City of Ryde

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ATTACHMENTS: AGENDA NO. 14/22
COUNCIL MEETING

Meeting Date: **Tuesday 22 November 2022**
Location: **Council Chambers, Level 1A, 1 Pope Street, Ryde and Online**
Time: **6.00pm**

ATTACHMENTS FOR COUNCIL MEETING

Item

8 POST EXHIBITION REPORT - PLANNING PROPOSAL TO REZONE LAND AT 22 WINBOURNE STREET, WEST RYDE FROM SP2 (EDUCATIONAL ESTABLISHMENT) TO PART RE1 PUBLIC RECREATION AND PART C2 ENVIRONMENTAL CONSERVATION

Attachment 4 Transport Assessment Technical Advisory Note - 29 September - SCT Consulting

Technical Advisory Note

Quality Information	
Project:	Marsden HS Netball Facility Transport Assessment
Project Number:	SCT_00219
Document Name:	Marsden Netball PP Traffic Modelling Note
Date:	29/09/2021
Prepared:	Jonathan Chung, Consultant
Reviewed:	Jonathan Busch, Associate Director
Authorised:	Jonathan Busch, Associate Director

Background

SCT Consulting is engaged by School Infrastructure NSW to analyse the transport impacts for 32 outdoor netball courts, a four-court indoor facility with associated support spaces, and at grade car parking at the site.

The proposed recreational facilities are part of wider plans by Greater Sydney Commission to relocate the 28 outdoor courts existing netball facility at Meadowbank Park. The proposed recreational facilities at the study site will be by the Eastwood Ryde Netball Association (ERNA).

In response to the City of Ryde comments, SCT Consulting has prepared a technical advisory note to include traffic modelling for peak hours of 5pm – 6pm on a weekday afternoon and 12pm -1pm on a Saturday midday. The models are updated to include the delivery of Melrose Park in the 2031 scenario, based on the *Melrose Park Transport Management and Accessibility Plan (TMAP)* prepared by Jacobs in 2018. Hence, this report should also be read in conjunction with the TMAP.

Car parking

The parking requirements outlined in the City of Ryde Development Control Plan for a recreational land use type are outlined in **Table 2**.

Table 1 Parking requirements analysis

Use	Land use quantum	DCP Requirement	Parking requirement
Recreational Facilities (outdoor) / Tennis Courts	32	3 spaces / court	96
Recreational Facilities (indoor) / Gymnasium	4,000m^2 GFA	1-1.5 spaces / 20m^2 GFA	200
Total Parking Spaces			**296**

The scheme has been updated to an option to provide 296 parking spaces on site, which would fulfil the minimum Development Control Plan (DCP) requirements. Off-street parking would be used for demands over and above that anticipated by the DCP would be served on-street.

Traffic modelling

SIDRA intersection models were prepared for the road network around the Marsden High School to understand the existing and future network performance and to test the impacts of the proposed recreational facilities and potential growth of the study area including the Melrose Park redevelopment. Intersections assessed are listed below:

– Marsden Road / Stewart Street

– Marsden Road / Winbourne Street

– Victoria Road / Marsden Road

– Victoria Road / Brush Road

– Brush Road / Tramway Street.

Data was not collected for Sindel Street, which can be undertaken during the development application phase. This road is a low order street and unlikely to be attractive for large traffic volumes – and therefore unlikely to require any intersection upgrade works.

Traffic survey counts were collected on Saturday 13 and Tuesday 16 February 2021 by Matrix Traffic and Transport Data. The periods in which the proposed recreational use is likely to generate the greatest traffic activity is expected to be generally outside of the peak traffic periods of the existing school development (being 8.00am – 9.30am and 2.30pm – 4.00pm). Therefore, the weekday afternoon peak of 5pm – 6pm and Saturday midday peak of 12pm -1pm was assessed in this traffic study. These peak periods were used in SIDRA modelling as the worst-case scenario.

For modelling purposes, the intersection layouts were derived from a combination of Nearmap, Google street view and Six maps imagery. Traffic signal timings were taken from 13 February 2021 SCATS data.

The AADT counter on Victoria Road (Station 51235) shows that the weekly total traffic was 430,519. Compared with a week in 2019, this is similar. Most weeks in 2019 had a weekly trip total of between 417,000 – 435,000. Hence the surveys conducted are considered to have a level of traffic similar to pre-COVID-19 conditions.

Modelling scenarios

The Traffic Impact Assessment includes testing of the following base and future year scenarios:

1. Base year (2021)
2. Future year (2031) with background traffic growth and Melrose Park development traffic
3. Future year (2031) with background traffic growth and Melrose Park & Netball facilities development traffic.

Background traffic growth and Melrose Park development

Background traffic growth and Melrose Park development traffic have been determined based on the *Melrose Park Transport Management and Accessibility Plan (TMAP)* prepared by Jacobs in 2018.

The two signalised intersections located at Marsden Road / Stewart Street and Victoria Road / Marsden Road were used to estimate the background traffic growth and Melrose Park development traffic.

The traffic growth between 2017 and 2036 was analysed for the above intersections. The PM model shows a negative traffic growth of -0.13%, while the AM model shows a 0.25% traffic growth. Hence, a background growth rate of 0.25% p.a. was applied to account for regional traffic growth as a result of population and employment increase in the wider area.

The Melrose Park development traffic was determined based on the traffic volume difference between ‘Traffic volume - 2036 AM with development’ and ‘Traffic volume - 2036 AM do minimum - no development’, illustrated in Figures 6.1 and 6.2 in the TMAP. The AM model was used to maintain consistency with the background traffic growth rate calculated above. Trip distribution was based on traffic survey counts undertaken by Matrix Traffic and Transport Data in February 2021.

Netball facilities development traffic

The traffic generation rates for the proposed netball courts were derived from a Transport Impact Assessment for the Meadowbank Park Netball Courts approved by the City of Ryde Council in 2009. This report included reference to

surveys that existing netball courts generated 78 vehicles per hour (vph) for 4 courts. A 0.85 confidence rate was applied for the proposed facility of 32 courts, which equated to a trip generation of 17vph per court. Most traffic would be generated on Saturday, with a smaller proportion generated on Wednesday evenings. Thus, the proposed development will generate approximately 209 (inbound) and 602 (inbound and outbound) vehicles per hour during the weekday afternoon and Saturday peak hours, respectively.

Despite the age of the trip generation exercise, the trip generation of 17 vehicles per hour per court is a reasonable level of traffic generation that isn't expected to have changed over time.

The trip distribution for netball courts was assumed based on 2020 ERNA membership ratios in each LGA, based on the *Ryde Multi-Sports Facility Needs Assessment Draft Report* prepared by the OTIUM Planning Group in 2020. ERNA services a broad catchment with 39% of registered players living in the Ryde LGA. Other than Ryde, the main LGA's where ERNA players live are Parramatta (28%), Hornsby (8%) and Hunters Hill (7%). The remaining 18% of players are spread across several LGA's throughout Sydney.

Model calibration

The model was calibrated using the input data to reflect observations of traffic behaviours around the school. One of the key goals is to calibrate the models such that the degree of saturation of all movements was 1.0 or below. This is a standard procedure to ensure that the models are not over-predicting congestion under current conditions. The setting of gap acceptance follows default as stipulated in Transport for NSW's (ex-Road and Maritimes Services) *Traffic Modelling Guidelines (2013)*.

Comments on issues raised by the City of Ryde were addressed including traffic modelling for the peak hours of 5pm – 6pm on a weekday afternoon and 12pm – 1pm on a Saturday midday. The models have been updated to include the delivery of Melrose Park in the 2031 future base scenario, based on the Melrose Park TMAP prepared by Jacobs in 2018.

Performance metrics

The performances of key intersections providing access to Marsden High School were assessed using the SIDRA Network 9.0 software package. Intersection performance is measured in terms of the following:

– Degree of Saturation (DoS): The ratio of arrival (demand) flow rate to capacity during a given flow period. Acceptable intersection performance requires DoS < 1.0.

– Level of Service (LoS): An index of the operational performance of traffic for a given intersection during a given flow period. Acceptable intersection performance normally requires a minimum of LoS D.

– Average Vehicle Delay in seconds: The delay experienced by a vehicle traversing a signalised intersection.

Table 1 provides a summary of the LoS performance bands.

Table 2 Level of Service index

Level of Service	Average delay per vehicle (sec)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals, incidents will cause excessive delays. Roundabouts require other control methods.
F	70.5 or greater	

Source: Guide to Traffic Generating Developments; RMS, 2002

Intersection performance

Table 2 presents the results of the key intersections in 2021 before Melrose Park and netball facilities are operational.

The SIDRA results show that the intersections surrounding the Marsden High School were all performing at a satisfactory level of service (LoS D or better) with reserve capacity during PM and WE peak hours to accommodate future growth.

Table 3 Base year (2021)

Intersection	Control type	PM Peak			WE Peak		
		Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Marsden Road / Stewart Street	Signals	23.8	B	0.88	22.9	B	0.80
Marsden Road / Winbourne Street	Give-way	15.0	B	0.30	12.5	A	0.20
Victoria Road / Marsden Road	Signals	45.6	D	0.93	34.3	C	0.80
Victoria Road / Brush Road	Give-way	8.2	A	0.64	8.0	A	0.47
Brush Road / Tramway Street	Give-way	4.7	A	0.03	4.7	A	0.04

Delay = worst movement for give-way intersections and DoS = degree of saturation of worst movement for give-way movements

Table 3 presents the results of the key intersections in 2031 with Melrose Park operational. These results establish a future base to assess the impacts of background traffic growth with the Melrose Park redevelopment. The traffic modelling includes the proposed upgrade of Victoria Road / Marsden Road (**Figure 1**), which is assumed to be coupled with the redevelopment of Melrose Park at 1,800 dwellings (early in the development staging).

Figure 1 Upgrade of Victoria Road

Table 4 Future year (2031) with background traffic growth and Melrose Park development traffic

Intersection	Control type	PM Peak			WE Peak		
		Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Marsden Road / Stewart Street	Signals	28.3	B	0.98	24.7	B	0.83
Marsden Road / Winbourne Street	Give-way	15.9	B	0.32	13.1	A	0.21
Victoria Road / Marsden Road	Signals	52.4	D	0.98	50.2	D	0.96
Victoria Road / Brush Road	Give-way	8.3	A	0.78	8.2	A	0.50
Brush Road / Tramway Street	Give-way	4.7	A	0.03	4.7	A	0.04

Delay = worst movement for give-way intersections and DoS = degree of saturation of worst movement for give-way movements

The SIDRA results show that the intersections surrounding the Marsden High School were all performing at a satisfactory level of service (LoS D or better) with reserve capacity during PM and WE peak hours to accommodate future growth. LoS for all intersections remains the same as the base year, except for Victoria Road / Marsden Road with a decrease in LoS from C to D during the WE peak.

Table 4 presents the results of the key intersections in 2031 with Melrose Park and netball facilities operational. These results establish a cumulative future base to assess the impacts of the additional trips generated by the proposed recreational facilities.

The SIDRA results show that the intersections surrounding the Marsden High School were all performing at a satisfactory level of service (LoS D or better) with reserve capacity during PM and WE peak hours to accommodate future growth. LoS for all intersections remains the same as the future year, except for Marsden Road / Stewart Street and Marsden Road / Winbourne Street with a decrease in LoS by one performance band during the WE peak. This is expected as most games run on a Saturday which leads to higher development traffic during the WE peak. Furthermore, Marsden Road / Stewart Street and Marsden Road / Winbourne Street are two of the main accesses to/from the school.

Table 5 Future year (2031) with background traffic growth and Melrose Park & Netball facilities development traffic

Intersection	Control type	PM Peak			WE Peak		
		Delay (sec)	LoS	DoS	Delay (sec)	LoS	DoS
Marsden Road / Stewart Street	Signals	27.5	B	0.90	32.6	C	0.95
Marsden Road / Winbourne Street	Give-way	19.6	B	0.45	18.6	B	0.54
Victoria Road / Marsden Road	Signals	49.3	D	0.94	49.6	D	0.95
Victoria Road / Brush Road	Give-way	8.3	A	0.76	9.1	A	0.53
Brush Road / Tramway Street	Give-way	4.7	A	0.04	4.7	A	0.05

Delay = worst movement for give-way intersections and DoS = degree of saturation of worst movement for give-way movements

Conclusion

The traffic modelling indicates that the additional traffic generated by the netball courts compared with the high school can be accommodated in the transport network. Delays increase at all intersections with the proposed development, but all remain at Level of Service D or better.

Attachment A – SIDRA movement summaries

MOVEMENT SUMMARY

Site: 101 PM_BY [101 MAR_WIN_21_PM_BY (Site Folder: PM Peak)]

Network: N101 [PM_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	450	4.6	450	4.6	0.303	1.1	LOS A	1.3	9.3	0.21	0.13	0.22	43.8
3	R2	114	3.5	114	3.5	0.303	8.3	LOS A	1.3	9.3	0.29	0.17	0.30	46.0
Approach		564	4.4	564	4.4	0.303	2.6	NA	1.3	9.3	0.23	0.14	0.24	44.8
East: Winbourne Street														
4	L2	111	1.7	111	1.7	0.119	5.3	LOS A	0.4	2.6	0.27	0.54	0.27	39.2
6	R2	31	4.0	31	4.0	0.099	15.0	LOS B	0.3	2.5	0.73	0.87	0.73	28.8
Approach		142	2.2	142	2.2	0.119	7.4	LOS A	0.4	2.6	0.37	0.61	0.37	36.4
North: Marsden Road (n)														
7	L2	31	0.0	31	0.0	0.119	5.6	LOS A	0.0	0.0	0.00	0.09	0.00	58.2
8	T1	392	1.8	392	1.8	0.119	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach		423	1.6	423	1.6	0.119	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		1129	3.1	1129	3.1	0.303	2.4	NA	1.3	9.3	0.16	0.16	0.16	54.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 PM_BY [102 VIC_MAR_21_PM_BY (Site Folder: PM Peak)]

Network: N101 [PM_BY (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 116 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	166	8.9	166	8.9	* 0.932	77.7	LOS F	16.6	122.5	1.00	1.11	1.48	25.9
2	T1	156	0.6	156	0.6	0.932	73.6	LOS F	16.6	122.5	1.00	1.11	1.50	15.4
3	R2	97	2.0	97	2.0	0.932	78.6	LOS F	12.4	88.0	1.00	1.12	1.52	15.5
Approach		420	4.2	420	4.2	0.932	76.4	LOS F	16.6	122.5	1.00	1.11	1.50	20.2
East: Victoria Road (e)														
4	L2	50	6.8	50	6.8	0.877	53.5	LOS D	39.4	289.6	0.99	1.02	1.13	27.9
5	T1	1847	5.9	1847	5.9	* 0.877	44.3	LOS D	39.7	291.6	0.97	0.99	1.12	34.6
6	R2	360	5.1	360	5.1	0.776	64.2	LOS E	10.6	77.8	1.00	0.88	1.16	13.2
Approach		2256	5.8	2256	5.8	0.877	47.6	LOS D	39.7	291.6	0.98	0.97	1.12	31.3
North: Marsden Road														
7	L2	343	0.9	343	0.9	* 0.792	35.0	LOS C	14.5	102.5	0.98	0.90	1.09	9.7
8	T1	81	3.7	81	3.7	0.275	48.5	LOS D	4.1	29.8	0.92	0.73	0.92	23.2
9	R2	127	2.3	127	2.3	0.447	54.5	LOS D	6.7	47.6	0.95	0.79	0.95	26.1
Approach		550	1.6	550	1.6	0.792	41.5	LOS C	14.5	102.5	0.97	0.85	1.03	18.4
West: Victoria Road (w)														
10	L2	122	7.5	122	7.5	0.797	46.2	LOS D	31.0	224.4	0.94	0.91	0.97	29.6
11	T1	1651	3.2	1651	3.2	0.797	35.3	LOS C	31.4	226.3	0.93	0.87	0.96	31.7
12	R2	106	4.3	106	4.3	0.454	58.4	LOS E	5.7	41.5	0.97	0.78	0.97	30.5
Approach		1878	3.6	1878	3.6	0.797	37.3	LOS C	31.4	226.3	0.93	0.87	0.96	31.5
All Vehicles		5105	4.4	5105	4.4	0.932	45.6	LOS D	39.7	291.6	0.96	0.93	1.08	28.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	52.3	LOS E	0.2	0.2	0.95	0.95	217.8	215.2	0.99
East: Victoria Road (e)											
P2	Full	53	52.3	LOS E	0.2	0.2	0.95	0.95	228.0	228.4	1.00
North: Marsden Road											
P3	Full	53	52.3	LOS E	0.2	0.2	0.95	0.95	220.3	218.5	0.99

P3B	Slip/ Bypass	53	52.3	LOS E	0.2	0.2	0.95	0.95	209.4	204.3	0.98
All Pedestrians		211	52.3	LOS E	0.2	0.2	0.95	0.95	218.9	216.6	0.99

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

MOVEMENT SUMMARY

Site: 103 PM_BY [103 VIC_BRU_21_PM_BY (Site Folder: PM Peak)]

Network: N101 [PM_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	2238	6.0	2238	6.0	0.636	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	69.1
Approach		2238	6.0	2238	6.0	0.636	0.1	NA	0.0	0.0	0.00	0.00	0.00	69.1
North: Brush Road														
7	L2	13	0.0	13	0.0	0.019	8.2	LOS A	0.1	0.5	0.54	0.65	0.54	40.9
Approach		13	0.0	13	0.0	0.019	8.2	LOS A	0.1	0.5	0.54	0.65	0.54	40.9
West: Victoria Road (w)														
10	L2	64	1.8	64	1.8	0.382	6.4	LOS A	0.0	0.0	0.00	0.06	0.00	67.1
11	T1	2126	2.8	2126	2.8	0.382	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	69.1
Approach		2189	2.8	2189	2.8	0.382	0.2	NA	0.0	0.0	0.00	0.02	0.00	69.0
All Vehicles		4441	4.4	4441	4.4	0.636	0.2	NA	0.1	0.5	0.00	0.01	0.00	68.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 PM_BY [104 MAR_STE_21_PM_BY (Site Folder: PM Peak)]

Network: N101 [PM_BY (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 112 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	106	3.7	106	3.7	0.879	67.9	LOS E	13.5	97.8	1.00	1.01	1.34	36.5
2	T1	337	3.8	337	3.8	* 0.879	62.2	LOS E	13.8	100.0	1.00	1.01	1.34	35.5
Approach		443	3.8	443	3.8	0.879	63.5	LOS E	13.8	100.0	1.00	1.01	1.34	35.7
East: Rutledge Street														
4	L2	7	0.0	7	0.0	0.131	48.0	LOS D	1.9	13.6	0.88	0.67	0.88	7.8
5	T1	55	0.0	55	0.0	0.131	43.3	LOS D	1.9	13.6	0.89	0.68	0.89	27.2
6	R2	17	0.0	17	0.0	0.131	48.5	LOS D	1.8	12.7	0.89	0.69	0.89	20.2
Approach		80	0.0	80	0.0	0.131	44.8	LOS D	1.9	13.6	0.89	0.68	0.89	24.4
North: Marsden Road (n)														
7	L2	22	0.0	22	0.0	0.170	10.8	LOS A	3.6	25.4	0.41	0.37	0.41	45.7
8	T1	316	2.8	316	2.8	* 0.805	9.7	LOS A	17.9	131.4	0.60	0.57	0.61	37.6
9	R2	1247	6.1	1247	6.1	* 0.805	21.2	LOS B	17.9	131.4	0.91	0.88	0.94	41.5
Approach		1585	5.4	1585	5.4	0.805	18.7	LOS B	17.9	131.4	0.84	0.81	0.87	41.1
West: Stewart Street														
10	L2	1723	3.6	1723	3.6	0.642	14.0	LOS A	22.9	165.0	0.54	0.78	0.54	47.9
11	T1	39	0.0	39	0.0	* 0.718	54.7	LOS D	9.4	66.3	1.00	0.87	1.10	23.0
12	R2	131	1.0	131	1.0	0.718	58.7	LOS E	9.4	66.3	1.00	0.87	1.10	20.9
Approach		1893	3.4	1893	3.4	0.718	17.9	LOS B	22.9	165.0	0.58	0.79	0.59	44.6
All Vehicles		4000	4.2	4000	4.2	0.879	23.8	LOS B	22.9	165.0	0.74	0.82	0.79	40.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	215.8	215.2	1.00
East: Rutledge Street											
P2	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	213.3	211.9	0.99
North: Marsden Road (n)											
P3	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	220.9	221.8	1.00
West: Stewart Street											
P4	Full	53	50.3	LOS E	0.2	0.2	0.95	0.95	218.3	218.5	1.00

All Pedestrians	211	50.3	LOS E	0.2	0.2	0.95	0.95	217.1	216.9	1.00

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

MOVEMENT SUMMARY

Site: 105 PM_BY [105 BRU_TRA_21_PM_BY (Site Folder: PM Peak)]

Network: N101 [PM_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	44	1.4	44	1.4	0.030	0.0	LOS A	0.1	0.5	0.06	0.15	0.06	48.4
3	R2	16	0.0	16	0.0	0.030	4.6	LOS A	0.1	0.5	0.06	0.15	0.06	47.3
Approach		60	1.0	60	1.0	0.030	1.3	NA	0.1	0.5	0.06	0.15	0.06	48.1
East: Tramway Street														
4	L2	11	0.0	11	0.0	0.026	4.6	LOS A	0.1	0.5	0.05	0.54	0.05	38.9
6	R2	32	0.0	32	0.0	0.026	4.7	LOS A	0.1	0.5	0.05	0.54	0.05	40.3
Approach		43	0.0	43	0.0	0.026	4.6	LOS A	0.1	0.5	0.05	0.54	0.05	40.0
North: Brush Road (n)														
7	L2	19	0.0	19	0.0	0.017	4.6	LOS A	0.0	0.0	0.00	0.33	0.00	44.0
8	T1	12	0.0	12	0.0	0.017	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	39.2
Approach		32	0.0	32	0.0	0.017	2.8	NA	0.0	0.0	0.00	0.33	0.00	43.0
All Vehicles		135	0.5	135	0.5	0.030	2.7	NA	0.1	0.5	0.04	0.31	0.04	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 PM_FY [101 MAR_WIN_21_PM_FY (Site Folder: PM Peak)]

Network: N101 [PM_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	474	4.6	474	4.6	0.317	1.2	LOS A	1.4	10.1	0.22	0.13	0.23	43.5
3	R2	117	3.5	117	3.5	0.317	8.5	LOS A	1.4	10.1	0.29	0.17	0.31	45.9
Approach		591	4.4	591	4.4	0.317	2.7	NA	1.4	10.1	0.23	0.14	0.25	44.6
East: Winbourne Street														
4	L2	113	1.7	113	1.7	0.158	5.2	LOS A	0.4	2.6	0.25	0.54	0.25	39.4
6	R2	32	4.0	32	4.0	0.107	15.9	LOS B	0.4	2.7	0.74	0.88	0.74	28.1
Approach		145	2.2	145	2.2	0.158	7.5	LOS A	0.4	2.7	0.35	0.61	0.35	36.2
North: Marsden Road (n)														
7	L2	31	0.0	31	0.0	0.135	5.7	LOS A	0.0	0.0	0.00	0.11	0.00	58.1
8	T1	402	1.8	402	1.8	0.135	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	59.6
Approach		433	1.6	433	1.6	0.135	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.5
All Vehicles		1169	3.1	1169	3.1	0.317	2.5	NA	1.4	10.1	0.16	0.16	0.17	54.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 PM_FY [102 VIC_MAR_21_PM_FY (Site Folder: PM Peak)]

Network: N101 [PM_FY (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	170	8.9	170	8.9	0.637	44.3	LOS D	10.9	80.2	0.97	0.82	0.97	33.9
2	T1	160	0.6	160	0.6	0.637	42.1	LOS C	10.9	80.2	0.98	0.82	0.99	21.6
3	R2	99	2.0	99	2.0	0.637	48.3	LOS D	9.1	64.3	0.99	0.82	1.00	21.3
Approach		430	4.2	430	4.2	0.637	44.4	LOS D	10.9	80.2	0.98	0.82	0.98	27.4
East: Victoria Road (e)														
4	L2	53	6.7	53	6.7	* 0.958	70.4	LOS E	46.5	341.7	1.00	1.21	1.41	23.7
5	T1	1955	5.8	1955	5.8	* 0.958	62.2	LOS E	46.7	343.1	0.99	1.20	1.41	28.7
6	R2	381	5.0	381	5.0	0.817	58.8	LOS E	10.1	73.7	1.00	0.92	1.25	14.1
Approach		2389	5.7	2389	5.7	0.958	61.8	LOS E	46.7	343.1	0.99	1.15	1.39	26.9
North: Marsden Road														
7	L2	351	0.9	351	0.9	* 0.979	72.7	LOS F	18.1	127.9	1.00	1.21	1.66	5.1
8	T1	83	3.7	83	3.7	0.546	51.8	LOS D	4.1	29.9	1.00	0.77	1.01	22.4
9	R2	130	2.3	130	2.3	0.889	66.2	LOS E	7.4	52.7	1.00	1.00	1.51	23.1
Approach		564	1.6	564	1.6	0.979	68.1	LOS E	18.1	127.9	1.00	1.10	1.53	12.7
West: Victoria Road (w)														
10	L2	125	7.5	125	7.5	0.845	45.9	LOS D	30.8	223.2	0.97	0.99	1.09	29.7
11	T1	1692	3.2	1692	3.2	0.845	36.5	LOS C	31.0	223.3	0.96	0.95	1.08	31.2
12	R2	109	4.3	109	4.3	0.463	51.6	LOS D	5.1	37.0	0.97	0.78	0.97	32.3
Approach		1925	3.6	1925	3.6	0.845	38.0	LOS C	31.0	223.3	0.96	0.95	1.07	31.2
All Vehicles		5309	4.4	5309	4.4	0.979	52.4	LOS D	46.7	343.1	0.98	1.05	1.26	26.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	209.8	215.2	1.03
East: Victoria Road (e)											
P2	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	220.0	228.4	1.04
North: Marsden Road											
P3	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	212.4	218.5	1.03

P3B	Slip/ Bypass	53	44.3	LOS E	0.1	0.1	0.94	0.94	201.4	204.3	1.01
All Pedestrians		211	44.3	LOS E	0.1	0.1	0.94	0.94	210.9	216.6	1.03

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

MOVEMENT SUMMARY

Site: 103 PM_FY [103 VIC_BRU_21_PM_FY (Site Folder: PM Peak)]

Network: N101 [PM_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	2371	5.9	2371	5.9	0.784	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	67.9
Approach		2371	5.9	2371	5.9	0.784	0.2	NA	0.0	0.0	0.00	0.00	0.00	67.9
North: Brush Road														
7	L2	13	0.0	13	0.0	0.020	8.3	LOS A	0.1	0.5	0.55	0.66	0.55	40.8
Approach		13	0.0	13	0.0	0.020	8.3	LOS A	0.1	0.5	0.55	0.66	0.55	40.8
West: Victoria Road (w)														
10	L2	65	1.8	65	1.8	0.391	6.4	LOS A	0.0	0.0	0.00	0.06	0.00	67.1
11	T1	2178	2.8	2178	2.8	0.391	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	69.1
Approach		2244	2.8	2244	2.8	0.391	0.2	NA	0.0	0.0	0.00	0.02	0.00	69.0
All Vehicles		4628	4.4	4628	4.4	0.784	0.2	NA	0.1	0.5	0.00	0.01	0.00	68.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 PM_FY [104 MAR_STE_21_PM_FY (Site Folder: PM Peak)]

Network: N101 [PM_FY (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	117	3.7	117	3.7	0.976	94.8	LOS F	18.9	136.5	1.00	1.18	1.62	31.4
2	T1	372	3.8	372	3.8	* 0.976	89.0	LOS F	19.3	139.6	1.00	1.18	1.61	30.2
Approach		489	3.8	489	3.8	0.976	90.4	LOS F	19.3	139.6	1.00	1.18	1.61	30.5
East: Rutledge Street														
4	L2	8	0.0	8	0.0	0.144	52.4	LOS D	2.2	15.2	0.90	0.68	0.90	7.2
5	T1	57	0.0	57	0.0	0.144	47.7	LOS D	2.2	15.2	0.90	0.69	0.90	25.7
6	R2	17	0.0	17	0.0	0.144	52.9	LOS D	2.0	14.0	0.90	0.70	0.90	19.1
Approach		82	0.0	82	0.0	0.144	49.2	LOS D	2.2	15.2	0.90	0.69	0.90	23.0
North: Marsden Road (n)														
7	L2	23	0.0	23	0.0	0.174	10.5	LOS A	3.7	26.3	0.39	0.37	0.39	46.1
8	T1	335	2.8	335	2.8	* 0.823	10.0	LOS A	20.6	150.9	0.60	0.57	0.62	37.2
9	R2	1322	6.0	1322	6.0	* 0.823	22.2	LOS B	20.6	150.9	0.92	0.88	0.95	40.9
Approach		1680	5.3	1680	5.3	0.823	19.6	LOS B	20.6	150.9	0.85	0.81	0.88	40.6
West: Stewart Street														
10	L2	1739	3.6	1739	3.6	0.648	14.5	LOS B	24.8	179.2	0.54	0.78	0.54	47.4
11	T1	39	0.0	39	0.0	* 0.785	61.9	LOS E	10.6	74.5	1.00	0.90	1.18	21.3
12	R2	132	1.0	132	1.0	0.785	65.9	LOS E	10.6	74.5	1.00	0.90	1.18	19.2
Approach		1910	3.4	1910	3.4	0.785	19.1	LOS B	24.8	179.2	0.58	0.79	0.60	43.8
All Vehicles		4162	4.1	4162	4.1	0.976	28.3	LOS B	24.8	179.2	0.74	0.85	0.84	38.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	219.8	215.2	0.98
East: Rutledge Street											
P2	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	217.3	211.9	0.98
North: Marsden Road (n)											
P3	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	224.9	221.8	0.99
West: Stewart Street											
P4	Full	53	54.3	LOS E	0.2	0.2	0.95	0.95	222.3	218.5	0.98

All Pedestrians	211	54.3	LOS E	0.2	0.2	0.95	0.95	221.1	216.9	0.98

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

MOVEMENT SUMMARY

Site: 105 PM_FY [105 BRU_TRA_21_PM_FY (Site Folder: PM Peak)]

Network: N101 [PM_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	45	1.4	45	1.4	0.031	0.0	LOS A	0.1	0.6	0.06	0.15	0.06	48.4
3	R2	17	0.0	17	0.0	0.031	4.6	LOS A	0.1	0.6	0.06	0.15	0.06	47.3
Approach		62	1.0	62	1.0	0.031	1.3	NA	0.1	0.6	0.06	0.15	0.06	48.1
East: Tramway Street														
4	L2	11	0.0	11	0.0	0.027	4.6	LOS A	0.1	0.5	0.05	0.54	0.05	38.8
6	R2	33	0.0	33	0.0	0.027	4.7	LOS A	0.1	0.5	0.05	0.54	0.05	40.3
Approach		44	0.0	44	0.0	0.027	4.7	LOS A	0.1	0.5	0.05	0.54	0.05	40.0
North: Brush Road (n)														
7	L2	20	0.0	20	0.0	0.017	4.6	LOS A	0.0	0.0	0.00	0.33	0.00	44.0
8	T1	13	0.0	13	0.0	0.017	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	39.2
Approach		33	0.0	33	0.0	0.017	2.8	NA	0.0	0.0	0.00	0.33	0.00	43.0
All Vehicles		138	0.5	138	0.5	0.031	2.7	NA	0.1	0.6	0.04	0.31	0.04	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 PM_CM [101 MAR_WIN_21_PM_CM (Site Folder: PM Peak)]

Network: N101 [PM_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	474	4.6	474	4.6	0.446	2.2	LOS A	3.2	22.9	0.32	0.24	0.40	37.1
3	R2	256	1.6	256	1.6	0.446	9.3	LOS A	3.2	22.9	0.50	0.37	0.62	42.0
Approach		730	3.5	730	3.5	0.446	4.7	NA	3.2	22.9	0.39	0.29	0.48	40.2
East: Winbourne Street														
4	L2	113	1.7	113	1.7	0.127	5.2	LOS A	0.4	2.6	0.26	0.54	0.26	39.3
6	R2	32	4.0	32	4.0	0.135	19.6	LOS B	0.5	3.4	0.80	0.91	0.80	25.5
Approach		145	2.2	145	2.2	0.135	8.4	LOS A	0.5	3.4	0.38	0.62	0.38	35.2
North: Marsden Road (n)														
7	L2	56	0.0	56	0.0	0.130	5.6	LOS A	0.0	0.0	0.00	0.16	0.00	57.8
8	T1	402	1.8	402	1.8	0.130	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.5
Approach		457	1.6	457	1.6	0.130	0.8	NA	0.0	0.0	0.00	0.07	0.00	59.2
All Vehicles		1333	2.7	1333	2.7	0.446	3.7	NA	3.2	22.9	0.25	0.25	0.30	52.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 PM_CM [102 VIC_MAR_21_PM_CM (Site Folder: PM Peak)]

Network: N101 [PM_CM (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	170	8.9	170	8.9	0.767	50.7	LOS D	12.2	89.9	1.00	0.91	1.13	32.0
2	T1	160	0.6	160	0.6	0.767	48.1	LOS D	12.2	89.9	1.00	0.91	1.15	20.1
3	R2	99	2.0	99	2.0	0.767	54.2	LOS D	9.6	67.9	1.00	0.91	1.17	19.9
Approach		430	4.2	430	4.2	0.767	50.6	LOS D	12.2	89.9	1.00	0.91	1.15	25.6
East: Victoria Road (e)														
4	L2	53	6.7	53	6.7	* 0.942	64.1	LOS E	44.6	327.9	1.00	1.17	1.35	25.2
5	T1	1955	5.8	1955	5.8	* 0.942	55.9	LOS D	44.8	329.3	0.98	1.15	1.34	30.5
6	R2	469	4.1	469	4.1	* 0.866	61.1	LOS E	12.9	93.6	1.00	0.96	1.33	13.7
Approach		2477	5.5	2477	5.5	0.942	57.1	LOS E	44.8	329.3	0.99	1.11	1.34	27.9
North: Marsden Road														
7	L2	351	0.9	351	0.9	* 0.918	53.5	LOS D	15.2	107.1	1.00	1.10	1.41	6.7
8	T1	83	3.7	83	3.7	0.546	51.8	LOS D	4.1	29.9	1.00	0.77	1.01	22.4
9	R2	130	2.3	130	2.3	0.889	66.2	LOS E	7.4	52.7	1.00	1.00	1.51	23.1
Approach		564	1.6	564	1.6	0.918	56.2	LOS D	15.2	107.1	1.00	1.03	1.37	14.8
West: Victoria Road (w)														
10	L2	177	5.3	177	5.3	0.844	45.2	LOS D	31.4	227.1	0.97	1.00	1.08	29.9
11	T1	1692	3.2	1692	3.2	0.844	35.6	LOS C	31.6	227.3	0.95	0.95	1.07	31.5
12	R2	109	4.3	109	4.3	0.401	49.2	LOS D	4.9	35.8	0.95	0.78	0.95	33.0
Approach		1977	3.5	1977	3.5	0.844	37.2	LOS C	31.6	227.3	0.95	0.94	1.06	31.5
All Vehicles		5449	4.3	5449	4.3	0.942	49.3	LOS D	44.8	329.3	0.98	1.03	1.23	27.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	209.8	215.2	1.03
East: Victoria Road (e)											
P2	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	220.0	228.4	1.04
North: Marsden Road											
P3	Full	53	44.3	LOS E	0.1	0.1	0.94	0.94	212.4	218.5	1.03

P3B	Slip/ Bypass	53	44.3	LOS E	0.1	0.1	0.94	0.94	201.4	204.3	1.01
All Pedestrians		211	44.3	LOS E	0.1	0.1	0.94	0.94	210.9	216.6	1.03

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

MOVEMENT SUMMARY

Site: 103 PM_CM [103 VIC_BRU_21_PM_CM (Site Folder: PM Peak)]

Network: N101 [PM_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	2458	5.7	2458	5.7	0.760	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	68.3
Approach		2458	5.7	2458	5.7	0.760	0.1	NA	0.0	0.0	0.00	0.00	0.00	68.3
North: Brush Road														
7	L2	13	0.0	13	0.0	0.020	8.3	LOS A	0.1	0.5	0.55	0.66	0.55	40.8
Approach		13	0.0	13	0.0	0.020	8.3	LOS A	0.1	0.5	0.55	0.66	0.55	40.8
West: Victoria Road (w)														
10	L2	65	1.8	65	1.8	0.391	6.4	LOS A	0.0	0.0	0.00	0.06	0.00	67.1
11	T1	2178	2.8	2178	2.8	0.391	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	69.1
Approach		2244	2.8	2244	2.8	0.391	0.2	NA	0.0	0.0	0.00	0.02	0.00	69.0
All Vehicles		4716	4.3	4716	4.3	0.760	0.2	NA	0.1	0.5	0.00	0.01	0.00	68.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 PM_CM [104 MAR_STE_21_PM_CM (Site Folder: PM Peak)]

Network: N101 [PM_CM (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 118 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	117	3.7	117	3.7	0.903	73.4	LOS F	16.2	116.8	1.00	1.05	1.38	35.3
2	T1	372	3.8	372	3.8	* 0.903	67.7	LOS E	16.5	119.5	1.00	1.05	1.37	34.2
Approach		489	3.8	489	3.8	0.903	69.1	LOS E	16.5	119.5	1.00	1.05	1.37	34.5
East: Rutledge Street														
4	L2	8	0.0	8	0.0	0.146	51.4	LOS D	2.2	15.3	0.89	0.68	0.89	7.3
5	T1	57	0.0	57	0.0	0.146	47.0	LOS D	2.2	15.3	0.90	0.69	0.90	25.9
6	R2	17	0.0	17	0.0	0.146	52.8	LOS D	1.9	13.5	0.91	0.70	0.91	19.1
Approach		82	0.0	82	0.0	0.146	48.6	LOS D	2.2	15.3	0.90	0.69	0.90	23.2
North: Marsden Road (n)														
7	L2	23	0.0	23	0.0	0.179	10.5	LOS A	3.8	27.3	0.39	0.36	0.39	46.1
8	T1	359	2.6	359	2.6	* 0.846	11.6	LOS A	22.4	164.2	0.62	0.59	0.65	35.3
9	R2	1322	6.0	1322	6.0	* 0.846	25.7	LOS B	22.4	164.2	0.94	0.91	1.00	39.0
Approach		1704	5.2	1704	5.2	0.846	22.5	LOS B	22.4	165.0	0.87	0.84	0.92	38.6
West: Stewart Street														
10	L2	1739	3.6	1739	3.6	0.652	14.7	LOS B	24.8	179.3	0.55	0.78	0.55	47.3
11	T1	74	0.0	74	0.0	0.879	68.0	LOS E	13.5	95.0	1.00	0.99	1.35	20.1
12	R2	132	1.0	132	1.0	* 0.879	72.0	LOS F	13.5	95.0	1.00	0.99	1.35	18.1
Approach		1945	3.3	1945	3.3	0.879	20.6	LOS B	24.8	179.3	0.60	0.81	0.63	42.7
All Vehicles		4220	4.1	4220	4.1	0.903	27.5	LOS B	24.8	179.3	0.76	0.85	0.84	38.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	218.8	215.2	0.98
East: Rutledge Street											
P2	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	216.3	211.9	0.98
North: Marsden Road (n)											
P3	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	223.9	221.8	0.99
West: Stewart Street											
P4	Full	53	53.3	LOS E	0.2	0.2	0.95	0.95	221.3	218.5	0.99

All Pedestrians	211	53.3	LOS E	0.2	0.2	0.95	0.95	220.1	216.9	0.99

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

MOVEMENT SUMMARY

Site: 105 PM_CM [105 BRU_TRA_21_PM_CM (Site Folder: PM Peak)]

Network: N101 [PM_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	45	1.4	45	1.4	0.031	0.0	LOS A	0.1	0.6	0.06	0.15	0.06	48.4
3	R2	17	0.0	17	0.0	0.031	4.6	LOS A	0.1	0.6	0.06	0.15	0.06	47.3
Approach		62	1.0	62	1.0	0.031	1.3	NA	0.1	0.6	0.06	0.15	0.06	48.1
East: Tramway Street														
4	L2	33	0.0	33	0.0	0.038	4.6	LOS A	0.1	0.9	0.04	0.53	0.04	38.9
6	R2	33	0.0	33	0.0	0.038	4.7	LOS A	0.1	0.9	0.04	0.53	0.04	40.3
Approach		66	0.0	66	0.0	0.038	4.6	LOS A	0.1	0.9	0.04	0.53	0.04	39.8
North: Brush Road (n)														
7	L2	20	0.0	20	0.0	0.017	4.6	LOS A	0.0	0.0	0.00	0.33	0.00	44.0
8	T1	13	0.0	13	0.0	0.017	0.0	LOS A	0.0	0.0	0.00	0.33	0.00	39.2
Approach		33	0.0	33	0.0	0.017	2.8	NA	0.0	0.0	0.00	0.33	0.00	43.0
All Vehicles		160	0.4	160	0.4	0.038	3.0	NA	0.1	0.9	0.04	0.34	0.04	44.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 WE_BY [101 MAR_WIN_21_WE_BY (Site Folder: WE)]

Network: N101 [WE_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	396	0.5	396	0.5	0.201	0.5	LOS A	0.4	2.7	0.09	0.05	0.09	52.0
3	R2	32	3.3	32	3.3	0.201	8.2	LOS A	0.4	2.7	0.12	0.06	0.12	49.2
Approach		428	0.8	428	0.8	0.201	1.1	NA	0.4	2.7	0.09	0.05	0.09	51.4
East: Winbourne Street														
4	L2	89	1.5	89	1.5	0.089	5.5	LOS A	0.3	2.2	0.31	0.56	0.31	39.0
6	R2	18	0.0	18	0.0	0.047	12.5	LOS A	0.2	1.2	0.66	0.82	0.66	31.0
Approach		107	1.3	107	1.3	0.089	6.6	LOS A	0.3	2.2	0.37	0.60	0.37	37.4
North: Marsden Road (n)														
7	L2	4	0.0	4	0.0	0.121	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.8
8	T1	449	1.0	449	1.0	0.121	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		454	1.0	454	1.0	0.121	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		989	0.9	989	0.9	0.201	1.2	NA	0.4	2.7	0.08	0.09	0.08	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 WE_BY [102 VIC_MAR_21_WE_BY (Site Folder: WE)]

Network: N101 [WE_BY (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	84	2.6	84	2.6	0.613	55.6	LOS D	7.2	51.3	0.99	0.81	1.01	30.9
2	T1	63	0.0	63	0.0	0.613	51.7	LOS D	7.2	51.3	1.00	0.81	1.02	19.2
3	R2	94	0.0	94	0.0	0.613	59.3	LOS E	5.7	39.8	1.00	0.80	1.04	18.4
Approach		240	0.9	240	0.9	0.613	56.0	LOS D	7.2	51.3	1.00	0.81	1.03	23.7
East: Victoria Road (e)														
4	L2	49	7.0	49	7.0	* 0.614	35.2	LOS C	20.4	146.2	0.83	0.77	0.83	34.5
5	T1	1402	2.1	1402	2.1	0.614	26.6	LOS B	20.9	148.9	0.82	0.74	0.82	43.3
6	R2	316	0.4	316	0.4	* 0.626	56.6	LOS E	8.3	58.3	0.99	0.81	1.01	14.5
Approach		1767	1.9	1767	1.9	0.626	32.2	LOS C	20.9	148.9	0.85	0.75	0.86	37.8
North: Marsden Road														
7	L2	345	0.3	345	0.3	* 0.706	33.8	LOS C	12.9	90.4	0.96	0.84	0.97	10.8
8	T1	57	1.9	57	1.9	0.233	48.8	LOS D	2.8	20.1	0.94	0.72	0.94	23.2
9	R2	96	0.0	96	0.0	0.406	54.6	LOS D	4.9	34.2	0.96	0.78	0.96	26.1
Approach		498	0.4	498	0.4	0.706	39.5	LOS C	12.9	90.4	0.96	0.81	0.97	18.2
West: Victoria Road (w)														
10	L2	83	1.4	83	1.4	0.386	31.8	LOS C	11.0	77.7	0.72	0.70	0.72	36.9
11	T1	1500	1.4	1500	1.4	* 0.802	30.4	LOS C	32.0	226.3	0.88	0.83	0.92	34.6
12	R2	88	0.0	88	0.0	0.349	54.1	LOS D	4.4	30.9	0.95	0.77	0.95	31.6
Approach		1671	1.3	1671	1.3	0.802	31.7	LOS C	32.0	226.3	0.88	0.82	0.91	34.4
All Vehicles		4176	1.4	4176	1.4	0.802	34.3	LOS C	32.0	226.3	0.88	0.79	0.90	33.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
East: Victoria Road (e)											
P2	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	225.0	228.4	1.02
North: Marsden Road											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	217.3	218.5	1.01

P3B	Slip/ Bypass	53	49.3	LOS E	0.2	0.2	0.95	0.95	206.4	204.3	0.99
All Pedestrians		211	49.3	LOS E	0.2	0.2	0.95	0.95	215.9	216.6	1.00

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

MOVEMENT SUMMARY

Site: 103 WE_BY [103 VIC_BRU_21_WE_BY (Site Folder: WE)]

Network: N101 [WE_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	1809	1.8	1809	1.8	0.469	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.6
Approach		1809	1.8	1809	1.8	0.469	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.6
North: Brush Road														
7	L2	27	0.0	27	0.0	0.023	8.0	LOS A	0.1	0.7	0.24	0.50	0.24	43.1
Approach		27	0.0	27	0.0	0.023	8.0	LOS A	0.1	0.7	0.24	0.50	0.24	43.1
West: Victoria Road (w)														
10	L2	32	0.0	32	0.0	0.094	6.4	LOS A	0.0	0.0	0.00	0.11	0.00	64.9
11	T1	1966	1.3	1966	1.3	0.470	0.3	LOS A	0.0	0.0	0.00	0.01	0.00	69.3
Approach		1998	1.3	1998	1.3	0.470	0.4	NA	0.0	0.0	0.00	0.01	0.00	69.2
All Vehicles		3834	1.5	3834	1.5	0.470	0.3	NA	0.1	0.7	0.00	0.01	0.00	68.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 WE_BY [104 MAR_STE_21_WE_BY (Site Folder: WE)]

Network: N101 [WE_BY (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 117 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	80	1.3	80	1.3	0.674	57.7	LOS E	11.0	77.5	1.00	0.84	1.03	39.2
2	T1	320	0.0	320	0.0	* 0.674	52.0	LOS D	11.3	78.8	1.00	0.84	1.03	38.0
Approach		400	0.3	400	0.3	0.674	53.2	LOS D	11.3	78.8	1.00	0.84	1.03	38.2
East: Rutledge Street														
4	L2	1	0.0	1	0.0	0.067	48.9	LOS D	1.1	7.4	0.87	0.63	0.87	7.8
5	T1	32	0.0	32	0.0	0.067	44.2	LOS D	1.1	7.4	0.87	0.64	0.87	27.0
6	R2	8	0.0	8	0.0	0.067	49.5	LOS D	1.0	6.7	0.88	0.66	0.88	20.0
Approach		42	0.0	42	0.0	0.067	45.4	LOS D	1.1	7.4	0.87	0.64	0.87	25.3
North: Marsden Road (n)														
7	L2	16	0.0	16	0.0	0.168	10.9	LOS A	3.7	26.1	0.40	0.36	0.40	45.8
8	T1	316	1.7	316	1.7	* 0.797	9.6	LOS A	17.6	125.9	0.59	0.54	0.59	38.0
9	R2	1235	2.8	1235	2.8	* 0.797	21.2	LOS B	17.6	126.2	0.91	0.87	0.93	42.0
Approach		1567	2.5	1567	2.5	0.797	18.8	LOS B	17.6	126.2	0.84	0.80	0.86	41.6
West: Stewart Street														
10	L2	1501	1.6	1501	1.6	0.563	14.2	LOS A	19.4	138.0	0.50	0.77	0.50	47.8
11	T1	16	0.0	16	0.0	* 0.733	57.2	LOS E	10.0	70.1	1.00	0.87	1.11	22.2
12	R2	155	0.0	155	0.0	0.733	61.2	LOS E	10.0	70.1	1.00	0.87	1.11	20.1
Approach		1673	1.5	1673	1.5	0.733	19.0	LOS B	19.4	138.0	0.55	0.78	0.56	43.8
All Vehicles		3682	1.8	3682	1.8	0.797	22.9	LOS B	19.4	138.0	0.73	0.79	0.74	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	52.8	LOS E	0.2	0.2	0.95	0.95	218.3	215.2	0.99
East: Rutledge Street											
P2	Full	53	52.8	LOS E	0.2	0.2	0.95	0.95	215.8	211.9	0.98
North: Marsden Road (n)											
P3	Full	53	52.8	LOS E	0.2	0.2	0.95	0.95	223.4	221.8	0.99
West: Stewart Street											
P4	Full	53	52.8	LOS E	0.2	0.2	0.95	0.95	220.8	218.5	0.99

All Pedestrians	211	52.8	LOS E	0.2	0.2	0.95	0.95	219.6	216.9	0.99

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

MOVEMENT SUMMARY

Site: 105 WE_BY [105 BRU_TRA_21_WE_BY (Site Folder: WE)]

Network: N101 [WE_BY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	32	0.0	32	0.0	0.020	0.0	LOS A	0.0	0.2	0.05	0.10	0.05	48.9
3	R2	7	0.0	7	0.0	0.020	4.7	LOS A	0.0	0.2	0.05	0.10	0.05	47.8
Approach		39	0.0	39	0.0	0.020	0.8	NA	0.0	0.2	0.05	0.10	0.05	48.7
East: Tramway Street														
4	L2	3	0.0	3	0.0	0.035	4.6	LOS A	0.1	0.6	0.07	0.54	0.07	38.7
6	R2	51	0.0	51	0.0	0.035	4.7	LOS A	0.1	0.6	0.07	0.54	0.07	40.2
Approach		54	0.0	54	0.0	0.035	4.6	LOS A	0.1	0.6	0.07	0.54	0.07	40.1
North: Brush Road (n)														
7	L2	32	0.0	32	0.0	0.024	4.6	LOS A	0.0	0.0	0.00	0.38	0.00	43.4
8	T1	14	0.0	14	0.0	0.024	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	38.0
Approach		46	0.0	46	0.0	0.024	3.2	NA	0.0	0.0	0.00	0.38	0.00	42.5
All Vehicles		139	0.0	139	0.0	0.035	3.1	NA	0.1	0.6	0.04	0.36	0.04	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 WE_FY [101 MAR_WIN_21_WE_FY (Site Folder: WE)]

Network: N101 [WE_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	418	0.6	418	0.6	0.212	0.5	LOS A	0.4	2.8	0.09	0.04	0.09	52.0
3	R2	33	3.3	33	3.3	0.212	8.3	LOS A	0.4	2.8	0.12	0.06	0.12	49.2
Approach		451	0.8	451	0.8	0.212	1.1	NA	0.4	2.8	0.10	0.05	0.10	51.4
East: Winbourne Street														
4	L2	91	1.5	91	1.5	0.099	5.5	LOS A	0.3	2.2	0.30	0.56	0.30	39.0
6	R2	18	0.0	18	0.0	0.050	13.1	LOS A	0.2	1.2	0.68	0.84	0.68	30.4
Approach		109	1.3	109	1.3	0.099	6.7	LOS A	0.3	2.2	0.37	0.60	0.37	37.3
North: Marsden Road (n)														
7	L2	4	0.0	4	0.0	0.129	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	58.7
8	T1	461	1.0	461	1.0	0.129	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
Approach		465	1.0	465	1.0	0.129	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		1025	0.9	1025	0.9	0.212	1.3	NA	0.4	2.8	0.08	0.09	0.08	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 WE_FY [102 VIC_MAR_21_WE_FY (Site Folder: WE)]

Network: N101 [WE_FY (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	86	2.6	86	2.6	0.305	42.1	LOS C	5.9	41.8	0.87	0.75	0.87	34.9
2	T1	64	0.0	64	0.0	0.305	38.4	LOS C	5.9	41.8	0.88	0.75	0.88	22.5
3	R2	96	0.0	96	0.0	0.305	45.3	LOS D	5.3	37.0	0.90	0.76	0.90	21.7
Approach		246	0.9	246	0.9	0.305	42.4	LOS C	5.9	41.8	0.88	0.75	0.88	27.4
East: Victoria Road (e)														
4	L2	52	6.9	52	6.9	* 0.788	44.4	LOS D	26.9	192.3	0.96	0.90	1.00	30.8
5	T1	1500	2.2	1500	2.2	0.788	35.9	LOS C	26.9	192.3	0.94	0.87	0.99	38.2
6	R2	336	0.5	336	0.5	* 0.908	73.6	LOS F	10.6	74.6	1.00	1.00	1.48	11.7
Approach		1888	2.0	1888	2.0	0.908	42.8	LOS D	26.9	192.3	0.95	0.89	1.07	32.9
North: Marsden Road														
7	L2	353	0.3	353	0.3	* 0.874	42.9	LOS D	14.1	99.2	1.00	0.96	1.25	8.7
8	T1	59	1.9	59	1.9	0.257	50.0	LOS D	2.9	20.9	0.95	0.73	0.95	22.9
9	R2	98	0.0	98	0.0	0.448	55.9	LOS D	5.1	35.6	0.97	0.78	0.97	25.8
Approach		510	0.4	510	0.4	0.874	46.2	LOS D	14.1	99.2	0.99	0.90	1.16	16.2
West: Victoria Road (w)														
10	L2	85	1.4	85	1.4	0.463	36.7	LOS C	12.8	90.4	0.80	0.76	0.80	34.0
11	T1	1537	1.4	1537	1.4	* 0.963	62.2	LOS E	48.9	346.3	0.97	1.12	1.31	22.6
12	R2	91	0.0	91	0.0	0.488	59.1	LOS E	4.8	33.6	0.99	0.78	0.99	30.3
Approach		1712	1.3	1712	1.3	0.963	60.7	LOS E	48.9	346.3	0.96	1.09	1.27	23.5
All Vehicles		4356	1.5	4356	1.5	0.963	50.2	LOS D	48.9	346.3	0.95	0.96	1.15	27.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
East: Victoria Road (e)											
P2	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	225.0	228.4	1.02
North: Marsden Road											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	217.3	218.5	1.01

P3B	Slip/ Bypass	53	49.3	LOS E	0.2	0.2	0.95	0.95	206.4	204.3	0.99
All Pedestrians		211	49.3	LOS E	0.2	0.2	0.95	0.95	215.9	216.6	1.00

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

MOVEMENT SUMMARY

Site: 103 WE_FY [103 VIC_BRU_21_WE_FY (Site Folder: WE)]

Network: N101 [WE_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	1931	1.9	1931	1.9	0.501	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.5
Approach		1931	1.9	1931	1.9	0.501	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.5
North: Brush Road														
7	L2	28	0.0	28	0.0	0.024	8.2	LOS A	0.1	0.7	0.24	0.50	0.24	43.1
Approach		28	0.0	28	0.0	0.024	8.2	LOS A	0.1	0.7	0.24	0.50	0.24	43.1
West: Victoria Road (w)														
10	L2	33	0.0	33	0.0	0.096	6.4	LOS A	0.0	0.0	0.00	0.11	0.00	64.8
11	T1	2015	1.3	2015	1.3	0.482	0.3	LOS A	0.0	0.0	0.00	0.01	0.00	69.3
Approach		2048	1.3	2048	1.3	0.482	0.4	NA	0.0	0.0	0.00	0.01	0.00	69.2
All Vehicles		4006	1.6	4006	1.6	0.501	0.3	NA	0.1	0.7	0.00	0.01	0.00	68.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 WE_FY [104 MAR_STE_21_WE_FY (Site Folder: WE)]

Network: N101 [WE_FY (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 113 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	90	1.6	90	1.6	0.823	63.0	LOS E	12.7	89.6	1.00	0.95	1.22	37.9
2	T1	355	0.3	355	0.3	* 0.823	56.7	LOS E	13.5	94.6	1.00	0.95	1.21	36.8
Approach		446	0.5	446	0.5	0.823	58.0	LOS E	13.5	94.6	1.00	0.95	1.21	37.0
East: Rutledge Street														
4	L2	1	0.0	1	0.0	0.074	48.9	LOS D	1.1	7.5	0.88	0.64	0.88	7.8
5	T1	33	0.0	33	0.0	0.074	44.1	LOS D	1.1	7.5	0.88	0.65	0.88	27.1
6	R2	8	0.0	8	0.0	0.074	49.4	LOS D	1.0	6.7	0.89	0.66	0.89	20.0
Approach		43	0.0	43	0.0	0.074	45.3	LOS D	1.1	7.5	0.89	0.65	0.89	25.4
North: Marsden Road (n)														
7	L2	17	0.0	17	0.0	0.176	10.5	LOS A	3.6	25.3	0.40	0.37	0.40	46.3
8	T1	335	1.7	335	1.7	* 0.834	10.4	LOS A	20.9	149.4	0.61	0.57	0.63	36.8
9	R2	1310	2.8	1310	2.8	* 0.834	23.8	LOS B	20.9	149.4	0.94	0.90	0.99	40.5
Approach		1662	2.6	1662	2.6	0.834	20.9	LOS B	20.9	149.4	0.87	0.83	0.91	40.2
West: Stewart Street														
10	L2	1512	1.6	1512	1.6	0.567	14.0	LOS A	19.1	135.4	0.51	0.77	0.51	47.9
11	T1	16	0.0	16	0.0	0.800	59.7	LOS E	10.3	71.8	1.00	0.91	1.22	21.6
12	R2	157	0.0	157	0.0	* 0.800	63.6	LOS E	10.3	71.8	1.00	0.91	1.22	19.5
Approach		1685	1.4	1685	1.4	0.800	19.1	LOS B	19.1	135.4	0.56	0.78	0.58	43.8
All Vehicles		3835	1.8	3835	1.8	0.834	24.7	LOS B	20.9	149.4	0.75	0.82	0.80	40.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	50.8	LOS E	0.2	0.2	0.95	0.95	216.3	215.2	0.99
East: Rutledge Street											
P2	Full	53	22.9	LOS C	0.1	0.1	0.90	0.90	185.9	211.9	1.14
North: Marsden Road (n)											
P3	Full	53	50.8	LOS E	0.2	0.2	0.95	0.95	221.4	221.8	1.00
West: Stewart Street											
P4	Full	53	50.8	LOS E	0.2	0.2	0.95	0.95	218.8	218.5	1.00

All Pedestrians	211	43.8	LOS E	0.2	0.2	0.94	0.94	210.6	216.9	1.03

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

MOVEMENT SUMMARY

Site: 105 WE_FY [105 BRU_TRA_21_WE_FY (Site Folder: WE)]

Network: N101 [WE_FY (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	33	0.0	33	0.0	0.020	0.0	LOS A	0.0	0.2	0.05	0.10	0.05	48.9
3	R2	7	0.0	7	0.0	0.020	4.7	LOS A	0.0	0.2	0.05	0.10	0.05	47.7
Approach		40	0.0	40	0.0	0.020	0.8	NA	0.0	0.2	0.05	0.10	0.05	48.7
East: Tramway Street														
4	L2	3	0.0	3	0.0	0.036	4.6	LOS A	0.1	0.6	0.08	0.54	0.08	38.6
6	R2	53	0.0	53	0.0	0.036	4.7	LOS A	0.1	0.6	0.08	0.54	0.08	40.1
Approach		55	0.0	55	0.0	0.036	4.7	LOS A	0.1	0.6	0.08	0.54	0.08	40.1
North: Brush Road (n)														
7	L2	33	0.0	33	0.0	0.025	4.6	LOS A	0.0	0.0	0.00	0.38	0.00	43.4
8	T1	14	0.0	14	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	38.0
Approach		47	0.0	47	0.0	0.025	3.2	NA	0.0	0.0	0.00	0.38	0.00	42.5
All Vehicles		143	0.0	143	0.0	0.036	3.1	NA	0.1	0.6	0.04	0.36	0.04	44.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 WE_CM [101 MAR_WIN_21_WE_CM (Site Folder: WE)]

Network: N101 [WE_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
2	T1	418	0.6	418	0.6	0.406	2.2	LOS A	2.7	19.0	0.32	0.24	0.39	37.2
3	R2	234	0.5	234	0.5	0.406	9.4	LOS A	2.7	19.0	0.52	0.39	0.62	41.8
Approach		652	0.6	652	0.6	0.406	4.8	NA	2.7	19.0	0.39	0.29	0.47	40.2
East: Winbourne Street														
4	L2	293	0.5	293	0.5	0.538	6.6	LOS A	1.3	8.8	0.35	0.64	0.43	37.9
6	R2	53	0.0	53	0.0	0.202	18.6	LOS B	0.7	5.1	0.80	0.92	0.83	26.1
Approach		345	0.4	345	0.4	0.538	8.4	LOS A	1.3	8.8	0.42	0.68	0.49	35.5
North: Marsden Road (n)														
7	L2	39	0.0	39	0.0	0.129	5.6	LOS A	0.9	6.3	0.00	0.09	0.00	58.3
8	T1	461	1.0	461	1.0	0.129	0.1	LOS A	0.9	6.3	0.00	0.04	0.00	59.6
Approach		500	0.9	500	0.9	0.129	0.5	NA	0.9	6.3	0.00	0.05	0.00	59.5
All Vehicles		1497	0.6	1497	0.6	0.538	4.2	NA	2.7	19.0	0.27	0.30	0.32	51.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 WE_CM [102 VIC_MAR_21_WE_CM (Site Folder: WE)]

Network: N101 [WE_CM (Network Folder: General)]

TCS192
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 110 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Wharf Road														
1	L2	86	2.6	86	2.6	0.496	51.7	LOS D	6.9	49.1	0.96	0.79	0.96	32.0
2	T1	64	0.0	64	0.0	0.496	47.9	LOS D	6.9	49.1	0.97	0.79	0.97	20.0
3	R2	96	0.0	96	0.0	0.496	55.2	LOS D	5.7	39.9	0.98	0.78	0.98	19.3
Approach		246	0.9	246	0.9	0.496	52.1	LOS D	6.9	49.1	0.97	0.79	0.97	24.7
East: Victoria Road (e)														
4	L2	52	6.9	52	6.9	* 0.763	42.0	LOS C	26.1	186.5	0.94	0.87	0.95	31.7
5	T1	1500	2.2	1500	2.2	0.763	33.0	LOS C	26.1	186.5	0.91	0.83	0.93	39.7
6	R2	463	0.3	463	0.3	* 0.916	73.1	LOS F	14.8	104.1	1.00	1.00	1.45	11.8
Approach		2014	1.9	2014	1.9	0.916	42.4	LOS C	26.1	186.5	0.93	0.87	1.05	32.4
North: Marsden Road														
7	L2	480	0.2	480	0.2	* 0.919	54.0	LOS D	20.7	145.2	1.00	1.05	1.31	7.1
8	T1	59	1.9	59	1.9	0.209	46.6	LOS D	2.8	20.1	0.92	0.72	0.92	23.8
9	R2	173	0.0	173	0.0	0.640	54.9	LOS D	9.1	63.4	0.99	0.82	1.01	26.0
Approach		711	0.3	711	0.3	0.919	53.6	LOS D	20.7	145.2	0.99	0.96	1.21	15.1
West: Victoria Road (w)														
10	L2	159	0.7	159	0.7	0.458	33.3	LOS C	12.3	87.0	0.77	0.79	0.77	35.2
11	T1	1537	1.4	1537	1.4	* 0.952	58.3	LOS E	49.1	347.8	0.97	1.11	1.28	23.6
12	R2	91	0.0	91	0.0	0.358	54.2	LOS D	4.5	31.7	0.95	0.77	0.95	31.6
Approach		1787	1.2	1787	1.2	0.952	55.9	LOS D	49.1	347.8	0.95	1.07	1.22	24.8
All Vehicles		4759	1.3	4759	1.3	0.952	49.6	LOS D	49.1	347.8	0.95	0.95	1.13	26.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Wharf Road											
P1	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	214.8	215.2	1.00
East: Victoria Road (e)											
P2	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	225.0	228.4	1.02
North: Marsden Road											
P3	Full	53	49.3	LOS E	0.2	0.2	0.95	0.95	217.3	218.5	1.01

P3B	Slip/ Bypass	53	49.3	LOS E	0.2	0.2	0.95	0.95	206.4	204.3	0.99
All Pedestrians		211	49.3	LOS E	0.2	0.2	0.95	0.95	215.9	216.6	1.00

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

MOVEMENT SUMMARY

Site: 103 WE_CM [103 VIC_BRU_21_WE_CM (Site Folder: WE)]

Network: N101 [WE_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Victoria Road (e)														
5	T1	2057	1.8	2057	1.8	0.534	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	69.5
Approach		2057	1.8	2057	1.8	0.534	0.0	NA	0.0	0.0	0.00	0.00	0.00	69.5
North: Brush Road														
7	L2	59	0.0	59	0.0	0.051	9.1	LOS A	0.2	1.5	0.26	0.51	0.26	43.0
Approach		59	0.0	59	0.0	0.051	9.1	LOS A	0.2	1.5	0.26	0.51	0.26	43.0
West: Victoria Road (w)														
10	L2	33	0.0	33	0.0	0.102	6.4	LOS A	0.0	0.0	0.00	0.10	0.00	65.1
11	T1	2142	1.2	2142	1.2	0.511	0.4	LOS A	0.0	0.0	0.00	0.01	0.00	69.3
Approach		2174	1.2	2174	1.2	0.511	0.5	NA	0.0	0.0	0.00	0.01	0.00	69.2
All Vehicles		4291	1.5	4291	1.5	0.534	0.4	NA	0.2	1.5	0.00	0.01	0.00	67.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 104 WE_CM [104 MAR_STE_21_WE_CM (Site Folder: WE)]

Network: N101 [WE_CM (Network Folder: General)]

TCS1766
Site Category: Existing Design
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 123 seconds (Site User-Given Phase Times)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Marsden Road (s)														
1	L2	90	1.6	90	1.6	0.951	86.4	LOS F	17.8	125.4	1.00	1.13	1.52	33.1
2	T1	390	0.2	390	0.2	* 0.951	80.6	LOS F	18.0	126.4	1.00	1.13	1.52	31.7
Approach		480	0.5	480	0.5	0.951	81.7	LOS F	18.0	126.4	1.00	1.13	1.52	32.0
East: Rutledge Street														
4	L2	1	0.0	1	0.0	0.138	51.1	LOS D	2.4	17.0	0.88	0.67	0.88	7.5
5	T1	83	0.0	83	0.0	0.138	46.4	LOS D	2.4	17.0	0.88	0.67	0.88	26.4
6	R2	8	0.0	8	0.0	0.138	51.4	LOS D	2.3	16.0	0.88	0.68	0.88	19.8
Approach		92	0.0	92	0.0	0.138	46.9	LOS D	2.4	17.0	0.88	0.67	0.88	25.7
North: Marsden Road (n)														
7	L2	17	0.0	17	0.0	0.184	11.6	LOS A	4.4	31.0	0.41	0.37	0.41	44.8
8	T1	370	1.5	370	1.5	* 0.873	15.1	LOS B	28.3	202.0	0.65	0.61	0.68	32.0
9	R2	1310	2.8	1310	2.8	* 0.873	32.6	LOS C	28.3	202.0	0.97	0.95	1.07	35.9
Approach		1697	2.5	1697	2.5	0.873	28.6	LOS C	28.3	202.0	0.90	0.87	0.98	35.5
West: Stewart Street														
10	L2	1512	1.6	1512	1.6	0.563	14.3	LOS A	20.3	143.7	0.50	0.76	0.50	47.7
11	T1	66	0.0	66	0.0	0.893	71.6	LOS F	15.5	108.8	1.00	1.01	1.36	19.4
12	R2	157	0.0	157	0.0	* 0.893	75.6	LOS F	15.5	108.8	1.00	1.01	1.36	17.4
Approach		1735	1.4	1735	1.4	0.893	22.0	LOS B	20.3	143.7	0.56	0.80	0.61	41.7
All Vehicles		4004	1.7	4004	1.7	0.951	32.6	LOS C	28.3	202.0	0.76	0.87	0.88	36.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Marsden Road (s)											
P1	Full	53	55.8	LOS E	0.2	0.2	0.95	0.95	221.3	215.2	0.97
East: Rutledge Street											
P2	Full	53	55.8	LOS E	0.2	0.2	0.95	0.95	218.8	211.9	0.97
North: Marsden Road (n)											
P3	Full	53	55.8	LOS E	0.2	0.2	0.95	0.95	226.4	221.8	0.98
West: Stewart Street											
P4	Full	53	55.8	LOS E	0.2	0.2	0.95	0.95	223.8	218.5	0.98

All Pedestrians	211	55.8	LOS E	0.2	0.2	0.95	0.95	222.6	216.9	0.97

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

MOVEMENT SUMMARY

Site: 105 WE_CM [105 BRU_TRA_21_WE_CM (Site Folder: WE)]

Network: N101 [WE_CM (Network Folder: General)]

Site Category: Existing Design
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Brush Road (s)														
2	T1	33	0.0	33	0.0	0.020	0.0	LOS A	0.0	0.2	0.05	0.10	0.05	48.9
3	R2	7	0.0	7	0.0	0.020	4.7	LOS A	0.0	0.2	0.05	0.10	0.05	47.7
Approach		40	0.0	40	0.0	0.020	0.8	NA	0.0	0.2	0.05	0.10	0.05	48.7
East: Tramway Street														
4	L2	34	0.0	34	0.0	0.051	4.6	LOS A	0.2	1.1	0.05	0.53	0.05	38.9
6	R2	53	0.0	53	0.0	0.051	4.7	LOS A	0.2	1.1	0.05	0.53	0.05	40.3
Approach		87	0.0	87	0.0	0.051	4.6	LOS A	0.2	1.1	0.05	0.53	0.05	39.9
North: Brush Road (n)														
7	L2	33	0.0	33	0.0	0.025	4.6	LOS A	0.0	0.0	0.00	0.38	0.00	43.4
8	T1	14	0.0	14	0.0	0.025	0.0	LOS A	0.0	0.0	0.00	0.38	0.00	38.0
Approach		47	0.0	47	0.0	0.025	3.2	NA	0.0	0.0	0.00	0.38	0.00	42.5
All Vehicles		174	0.0	174	0.0	0.051	3.4	NA	0.2	1.1	0.04	0.39	0.04	43.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network 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.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.