	4.8	6.071	99.0	NA	38.1	278.3	0.46	0.11	12.2	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 101 [River Rd X St Vincents Rd - PM - Ex]

River Rd X St Vincents Rd - AM - Ex Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South:	St Vince	ents Rd									
1	L2	43	0.0	0.280	30.2	LOS C	0.8	5.9	0.93	0.99	26.0
2	T1	4	0.0	1.938	1453.0	LOS F	8.4	59.1	1.00	1.26	0.5
3	R2	8	0.0	1.938	1503.2	LOS F	8.4	59.1	1.00	1.26	0.8
Approa	ach	56	0.0	1.938	359.9	LOS F	8.4	59.1	0.95	1.05	3.6
East: F	River Rd										
4	L2	17	5.0	0.764	25.2	LOS B	2.8	20.4	0.17	0.02	51.1
5	T1	1339	5.0	0.764	1.3	LOS A	2.8	20.4	0.17	0.02	55.9
6	R2	23	5.0	0.764	29.3	LOS C	2.8	20.4	0.17	0.02	36.4
Approa	ach	1379	5.0	0.764	2.0	NA	2.8	20.4	0.17	0.02	55.5
North:	St Vince	nts Rd									
7	L2	23	0.0	0.028	6.8	LOS A	0.1	0.7	0.54	0.69	39.2
8	T1	1	0.0	4.522	3518.8	LOS F	23.6	165.3	1.00	1.32	0.2
9	R2	26	0.0	4.522	3538.9	LOS F	23.6	165.3	1.00	1.32	0.3
Approa	ach	51	0.0	4.522	1919.6	LOS F	23.6	165.3	0.79	1.03	0.5
West:	River Rd										
10	L2	19	5.0	0.352	5.6	LOS A	0.0	0.0	0.00	0.02	33.7
11	T1	768	5.0	0.352	4.5	LOS A	4.1	30.0	0.16	0.06	50.8
12	R2	40	5.0	0.352	38.5	LOS C	4.1	30.0	1.00	0.26	27.5
Approa	ach	827	5.0	0.352	6.2	NA	4.1	30.0	0.20	0.06	48.4
All Veh	nicles	2313	4.8	4.522	54.0	NA	23.6	165.3	0.21	0.08	18.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 101 [River Rd X St Vincents Rd - PM - Post Dev]

River Rd X St Vincents Rd - AM - Ex Giveway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back Vehicles veh	of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South:	St Vince	ents Rd									
1	L2	43	0.0	0.287	31.0	LOS C	0.9	6.1	0.93	1.00	25.7
2	T1	12	0.0	4.268	3311.8	LOS F	23.0	161.2	1.00	1.38	0.3
3	R2	16	0.0	4.268	3324.4	LOS F	23.0	161.2	1.00	1.38	0.4
Approach		71	0.0	4.268	1306.9	LOS F	23.0	161.2	0.96	1.15	1.0
East: River Rd											
4	L2	20	5.0	0.771	26.0	LOS B	3.0	22.2	0.18	0.02	50.7
5	T1	1345	5.0	0.771	1.4	LOS A	3.0	22.2	0.18	0.02	55.5
6	R2	23	5.0	0.771	31.1	LOS C	3.0	22.2	0.18	0.02	36.1
Approach		1388	5.0	0.771	2.3	NA	3.0	22.2	0.18	0.02	55.1
North: St Vincents Rd											
7	L2	23	0.0	0.029	6.9	LOS A	0.1	0.7	0.54	0.70	39.0
8	T1	4	0.0	5.862	4677.1	LOS F	31.8	222.7	1.00	1.34	0.2
9	R2	32	0.0	5.862	4685.3	LOS F	31.8	222.7	1.00	1.34	0.2
Approach		59	0.0	5.862	2846.8	LOS F	31.8	222.7	0.82	1.09	0.3
West: River Rd											
10	L2	29	5.0	0.363	5.6	LOS A	0.0	0.0	0.00	0.03	33.6
11	T1	779	5.0	0.363	4.7	LOS A	4.3	31.1	0.16	0.06	50.4
12	R2	40	5.0	0.363	40.0	LOS C	4.3	31.1	1.00	0.26	26.8
Approach		848	5.0	0.363	6.4	NA	4.3	31.1	0.19	0.07	47.8
All Vehicles		2366	4.7	5.862	113.5	NA	31.8	222.7	0.22	0.10	10.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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