TRAFFIC IMPACT ASSESSMENT

21 Canterbury Road, Punchbowl
Planning Proposal for Proposed Mixed Use Development
Reference: 19.439p02v06
Date: April 2023

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1. INTRODUCTION

TRAFFIX has been commissioned by Waldron Hill Projects Pty Ltd to undertake a Traffic Impact Assessment of a planning proposal at 21 Canterbury Road and 913 – 919 Punchbowl Road in Punchbowl. The proposal seeks approval for the re-zoning of the property to allow for a mixed use development containing residential, retail and registered club uses. For the purposes of the Planning Proposal, an indicative concept development has been formulated comprising 320 residential dwellings, three (3) retail tenancies and a registered club. The site is situated within the Canterbury Bankstown local government area and has been assessed under the Bankstown Development Control Plan 2015.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects prepared separately. The development is of a scale that will require referral of the development application to the Roads and Maritime Services under the provisions of State Environmental Planning Policy (Infrastructure) 2007.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the concept development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions

2. LOCATION AND SITE

The subject site is known as 21 Canterbury Road and 913 – 919 Punchbowl Road, Punchbowl and is located on the north-western corner of the intersection Canterbury Road and Punchbowl Road. It is also located about 1.3 kilometres southwest of Punchbowl Railway Station.

The site is irregular shaped in configuration and has a site area of approximately 1.8 hectares. It has a southern frontage to Canterbury Road measuring approximately 100 metres in length and an eastern frontage to Punchbowl Road measuring approximately 170 metres in length. The site is otherwise bounded by low density residential developments to the north and northwest and by an industrial (retailing) development to the southwest.

The existing development on-site comprises of a two storey club with a gross floor area of approximately 5,500m^2. A large at-grade parking area is served by two separate access driveways on Punchbowl Road, approximately 90 metres north of Canterbury Road, for entry and exit. These access driveways permit all turning movements from Punchbowl Road. An unused access driveway is also present on Canterbury Road, near the western site boundary.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should also be made to the Photographic Record presented in **Appendix A** which provides an appreciation of the general character of roads and other key attributes in proximity to the site.

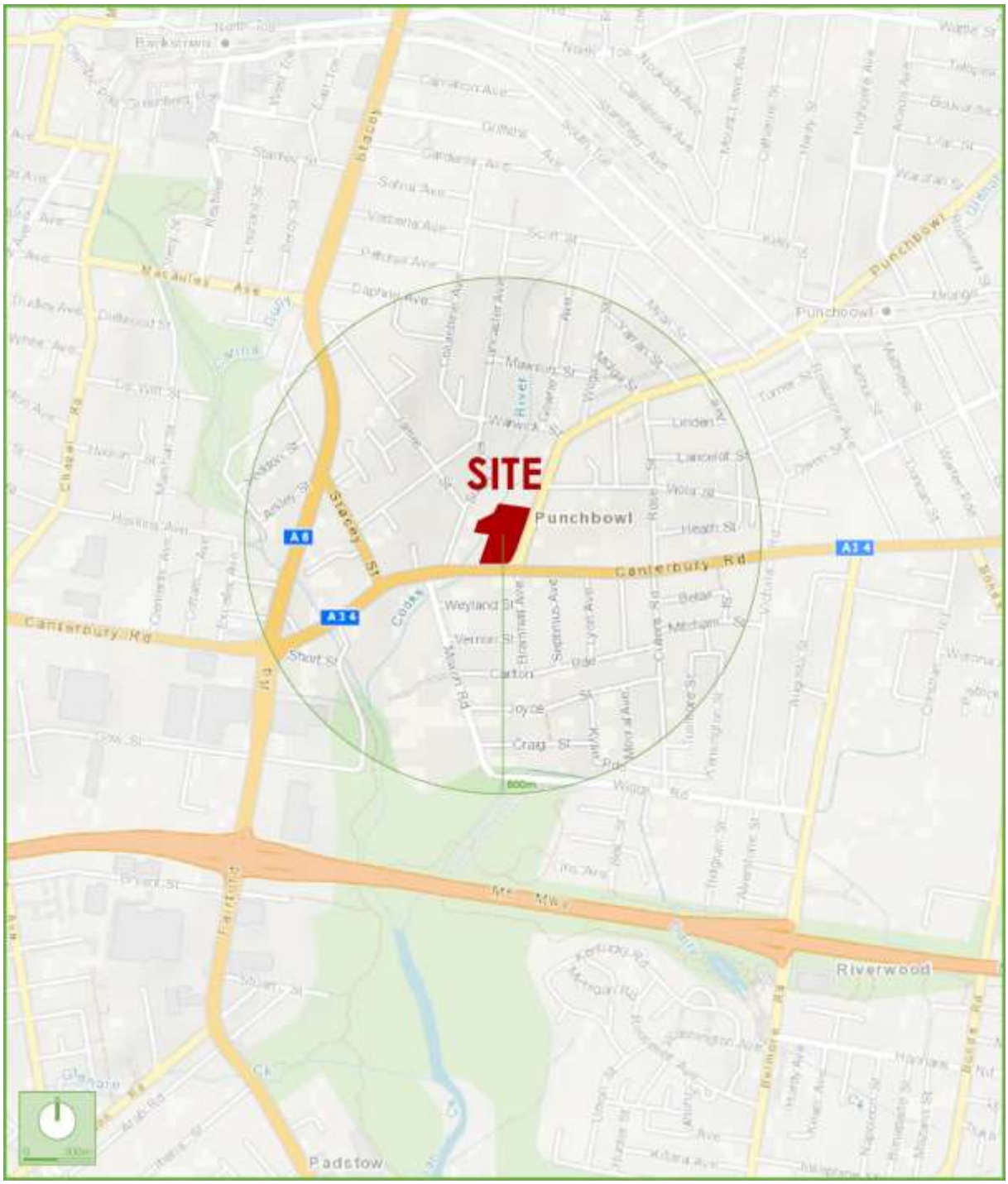

Figure 1: Location Plan

Figure 2: Site Plan

3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

- Canterbury Road: an RMS Main Road (MR167) that generally runs in an east-west direction, between New Canterbury Road in the east and The River Road in the west. Canterbury Road forms one of Sydney's major east-west corridors carrying approximately 42,200 vehicles per day (2016 AADT) and is subject to a 60 km/h speed limit. 'Clearway' restrictions apply along both kerbsides between the hours of 6:00-10:00am and 3:00-7:00pm Monday to Friday. Canterbury Road accommodates two lanes of traffic in each direction within an undivided carriageway.
- Punchbowl Road: an RMS Main Road (MR549) that runs in a northeast-southwest direction, between Coronation Parade in the north and Canterbury Road in the south. It carries approximately 13,000 vehicles per day (2016 AADT) and is subject to a 60 km/h speed limit. In the vicinity of the site, Punchbowl Road accommodates two lanes of traffic in each direction within an undivided carriageway with the kerbside lanes in both directions used for unrestricted parallel parking.
- Moxon Road: a local collector road that runs in a north-south direction between Canterbury Road in the north and Wiggs Road in the south. It accommodates a single lane of traffic in each direction within an undivided carriageway and has a posted speed limit of 50 km/h. Right turn movements from Moxon Road onto Canterbury are prohibited with an exemption for buses.
- Bramhall Avenue: a local road that runs in a north-south direction between Canterbury Road in the north and Carlton Parade in the south. It accommodates one lane of traffic in each direction within an undivided carriageway and has a posted speed limit of 50 km/h. Access to Canterbury Road from Bramhall Avenue is prohibited, with vehicles only able to enter Bramhall Avenue from this intersection.

It is evident that access opportunities for the site are limited to the arterial road network, either via Canterbury Road or Punchbowl Road.

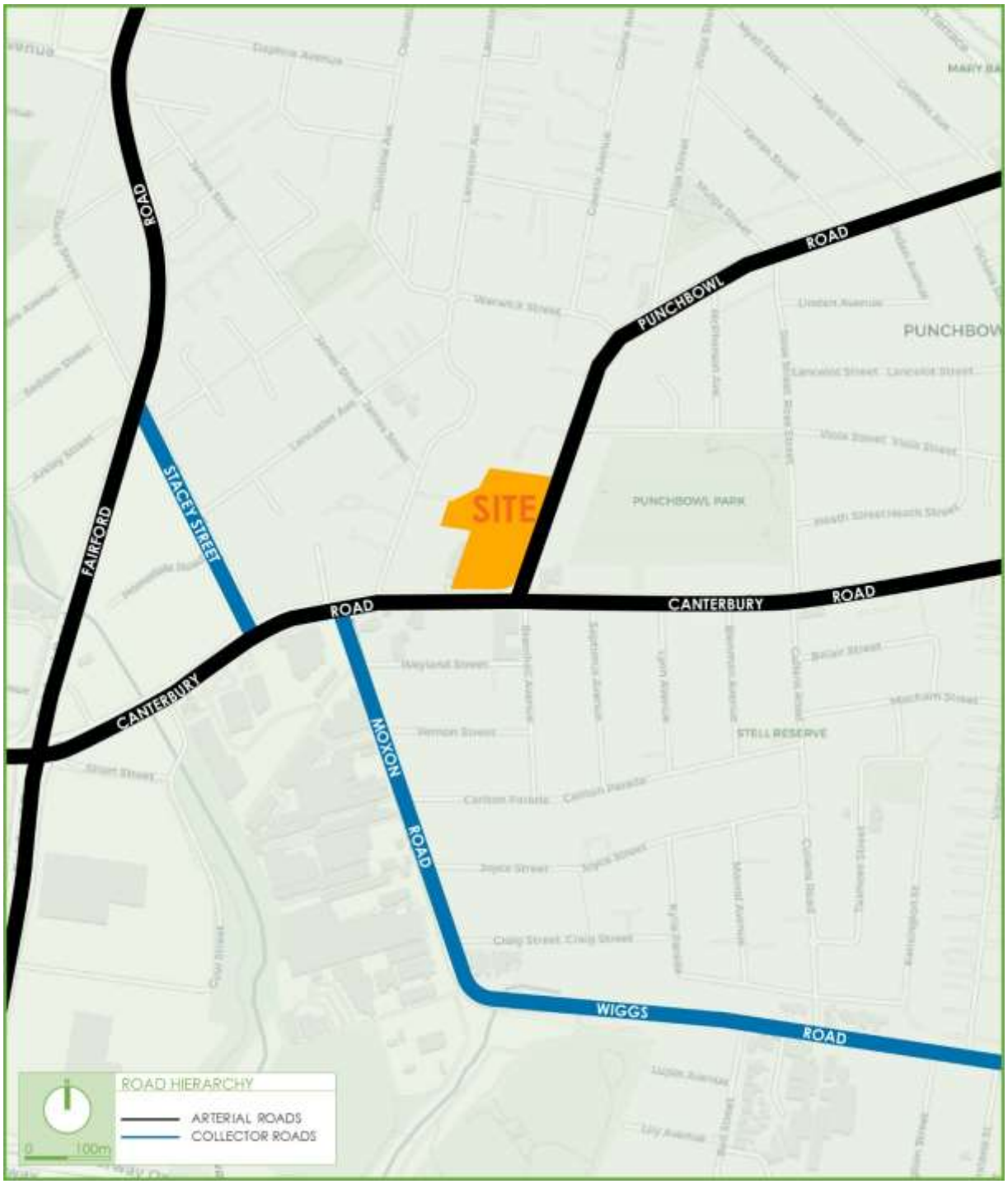

Figure 3: Road Hierarchy

3.2 Public Transport

The existing public transport network operating in the locality is illustrated in **Figure 4**. It is evident that the site is located within 400 metres of bus stops on Canterbury Road and Warwick Street that are serviced by routes connecting to key regional centres at Bankstown, Hurstville and Canterbury. These bus routes provide frequent services during weekday peak periods.

Figure 4: Public Transport

4. DESCRIPTION OF CONCEPT DEVELOPMENT

A detailed description of the concept development adopted for the purpose of assessing the planning Proposal impacts is provided in the Planning Report prepared separately. In summary, the concept development for which general planning approval is now sought is a mixed use development comprising the following components:

- 1,103m^2 gross floor area of retail space, consisting eight (8) tenancies.
- A ground floor club containing 1,660m^2 gross floor area of space; and
- A residential development containing 320 dwellings.
- Two level basement car park, servicing provisions and an indented drop off/pick up bay on the ground floor circulation road extending for 14m.

Vehicular access to the site is proposed from Punchbowl Road and will be regulated to left-in and left-out movements only. This may be enforced by the construction of a median island on the centre of the carriageway. A secondary access to the north of the main access on to Punchbowl Road will allow for left out exit movements only,

The parking requirements and traffic impacts arising from the concept development are discussed in **Section 5** and **Section 6** respectively. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.

5. PARKING REQUIREMENTS

5.1 Car Parking – DCP Rates

Part B5 (Parking) of the Bankstown Development Control Plan (DCP) 2015 stipulates the following car parking requirements for the respective uses of the concept development:

- Residential Parking Requirement
  - 1 space per 1-bedroom dwelling
  - 1.2 pace per 2 bedroom dwelling
  - 1.5 spacer per 3 bedroom dwelling
  - 1 visitor space per five dwellings
- Shops (Developments of less than 4,000m^2 gross floor area):
  - 1 car space per 40m^2 of gross floor area.
- Club (non-listed):
  - Development not included in the schedule of car parking standards must submit a parking study for Council's consideration. A qualified traffic consultant must prepare the parking study.

It is evident that the DCP does not prescribe specific parking rates for the club component. Accordingly, there is no nominal minimum parking requirement for the concept development and an assessment of the parking demands generated by the club is provided in the following section.

5.2 Demand Based Assessment for Club

In order to estimate the total parking demand of the concept development, parking rates for the Club a demand based assessment of similar developments has been undertaken, Prior to the Bankstown RSL Club relocating to 1 Meredith Street in Bankstown, TRAFFIX undertook parking surveys of the existing operation at 32 Kitchener Parade, Bankstown in 2015. Over a seven day period, it was found that the club generated a parking demand of 1 space per 18.6m^2 of public floor area, based on a maximum of 215 cars counted on Saturday evening and the pre-existing club development containing 3,899m^2 of public floor area.

This rate was found to be near identical to the average parking demand rate of 1 space per 17.4m^2 gross floor area for the following club developments previously surveyed by TRAFFIX:

- El Cortez Hotel, Canley Heights — 1 space per 14.38m² GFA
- Mt Annan Hotel, Mount Annan — 1 space per 15.41m² GFA

Accordingly, the El Coretz Hotel rate of 1 space per 14.38m² public floor area has been adopted, noting that it will be conservative when applied to the total gross floor area of the club development.

It is clarified that surveys were undertaken for Club Punchbowl on a Saturday evening in November 2019, however it was found that the development was underutilised, with only functions occurring (no bar or restaurant activity). The results of a travel mode questionnaire are presented in **Appendix C** which confirms a car occupancy rate of 2.7 persons per car out of a sample of 293 guests.

The adopted parking rates have been cumulatively applied to the proposed development and are presented in the following in a full assessment of the development's cumulative parking requirements.

5.3 Parking Requirement

Based on the DCP rates and demand assessment of the club, the parking provision for the concept development is provide din **Table 1**.

Table 1: Parking Assessment –Cumulative Requirements

Type	GFA	Parking Rate	Source	Spaces Required
Residential	320	1.2 spaces per dwelling*	DCP	**384**
		1 space per 5 dwellings	DCP	**64**
Retail	1,103m²	1 spaces per 40m² GFA	DCP	**28**
Club	1,660m²	1 space per 14.38m² GFA	Survey	**115**
			Totals	**591**

* Based on the assumption the average parking rate residential flat buildings is equivalent to the 2-beroom rate.

It is evident that the concept development has been assessed to generate a cumulative parking demand for 591 parking spaces. The parking provision of the concept development will be assessed in detail at DA stage however it would be expected all parking demand would be accommodated on site.

5.4 Accessible Parking

Part B4 of the DCP requires accessible parking to be provided at a rate of one car space per 100 car spaces provided. This will be assessed at DA stage to ensure compliance.

5.5 Bicycle Parking

With respect to bicycle parking, Part B5 of the DCP stipulates that *'Council may require development to provide appropriate bicycle parking facilities either on–site or close to the development as identified in Australian Standard 2890.3–Bicycle Parking Facilities'*. Whilst the plans do not indicate provision for bicycle parking, this could be incorporated at DA stage

5.6 Service Vehicle Parking

Part B4 of the DCP stipulates that for commercial/retail developments exceeding 500m^2, the following loading facilities should be provided:

- At least one off-street parking space for delivery/service vehicles; and
- Additional off-street parking spaces or a loading dock depending on the size, number, and frequency of delivery/service vehicles likely to visit the premises.

The specific servicing arrangement will be assessed at DA stage however the large site is expected to allow for all servicing demands to be contained within the site.

6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Existing Site Generation

A survey was undertaken of the existing site accesses during the AM peak period (7:00am – 9:00am) and PM peak period (4:00pm – 6:00pm) on Tuesday 22 March 2022 and Tuesday 21 March 2023. It is concluded that the existing club development is underutilised on weekdays and therefore no discount has been applied to the concept development traffic volumes that would ordinarily form a net increase over existing conditions.

6.2 Existing Intersection Performance

TRAFFIX has assessed the following intersections based on surveys undertaken in 2022 and 2023:

- Canterbury Road, Punchbowl Road and Bramhall Avenue;
- Canterbury Road and Moxon Road;
- Canterbury Road, Rose Street and Cullens Road;
- Punchbowl Road and Viola Street;
- Canterbury Road and Stacey Street; and,
- Stacey Street and Lancaster Avenue

The intersections were analysed using the SIDRA computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DOS) and Average Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

DOS - the DOS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DOS approaches 1, it is usual to attempt to keep DOS to less than 0.9. When DOS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. For intersections controlled by roundabout or give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less.

AVD - the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend

on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).

LOS - this is a comparative measure which provides an indication of the operating performance of an intersection as shown below in **Table 2**:

Table 2: Intersection Performance Parameters

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

A summary of the modelled results are provided in **Table 3** below. Reference should also be made to the detailed SIDRA outputs included in **Appendix D**.

Table 3: Intersection Performance - Existing Volumes

Intersection	Control Type	Period	Intersection Degree of Saturation (DOS)	Average Delay (AVD)	Level of Service (LOS)
Canterbury Road / Punchbowl Road / Bramhall Avenue	Signals	AM	0.894	16.5	B
		PM	0.901	18.3	B
Canterbury Road / Moxon Road	Signals	AM	0.776	19.4	B
		PM	0.899	30.6	C
Canterbury Road / Rose Street / Cullens Road	Signals	AM	0.494	12.8	A
		PM	0.606	18.4	B
Punchbowl Road / Viola Street	Signal	AM	0.371	153.6	F
		PM	0.315	121.0	F
	Signals	AM	0.941	35.6	C

Intersection	Control Type	Period	Intersection Degree of Saturation (DOS)	Average Delay (AVD)	Level of Service (LOS)
Canterbury Road / Stacey Street		PM	1.087	84.0	F
Stacey Street / Lancaster Avenue	Priority	AM	0.135	15.0	B
		PM	0.342	21.6	B

It is evident that most intersections perform acceptably under all scenarios, except:

- The intersection of Punchbowl Road and Viola Street operates at a Level of Service F, thus indicating overcapacity however this only applies to the right turn movement from Punchbowl Road into Viola Street. All other movements at a LoS A indicating spare capacity.
- The intersection of Canterbury Road and Stacey Street operates at a Level of Service of F during the evening peak, thus indicating the intersection is operating overcapacity and would warrant upgrades to improve its current operaiton.

This analysis serves to provide a comparison of the relative change in the performance parameters as a result of the subject proposal. This is discussed further in Section 6.

6.3 Development Trip Generation

The impacts of the concept development on the external road network have been assessed having regard for the indicative yield scenarios as summarised in **Section 4** above. This assessment has been undertaken in accordance with the requirements of the RMS Guide to Traffic Generating Developments (2002) and the RMS Technical Direction TDT2013/04a. As such, the traffic generation rates published in the RMS Guide have been adopted for each individual land use the results of which are summarised below.

6.3.1 Residential

The RMS Guide specifies a trip rate of 0.29 vehicle trips per dwelling for high density residential developments during the morning and evening peak periods. Application of these trip rates to the 320 residential apartments and adopting an 70:30 split, results in the following predicted trip generation volumes:

- 93 vehicle trips per hour during the AM peak period (28 in, 65 out); and

- 93 vehicle trips per hour during the PM peak period (65 in, 28 out).

6.3.2 Retail

The RMS Guide specifies a trip rate of 4.6 trips/100m^2 of GLFA for secondary retail uses within a shopping centre and this has therefore been adopted during a Thursday PM peak period. When assuming the AM peak period equates to 33% of the PM peak period generation (accounting mainly for staff arrivals), the proposed 1,103m^2 GFA of retail space results in the following trip generation:

- 17 vehicle trips per hour during the AM peak period (15 in, 2 out); and
- 51 vehicle trips per hour during the PM peak period (26 in, 25 out).

6.3.3 Club

The RMS Guide does not specify a trip generation rate for clubs and recommends using similar developments to determine a trip generation rate for the concept development. Accordingly, TRAFFIX has previously surveyed the following venues similar to Club Punchbowl which are listed below with the trip generation rate during the peak hour

- St Johns Bowling Club: 2.28 vehicle trips per hour
- Guildford Leagues Club: 2.23 vehicle trips per hour

To account for any seasonal variability a 10% loading is added on to the St Johns Bowling Club trip rate (the highest rate). Therefore a rate of 2.5 vehicle trips per 100m^2 of GFA has been adopted for the proposed development. This rate has been applied to the PM peak period and the AM peak period discounted rate of 33% to account for staff arrivals. The proposed 1,660m^2 club development is therefore estimated to generate the following traffic volumes:

- 14 vehicle trips per hour during the AM peak period (13 in, 1 out); and
- 42 vehicle trips per hour during the PM peak period (34 in, 8 out).

6.3.4 Combined Generation

The combined generation of the concept development can be summarised as follows:

- 124 vehicle trips per hour during the AM peak period (56 in, 68 out); and

- 186 vehicle trips per hour during the PM peak period (125 in, 61 out).

6.4 Traffic Distribution

The proposed vehicular access for the development will be restricted to left in and left out movements only. Therefore, all traffic entering the development will arrive northbound on Punchbowl Road via Canterbury Road and exit northbound to Punchbowl Road.

Traffic arriving to the site from the north via Punchbowl Road will likely enter Rose Street and Canterbury Road to turn right back on to Punchbowl Road and enter the development.

Based on Journey to Work data from the 2016 Census the following percentages of arrivals to the site from eastbound and westbound are summarised in **Table 4**.

Table 4: Arrivals Distribution

Arrival Routes	Percentages
Canterbury Road (Westbound)	60%
Canterbury Road (Eastbound)	40%

Traffic departing the site must turn left on Punchbowl Road. In order to access Canterbury Road, a detour via Viola Street/Rose Street will occur, which will have no direct reliance on the intersection of Canterbury Road and Punchbowl Road. The volumes in these directions are assumed to be the same as the arrival volumes. The distributions are shown graphically in **Figures 5 and 6**.

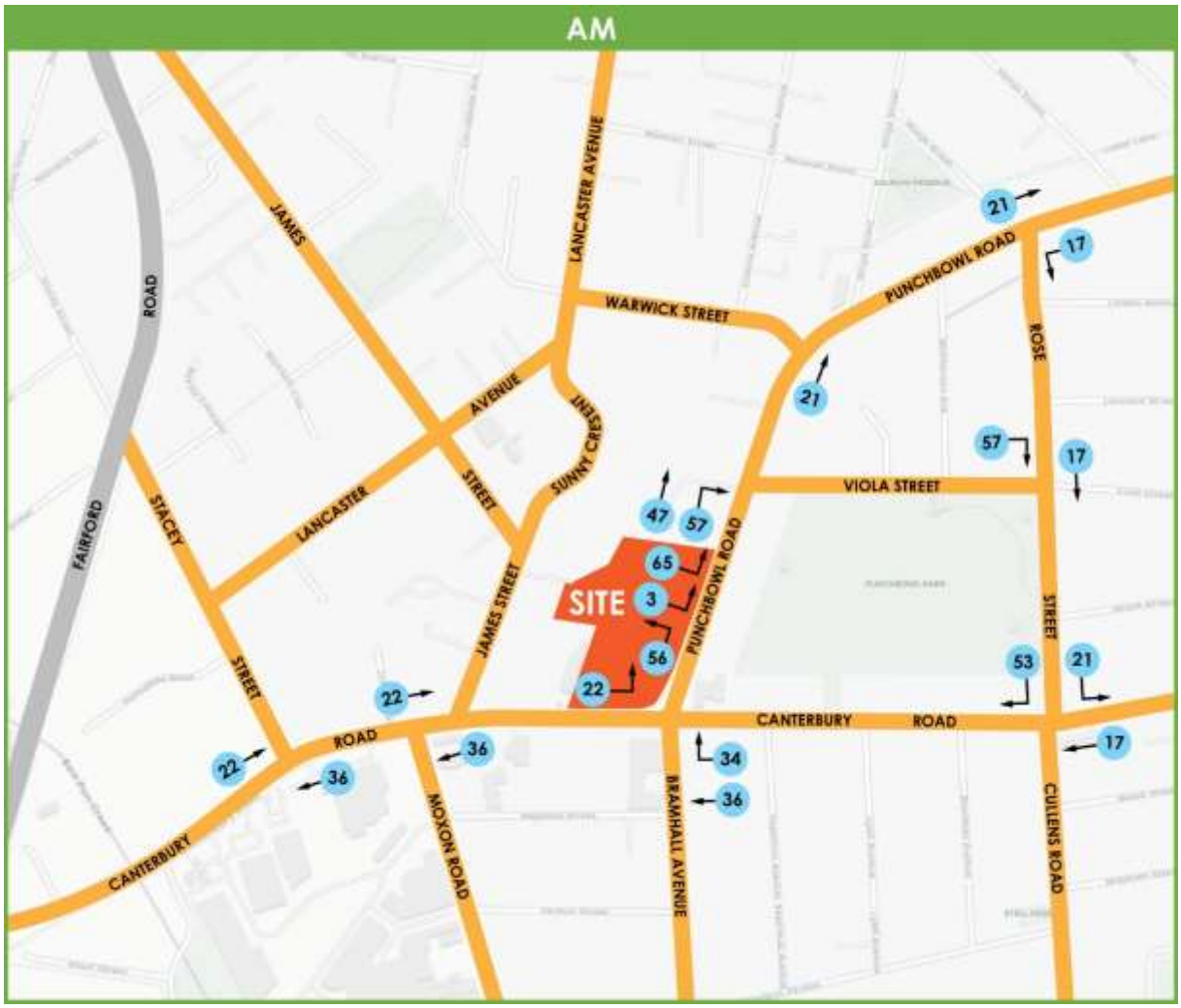

Figure 5: AM Traffic Distribution

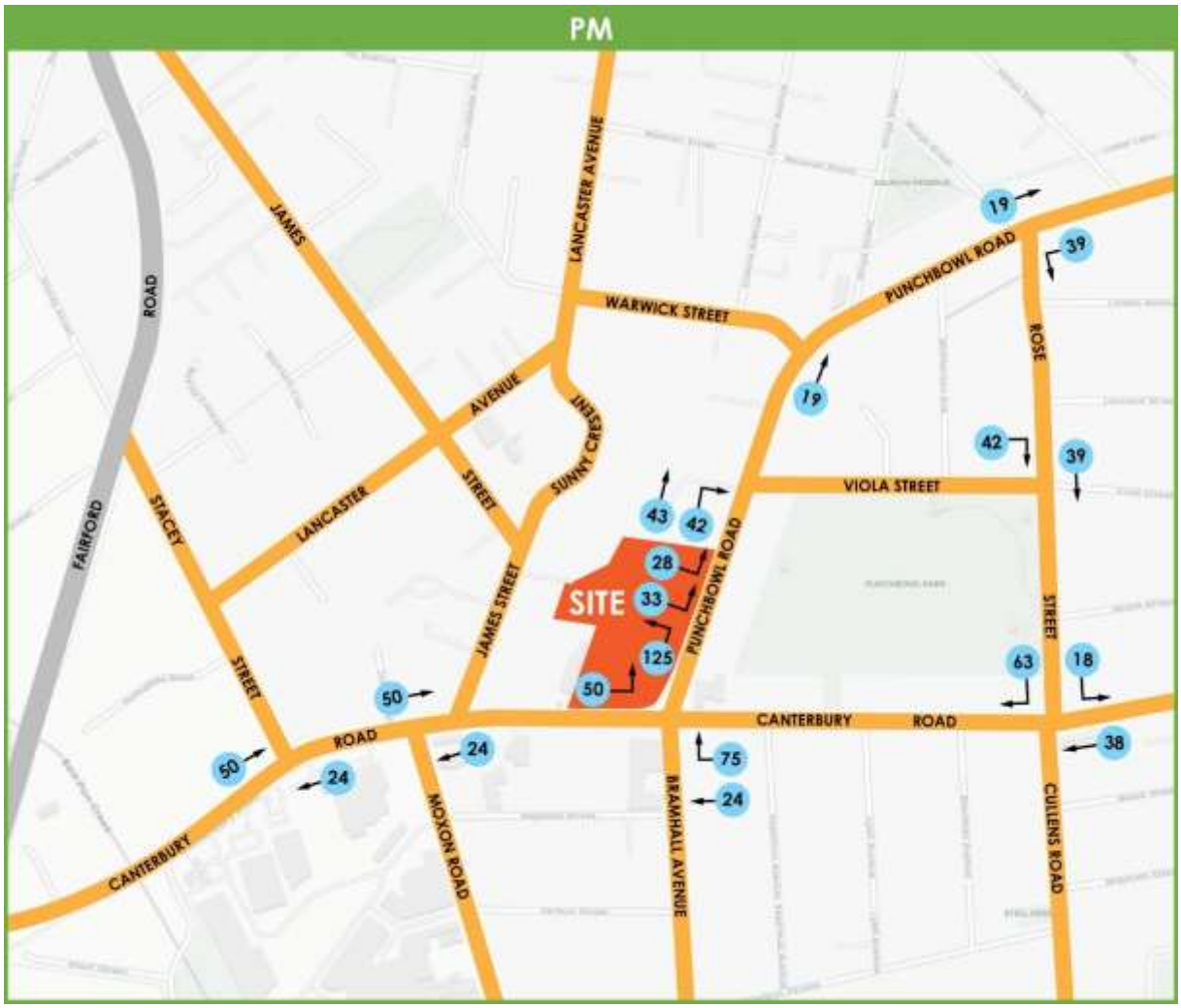

Figure 5: PM Traffic Distribution

6.5 Peak Period Intersection Performance

The development volumes have been applied to the network model discussed in Section 3.2, which has been expanded to include the proposed site access driveway. This additional traffic has been distributed according to the abovementioned splits with the results of software modelling for future conditions summarised in **Table 5**. Reference should be made to the SIDRA Outputs in **Appendix D** for detailed information on individual movements.

Table 5: Intersection Performance - Existing and Development Volumes

Intersection	Control Type	Period	Scenario	Intersection Degree of Saturation (DOS)	Average Delay (AVD)	Level of Service (LOS)
Canterbury Road / Punchbowl Road / Bramhall Avenue	Signals	AM	Existing	0.894	16.5	B
			Development	0.919	16.9	B
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			Development	0.888	20.9	B
Canterbury Road / Moxon Road	Signals	AM	Existing	0.776	19.4	B
			Development	0.777	19.4	B
		PM	Existing	0.899	30.6	C
			Development	1.096	40.4	C
Punchbowl Road / Vehicular Access	Priority	AM	Development	0.383	10.1	A
		PM	Development	0.340	9.0	A
Canterbury Road / Rose Street / Cullens Road	Priority	AM	Existing	0.494	12.8	A
			Development	0.508	14.3	A
		PM	Existing	0.606	18.4	B
			Development	0.642	20.3	B
Punchbowl Road / Viola Street	Signals	AM	Existing	0.371	153.6	F
			Development	0.482	54.8	D
		PM	Existing	0.315	121.0	F
			Development	0.395	52.2	D
Canterbury Road / Stacey Street	Signals	AM	Existing	0.941	35.6	C
			Development	0.969	41.7	C
		PM	Existing	1.087	84.0	F
			Development	1.211	135.7	F
Stacey Street / Lancaster Avenue	Priority	AM	Existing	0.135	15.0	B
			Development	0.172	15.0	B
		PM	Existing	0.343	21.6	B
			Development	0.342	21.6	B

It is evident that the above intersections will continue to perform adequately with the addition of the development volumes. It is argued however that the assessment remains very conservative as no discount has been applied for the traffic that could be generated under the existing approved use of the site as a club development. In addition, link trips between residential and retail uses have not been taken into account. A summary of performance for each intersection is provided below:

- Canterbury Road / Punchbowl Road: This intersection experiences a LoS of B in the AM and PM peak periods for both scenarios, with the development traffic causing no change to the average delay . This indicates that the intersection is not sensitive to the particular movements associated with the concept development. In particular, vehicle movements on the south approach on Punchbowl Road are unaffected due to the left-in and left-out arrangement for the site access. However, the increased use of the right turn on the eastern approach for vehicles accessing the development results in increased queue lengths extending beyond the available storage. In addition the lack of a pedestrian crossing on the northern and western approaches will not allow for the increased number of pedestrians using the bus stop on the southern kerbside of Canterbury Road, which would also be impacting existing residents in the area. As such, upgrades are proposed to this intersection to address these items which is assessed in the following subsection.

- Canterbury Road / Moxon Road: The intersection experiences a LoS B during the monring peak period and a LoS C for the evening peak period for both scenarios. This indicates that the intersection is not sensitive to the particular movements associated with the concept development.

- Punchbowl Road / Site Access: This intersection has a LoS of A, which is based on the worst performing movement associated with the left turn movement from the site access driveway. This confirms that there is ample gap opportunity to turn onto the northbound lanes of Punchbowl Road.

- Canterbury Road / Rose Street: This intersection has a LoS of A during morning and LoS B during the evening. This confirms that there is ample gap opportunity to turn onto the northbound lanes of Punchbowl Road. This indicates that the intersection is not sensitive to the particular movements associated with the concept development.

- Punchbowl Road / Viola Street: This intersection has an existing LoS of F, which is based on the worst performing movement associated with the right turn movement from Punmchbowl Road into Viola Street. However although there is only a single lane of traffic the volume of turns results in LoS A for the northbound traffic. The additional right turn movements as a result of the proposed development results in a LoS D during both peaks. This confirms that there is ample gap opportunity to turn into Viola Street.

- Canterbury Road / Stacey Street: This intersection has a LoS of C during morning and LoS F during the evening for both scenarios. This indicates that the intersection is not sensitive to the particular movements associated with the concept development during the morning peak. As the existing intersection is overcapacity in the evening peak the additional traffic does cause a significant increase in average delay as small increases in volumes at intersections over capacity can cause the model to become unstable resulting in large changes in average delay, as demonstrated by this result. As the intersection already warrants an upgrade to address the unacceptable LoS for its existing operation this would be the responsibility of Transport for NSW.

- Punchbowl Road / Site Access: This intersection has a LoS of B, which is based on the worst performing movement associated with the right turn movement from Lancaster Street on to Stacey Street (which is banned during peak periods). No additional traffic is expected at this intersection and as such no change in the operation results.

In summary the traffic impacts of the proposed development are considered acceptable, having regard for the left-in and left-out site access arrangement from Punchbowl Road which will result in minimal delays at the intersection with Canterbury Road. In addition, the existing operation of Canterbury Road and Stacey Street at LoS F already warrants an upgrade. Accordingly, no upgrades are considered warranted for the proposed concept development (besides the construction of a median island on Punchbowl Road across the site access).

6.6 Proposed Upgrade Assessment

As discussed previously the intersection of Punchbowl Road and Canterbury Road will require upgrades to accommodate the additional queue length of the right turn on the eastern approach and pedestrian crossing on the northern approach. The proposed upgrades to allow for the concept development are shown in Figure XX below. The upgrades are as follows:

- Extend the existing short lane for right turn movements on the eastern approach to 50 metres in length to accommodate the 95th percentile queue length.
- A full signalised pedestrian crossing on the northern approach with signalised slip lane control and pedestrian crossing.

It is noted that the right turn lane is expected to be at the cost of the developer as this is a direct result of the concept development. However the pedestrian crossing upgrades is expected to be a shared cost with Transport for NSW as this will not only benefit the pedestrians from the concept development but existing pedestrians needing to cross Punchbowl Road.

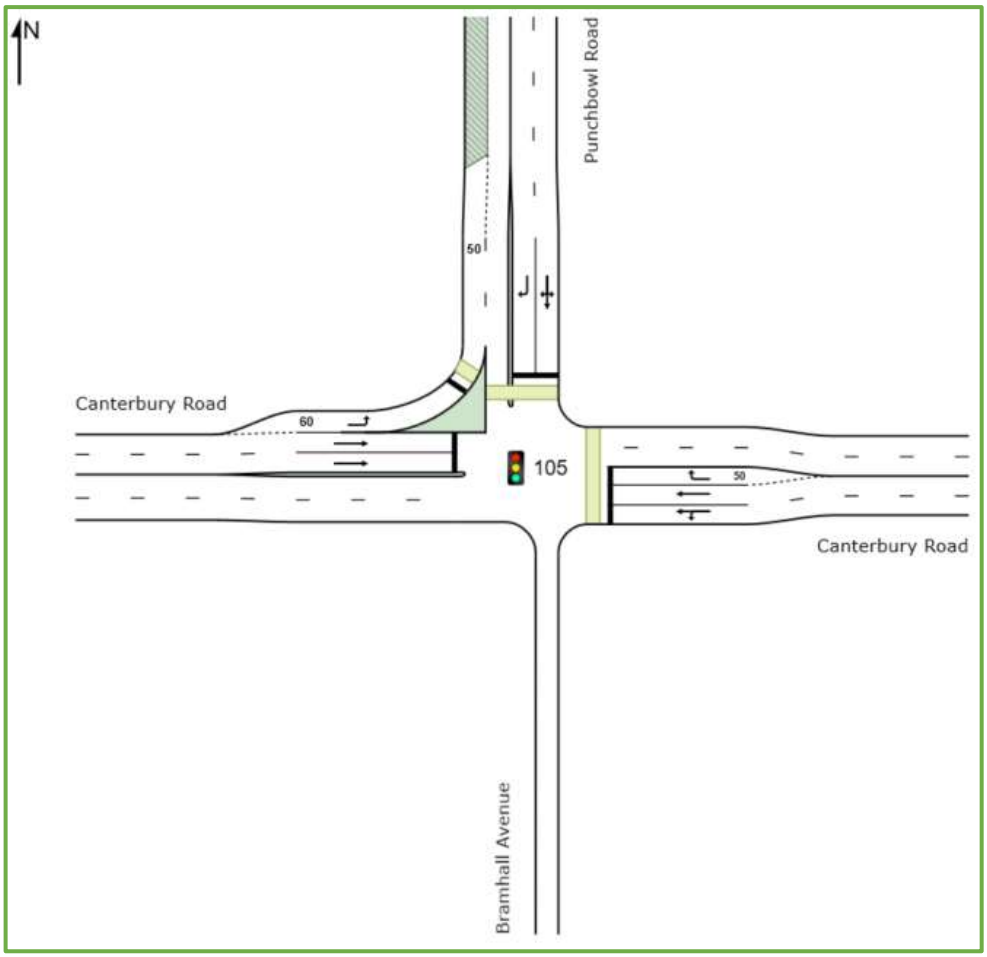

Figure XX: Upgraded Intersection Layout

The results of software modelling for upgraded conditions summarised in **Table 5**. Reference should be made to the SIDRA Outputs in **Appendix B** for detailed information on individual movements.

Table 5: Intersection Performance - Existing and Development Volumes

Intersection	Control Type	Period	Scenario	Intersection Degree of Saturation (DOS)	Average Delay (AVD)	Level of Service (LOS)
Canterbury Road / Punchbowl Road / Bramhall Avenue	Signals	AM	Existing	0.894	16.5	B
			Development	0.919	16.9	B
			Upgrade	0.902	17.3	B
		PM	Existing	0.901	18.3	B
			Development	0.888	20.9	B
			Upgrade	0.887	18.2	B
Canterbury Road / Moxon Road	Signals	AM	Existing	0.776	19.4	B
			Development	0.77	19.4	B
			Upgrade	0.776	19.2	B
		PM	Existing	0.899	30.6	C
			Development	1.096	40.4	C
			Upgrade	0.798	22.2	B
Punchbowl Road / Vehicular Access	Priority	AM	Development	0.383	10.1	A
			Upgrade	0.383	9.9	A
		PM	Development	0.340	9.0	A
			Upgrade	0.341	9.0	A
Canterbury Road / Rose Street / Cullens Road	Priority	AM	Existing	0.494	12.8	A
			Development	0.508	13.5	A
			Upgrade	0.508	13.5	B
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			Development	0.642	20.3	B
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			Development	0.482	54.8	D
			Upgrade	0.482	54.8	D
		PM	Existing	0.315	121.0	F
			Development	0.395	52.2	D
			Upgrade	0.396	52.4	D
Canterbury Road / Stacey Street	Signals	AM	Existing	0.941	35.6	C
			Development	0.947	36.7	C
			Upgrade	0.909	27.0	B
		PM	Existing	1.087	84.0	F
			Development	1.211	135.7	F
			Upgrade	1.219	139.5	F

Intersection	Control Type	Period	Scenario	Intersection Degree of Saturation (DOS)	Average Delay (AVD)	Level of Service (LOS)
Stacey Street / Lancaster Avenue	Priority	AM	Existing	0.135	15.0	B
			Development	0.172	15.0	B
			Upgrade	0.170	15.0	B
Stacey Street / Lancaster Avenue	Priority	PM	Existing	0.343	21.6	B
			Development	0.342	21.6	B
			Upgrade	0342	21.6	B

It is evident that the above intersections will continue to perform adequately with the upgrades as there is no change to the level of service and only minimal difference between the Development scenario. The upgrades are to be further detailed at DA stage which will include a concept plan of the intersection design.

7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Vehicular Access

The concept development has a parking demand of 565 parking spaces with access to Punchbowl Road (arterial road). It therefore nominally requires a Category 5 access facility under AS2890.1 (2004), which is defined as an intersection rather than access driveway.

Notwithstanding, Clause 3.2 of the Standard permits a departure from these driveway widths should the traffic flow on the access driveway be more accurately known. In this regard, the proposed access will be restricted to left-in and left-out only, and thus only one entry lane and one exit lane will be required.

In response, the proposed development will provide an entry only access driveway of width 5.0m and exit access driveway of width 5.0m, which has been separated by a 1.2m median. The access arrangements have been tested for the largest design vehicle to enter the site, being an 8.8m Medium Rigid Vehicle, with the results in **Appendix A** demonstrating adequate geometry. Accordingly, the geometric design of the access driveways for the proposed development are considered to be satisfactory and will also perform acceptably based on the software modelling assessment in Section 6.

A secondary vehicular exit is also proposed near the northern boundary to Punchbowl Road. This vehicular exit will be restricted to left out only and light vehicles only.

It is finally noted that a median could be installed on the centreline of Punchbowl Road in order to enforce left-in and left-out movements at the site access driveway. In this regard, it is evident from the aerial image in **Appendix D** that the median would not affect the access driveways for opposing properties, where any future development of those sites will also likely be subject to a left-in and left-out arrangement. It is also clarified that Punchbowl Road has an existing median on approach to Canterbury Road thereby demonstrating that the 12.8m carriageway width can continue to accommodate four trafficable lanes with the median island.

7.2 Internal Design

The internal car park generally complies with the requirements of AS2890.1 (2004), AS2890.2 (2018) and AS2890.6 (2009) with the following noteworthy:

7.2.1 Parking Modules

- All residential car parking spaces are to be designed in accordance with a Class 1A user, which requires a minimum space width of 2.4m, space length of 5.4m and aisle width of 5.8m.
- All club car parking spaces are to be designed in accordance with a Class 2 user, which requires a minimum space width of 2.5m, space length of 5.4m and aisle width of 5.8m.
- All retail car parking spaces are to be designed in accordance with a Class 3A user, which requires a minimum space width of 2.6m, space length of 5.4m and aisle width of 6.6m or a minimum space width of 2.7m with an aisle width of 6.2m.
- All accessible parking spaces are to be designed in accordance with AS2890.6 (2009) which requires a minimum space width of 2.4m, space length of 5.4m and is adjacent to a shared area with a width of 2.4m.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004). Turning bays have been provided for all blind aisles exceeding 6 parking spaces.

7.2.2 Ramps

- Service ramps are to be provided with a minimum width of 6.5m with 300mm kerbs provided each side to walls. The ramp is to provide a maximum gradient of 1:6.5 (15.4%) with transitions of 4.0m at 1:12 (8.3%).
- The ramp leading from Basement 1 to Basement 2 has been designed wholly in accordance with the requirements for a circular ramp under Figure 2.9 of AS2890.1 (2004) with 3.9m lanes separated by a central 600mm wide median. The inside edge of the inside lane has a maximum gradient of 1:5 (20%) with transitions of 2.0m at 1:8 (12.5%).
- The circulation road extending from the exit access driveway shall have a maximum grade of 1:20 (5%) for the first 6.0m.

7.2.3 Head Height Clearance

- A minimum head height clearance of 2.2m is to be provided for all circulation and parking areas, in accordance with AS2890.1 (2004).

- A minimum head height clearance of 2.5m is to be provided above all accessible parking spaces and shared areas in accordance with AS2890.6 (2009).
- A minimum head height clearance of 4.5m is to be provided under AS2890.2 (2018) for a Medium Rigid Vehicle, or high enough to accommodate the largest design vehicle to enter the development (e.g. waste contractor).

7.2.4 Loading

- All service bays are to be afforded a minimum space width of 3.5m.

7.2.5 Other Considerations

- 2.0m x 2.5m sight distance triangles are to be maintained on each side of the exit access driveway in accordance with Figure 3.3 of AS2890.1 (2004).

8. RESPONSE TO COMMENTS

8.1 Response to Council's Comments

This section addresses Council's comments received in response to the previously submitted planning proposal.

Preliminary advice from Council's Traffic Services Officer is summarised below:

(a) Early Consultation with Transport for NSW (TfNSW): Due to the significant impacts on Punchbowl Road and Canterbury Road and the associated signalised intersections, the Proponent is required to undertake early consultation with the TfNSW.

TRAFFIX Response

Consultation with Transport for NSW has been undertaken and responses to their comments can be found in the following section.

(b) Proposed Median: The consultation for the proposed median island extension on Punchbowl Road is to be undertaken by the applicant with all affected residents.

TRAFFIX Response

As this is a planning proposal and further assessment of both median and vehicular access arranger will be required as part of the Development Application it is considered premature to conduct community consultation at this stage.

(c) Traffic Survey: The report utilises 2019 and 2016 data for the intersections at Canterbury Rd/Punchbowl Rd and Moxon Rd/Canterbury Rd respectively. Given that Canterbury Road and Punchbowl Road are State Roads, it is expected that the traffic volume increases annually. Traffic count data is to be the most recent data available and should be collected on the same date. The traffic count data is to be included in the appendices.

TRAFFIX Response

The surveys were conducted again on Tuesday 22 March 2022 for both intersections. The traffic volumes at both intersection were slightly less than the volumes observed in the 2016 and 2019 surveys used previously, with a maximum difference of 88 vehicles during the peak hour as such the previous results have been included in the report for completeness.

(d) Surveyed Sites

- *For the calculation of the parking rate and traffic generation for the club component, a minimum of 2 clubs with similar characteristics to the proposal are to be surveyed*

TRAFFIX Response

The parking and traffic generation rates of two clubs have been used to determine the parking and traffic rate of the proposed development. The higher of both rates was used for the proposed club development for a conservative assessment.

- *A tabulated comparison is to be made between the surveyed clubs and the proposal. The current information is not sufficient. It is noted that Bankstown RSL Club is located within walking distance to Bankstown Station and therefore not comparable to the proposal, which is not within walking distance to a railway station.*

TRAFFIX Response

The two clubs used have similar characteristics being further from public transport and therefore more reliant on vehicles trips.

- *The survey date is to be included. Noting that the sites were surveyed in 2015 and 2016, recent surveys are to be provided. The impact of Covid-19 on traffic survey data must be explained as part of the revised Traffic Impact Assessment report.*

The previous surveys have slightly higher traffic volumes and therefore, the previous assessment has been retained to account for pre-COIVD volumes.

(e) Modelling

- *Traffic volume distribution diagrams are to be included for each scenario showing how traffic has been distributed and reassigned.*

TRAFFIX Response

Traffic distribution diagrams are provided in Section 6.4 for reference.

- *In Section 6.2.1 Residential the report states that an 80:20 split has been adopted. A 70:30 split it to be utilised.*

TRAFFIX Response

This split has been adopted for the residential trip generation.

- *Clarification is to be provided for the in/out split for the residential, retail and club component.*

TRAFFIX Response

The club has a split of 90% in and 10% in the morning as this is mainly staff arrivals. In the evening peak hour the split is 70% arrivals and 30% departures as most trips in the evening are arrivals of patrons for dinner and entertainment.

- *In Section 6.2.2 Retail the report states a trip rate of 4.6 trips/100m2 of GLFA has been adopted. Further clarification is to be provided regarding where this trip rate was adopted from including references to relevant sections/tables. Justification for why the rate for Thursday was utilised rather than Friday or Saturday is to be provided.*

TRAFFIX Response

This rate is taken from the TfNSW Guide to Traffic Generating Developments for specialty retail at shopping centres. This is considered an appropriate rate to model the impact on the typical weekday peak period. The Friday and Saturday trip rates would be more applicable is the Friday and Saturday peaks were being modelled. As such, the rate applied is considered appropriate for this assessment.

- *In Section 6.2.2 Retail the report states that "the AM peak period equates to 33% of the PM peak period generation". Further details to be provided regarding this assumption.*

TRAFFIX Response

The discount of 33% is considered appropriate for the morning peak to account for mainly staff arrivals as generally retail shops do not open until after the retail peak at 9:00am.

- *In Section 6.3 Traffic Distribution the directional split outlined in the report is derived from the existing traffic survey volumes at the intersection of Punchbowl Road/Canterbury Road. This is not representative of the directional split of the traffic generated by the proposal.*

TRAFFIX Response

Revised distribution of traffic has been used for the updated assessment which is based on Journey to Work data from the 2016 Census which has been applied to the residential, club and retail components of the development. Therefore, the revised distribution is considered a more accurate representation of the proposed development.

- *Additional future year scenarios are to be modelled to assess the development traffic with background traffic growth e.g.*
    - *Year 2021 – Base Year (with and without development)*
    - *Year 2026 - Opening Year (with and without development)*
    - *Year 2036 – 10 Year Horizon (with and without development)*

TRAFFIX Response

Based on the conducted traffic surveys and TfNSW Traffic Volume Viewer (located east of the site along Canterbury), it is clear that traffic volumes between 2016 and 2022 have remained relatively consistent and in any event, slightly decreased during this period. The surveys show over the last 3-6 years, traffic volumes have decreased by approximately 2.2%. In addition, the TfNSW Traffic Volume AADT shows a decrease of between 4.1% to 9.4% during the weekday morning and evening peak periods. Therefore, the background growth for the 2026 scenario should reflect a decrease in traffic volumes based on the above observations. However, the assessment of the existing traffic count surveys (2016, 2019 and 2022 volume data) is considered a more conservative assessment as this does not take into account any decrease in traffic volumes. Therefore, the 2026 scenario has not been undertaken for this assessment and the existing modelling currently conducted is considered a worst-case scenario.

In relation to the 2036 scenario, reference should be made to the above discussions noting that the trend of traffic volume is generally consistent and decreases in the past 6 years. It is envisioned that the proposed development would be completed and fully operational by 2026. Therefore, assessment for the year 2036 is unnecessary as the development would be fully operational for 10 years by this stage. As such, this 2036 assessment does not provide any informative assessment of the proposed development impact. Therefore, the 2036 scenario assessment is considered unnecessary.

The above results are considered a result of the M5 Motorway being widened over the past few years and the cashback scheme reducing the cost of using the toll road. With the Westconnex project further widening the motorway to the east and providing additional capacity this trend is expected to continue.

In summary, traffic volume trends have shown that the traffic volumes along the key arterial roads surrounding the site have reduced traffic volumes due to changes in behaviour. As such, assessing the traffic impacts on current traffic volumes is considered appropriate with future scenarios based on growth rates that do not reflect current trends not considered necessary.

(f) Access Driveway

- *Justification is to be provided for having two access driveways onto Punchbowl Road.*

The secondary exit at the northern boundary is to allow for more convenient exit from the residential competent of the development. This is considered appropriate to reduce reliance on the shared access for the club and retail components of the development. In addition, a

- *Based on AS2890.1 a Category 4 driveway is to be provided for the proposed 565 spaces, which results in a requirement of separate entry and exit width: 6-8m and separation of driveways: 1-3m. The proposed 2-way access driveway is to be amended.*

TRAFFIX Response

As the vehicular accesses will be left in and left out only the proposed access does not need to provide the

- *If waste collection is to be completed by Council, HRV swept paths are to be provided at the access driveway.*

TRAFFIX Response

The proposed access arrangement accommodates vehicles up to and including the 12.5m long heavy rigid vehicle. Further assessment of the proposed access arrangement will be provided in the Development Application stage.

- *A separate meeting can be arranged with Council's Traffic Services Officer to further discuss the above comments.*

TRAFFIX Response

This was not considered necessary however once the updated report has been reviewed we would appreciate a meeting with Council to address any further concerns.

- *Consultation with the Transport for NSW(TfNSW): Council recommends that the proponent liaises with TfNSW to obtain comment on the implications of the Planning Proposal on the surrounding traffic and transport network and to confirm the extent of the current and any future additional road reservation that may affect the site. Any feedback received from TfNSW should be incorporated into the Planning Proposal submitted to Council.*

TRAFFIX Response

The following section responds to the comment received from Transport for NSW as part of our consultation.

8.2 Response to TfNSW Comments

This section responds to comments received from Transport for NSW as a result of consultation with the department as required by Council's response.

Land dedication

- *TfNSW has previously acquired a strip of land (known as Lots 5 & 6 DP 236825) for road along the Punchbowl Road/ Canterbury Road frontage of the subject property, as shown by blue colour on the attached Aerial.*
- *The subject property (Lot 14 DP 132440 & Lot 1 DP236825) is affected by a road proposal as shown by pink colour on the attached Aerial. Any new building or structures, together with any improvements integral to the future use of the site, are erected* ***clear*** *of the land required for future road improvements/upgrades.*
- ***Note:*** *Attached aerial image should only be used as a representation and reference.*

TRAFFIX Response:

The proposal conforms with the land dedication required by Transport for NSW for the potential widening of Canterbury Road. As such, all development is clear of the land decimation to allow this area to be developed by Transport at the appropriate time.

Strategic Alignment

- *TfNSW recommends the alignment of the planning proposal with strategic transport and planning strategies (ie. Future Transport 2056, District Plan and Ministerial Direction 3.4 – Integrating Land Use and Transport) to reduce reliance on private vehicle trips. Investigation into public and active transport needs or improvements is encouraged.*
- *Where possible, ensure the proposal aligns with any Council's future/current masterplans or studies that may include the proposed site in consideration of the delivery of Southwest Sydney Metro.*

TRAFFIX Response:

It is noted that the development will benefit from improved transport links with the conversion of the existing T3 Bankstown Line to Metro services commencing in 2024. However, as the development is over 1 kilometre from the station this is not considered a significant benefit without additional bus links. Although it is premature for the club to consider the provision of a

shuttle bus for club patrons this can be considered as part of the Development Application to reduced reliance on private vehicle trips.

Access Arrangements

- *Proposed access arrangements would need to be modelled on potential traffic volume increase entering and exiting the site and its impacts on the signalised intersection at Canterbury Road/Punchbowl Road would need to be reviewed.*

TRAFFIX Response:

The modelling provided in Section 6.5 provides analysis of the impact of the proposed development on the right turn at Canterbury Road on to Punchbowl Road. Based on the 2022 results the existing right turn lane is considered sufficient to accommodate the 95th percentile queue length.

- *Provision of median is supported to enforce left in and left out movement. TfNSW recommends future design plans to consider whether the median and any associated treatments can be provided at this location.*

TRAFFIX Response:

Further design and investigations of the impact of the proposed median will be provided as part of the TIA for the DA stage

- *Further details on whether the existing driveway on Canterbury Road would be removed. Deceleration lane may be required to access the site.*

TRAFFIX Response:

The proposed main vehicular access will be located in the same location as the existing vehicular and will therefore replace the existing vehicular access. As unrestricted parking is currently provided along Punchbowl Road between the Bus Zone and existing vehicular access it not considered feasible for a deceleration lane to be provided on the approach to the access. However, the Bus Zone could be retained and No Parking restrictions introduced between the bus zone and vehicular access to provide an effective deceleration lane. Unrestricted parking to the north of the existing access will ensure this lane will not affect through traffic which will need to use the right lane. It is noted that the proposal does not proposed parking restrictions for this application and is not considered necessary for the

proposal. As such, the effective deceleration lane in the existing left lane is considered the most appropriate and least impact arrangement. However, further investigation and consultation with Transport for NSW and Council will be undertaken as part of the DA to determine the requirements for a deceleration lane.

- *TfNSW recommends having a singular shared access (in/out) further north of the site and to extend the distance from the signalised intersection as far as possible. Further justification would be required if a separate left out only driveway to the north is to be proposed.*

TRAFFIX Response:

The proposed main entry is in the same location as the current main entry. The location of the entry and proposed internal road provides the transition between the two land use zones currently found on the site and the future land use zones. In addition, the entry and internal main 'east-west' road are located in the same place as an existing stormwater easement and drainage, which cannot have be developed with any structures. Maintaining this easement results in the best solution to manage stormwater on the site. Moreover, the existing and proposed entry is located more than 60 metres away from the future land acquisition area and southern boundary of the site. Therefore, an access further north of the existing access would result in a development that does not maximise the development potential of the site with both the easement and separate area for vehicular access reducing the development potential.

- *Future detailed design would need to accommodate heavy vehicle movements (ie. delivery, waste trucks).*

TRAFFIX Response:

The planning proposal includes provision for HRVs at the main access for servicing.

Traffic Generation and car parking

- *The proposed development consists of retail, club and residential dwellings. The traffic generation of the site during the peak periods would need to be better understood. If there is a large number of vehicles turning in and out, consideration of an additional lane turning into the site from Canterbury Road may be required.*

TRAFFIX Response:

The modelling provided in Section 6.5 for the 2022 scenario demonstrates the existing right turn lane from Canterbury Road on to Punchbowl Road is able to accommodate the 95th percentile queue length. In addition, as there is one lane on Punchbowl Road available for vehicles to turn right into from Canterbury Road an additional right turn lane would not be practical unless both Canterbury Road and Punchbowl Road are widened. Therefore, the modelling demonstrates no upgrades to the existing intersection arrangements are considered necessary to accommodate the proposed development.

- *TfNSW recommends using the latest technical directions and surveys in the consideration of appropriate traffic generation rates.*

TRAFFIX Response:

The latest technical directions and surveys have been reviewed and the following should be noted:

- There are no technical direction or surveys that provide information for clubs and as such the traffic generation rate has been based on similar developments.
- The high density residential rates from the 2002 Guide are higher than the latest surveys and therefore provide a more conservative assessment.
- The retail traffic generation rate from the 2002 Guide is also more conservative than the rates provided in the latest Technical direction for small suburban shopping centres.

Therefore, the rates used for the traffic generation assessment allow for a conservative assessment of the proposed development.

- *Although not shown, it appears that underground parking would likely be provided for residents, retail and club patrons. These will need to be provided in future plans. TfNSW recommends on-surface car parking is limited.*

TRAFFIX Response:

The proposal includes basement car parking for all uses on site with only an at grade porte-cochere for the club.

8.3 Response to Additional Comments

This section responds to additional comments received from Transport for NSW and Council

The Traffic Impact Assessment predicts an increase in the number of vehicles turning right from Canterbury Road into Punchbowl Road as a result of the Development Uplift. The detailed modelling outputs indicate that the 95% queue length will reach over 40m in the PM peak once the Development Uplift has been completed. However, the existing bay length is only 35m plus taper. Consequently, the combination of the development and any future traffic growth may see the queue extending beyond the bay and on occasions potentially blocking westbound traffic flow along Canterbury Road. This is of particular concern to TfNSW noting that there is also an existing Bus Stop for westbound traffic along Canterbury Road located in line with the end of this right turn bay.

TRAFFIX Response:

The queue length of the right turn bay on Canterbury Road at the Punchbowl Road intersection has been addressed in Section 6.6.

Noting the scale and nature of this proposed Mixed-Use Development, this will likely result in increased pedestrian activity to and from the nearby Bus Stops located on Canterbury Road. However, there is currently no nearby pedestrian crossing facility for pedestrians to safely cross Punchbowl Road at the signalised intersection of Canterbury Road in order to access the Bus Stop located on the southern side of Canterbury Road.

TRAFFIX Response:

The pedestrian crossing arrangement at the Punchbowl Road leg of the intersection with Canterbury Road has been addressed in Section 6.6.

Since traffic is rerouted due to the left in left out restrictions at the access driveways. The following intersections should also be modelled:

- Canterbury Road and Stacey Street

- Stacey Street and Lancaster Avenue

- Rose Street and Canterbury Road

- Viola Street and Punchbowl Road

TRAFFIX Response:

Additional intersections have been modelled with the results provided in Sections 6.2 and 6.5 with detailed outputs provided in **Appendix D**.

9. CONCLUSIONS

In summary:

- The planning proposal seeks re-zoning to allow for a mixed-use development at 21 Canterbury Road and 913 – 919 Punchbowl Road in Punchbowl. A concept development has been formulated, comprising 1,103m^2 gross floor area of retail space, 320 residential dwellings and a club comprising of 1, 660m^2 gross floor area.
- The Bankstown Development Control Plan 2015 provides parking rates for the residential and retail components of the concept development.
- In response, 591 spaces are required to be provided including 448 residential parking spaces, 28 retail spaces and 115 club spaces. The parking provision will be assessed at the DA stage however it is expected all parking demand will be accommodated on site.
- The proposed development has been assessed to generate 123 vehicle trips per hour during the AM peak period and 184 vehicle trips per hour during the PM peak period. Software modelling has been undertaken at key intersections, with the results demonstrating that most intersections will continue to perform in line with their current performance. It is noted the intersection of Canterbury Road and Stacey Street would warrant upgrades due to its current operation at a LoS F, which indicates it is overcapacity. This is an existing situation and therefore not the responsibility of this development to address. The results are attributable to a left-in and left-out arrangement for the proposed site access on Punchbowl Road.
- Despite the results being acceptable the intersection of Canterbury Road and Punchbowl Road requires an extended right turn lane for the eastern approach and signalised pedestrian crossing on the northern approach to accommodate the additional queue length and pedestrian movements from the concept development. The modelling results of the proposed development are consistent with the development only scenario and therefore, will not cause additional impacts on the road network. Further design of the upgrades will be provided as part of the development application.
- The design of car parking and loading facilities are to comply with AS2890.1 (2004) and AS2890.2 (2018), with a swept path analysis undertaken for the access manoeuvres. However, detail assessment of the proposed parking and servicing arrangements will be dealt with at DA stage.

- All comments received from Council and Transport for NSW have been addressed in the updated report.

This Traffic Impact Assessment therefore demonstrates that the subject proposal is supportable on transport planning grounds. TRAFFIX anticipates an ongoing involvement during the planning proposal process.

APPENDIX A

Photographic Record

View looking west along Canterbury Road at the intersection with Punchbowl Road and the site.

View looking south along Punchbowl Road at the intersection with Canterbury Road.

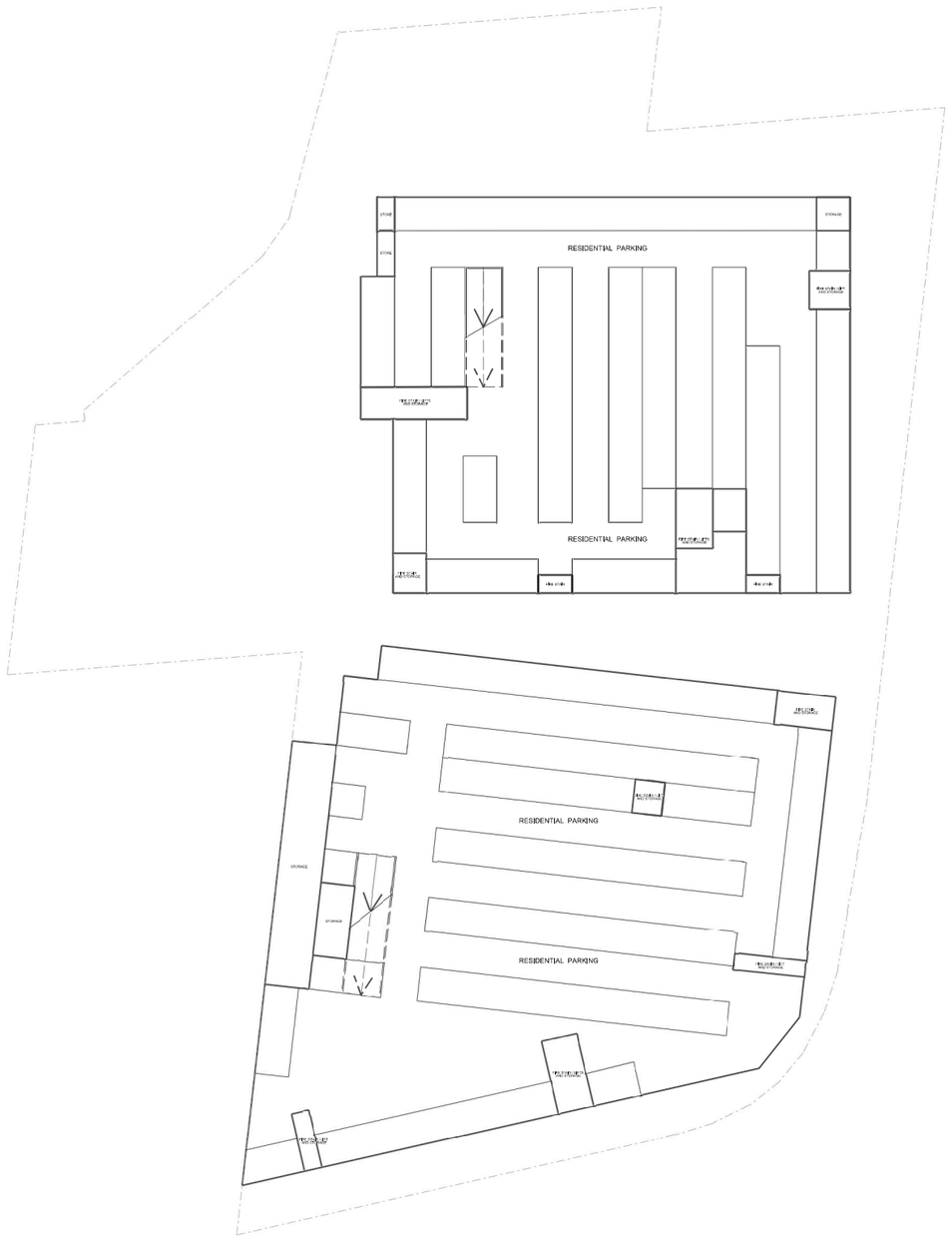
View looking south along Punchbowl Road towards the intersection with Canterbury Road and site.

View looking north along Punchbowl Road at the existing site and vehicular access.

View looking east along Cantebruy Road towards the intersection with Punchbowl Road and the site.

View looking east Canterbury Road at the intersection of Punchbowl Road.

APPENDIX B



BASEMENT 2 FLOOR PLAN
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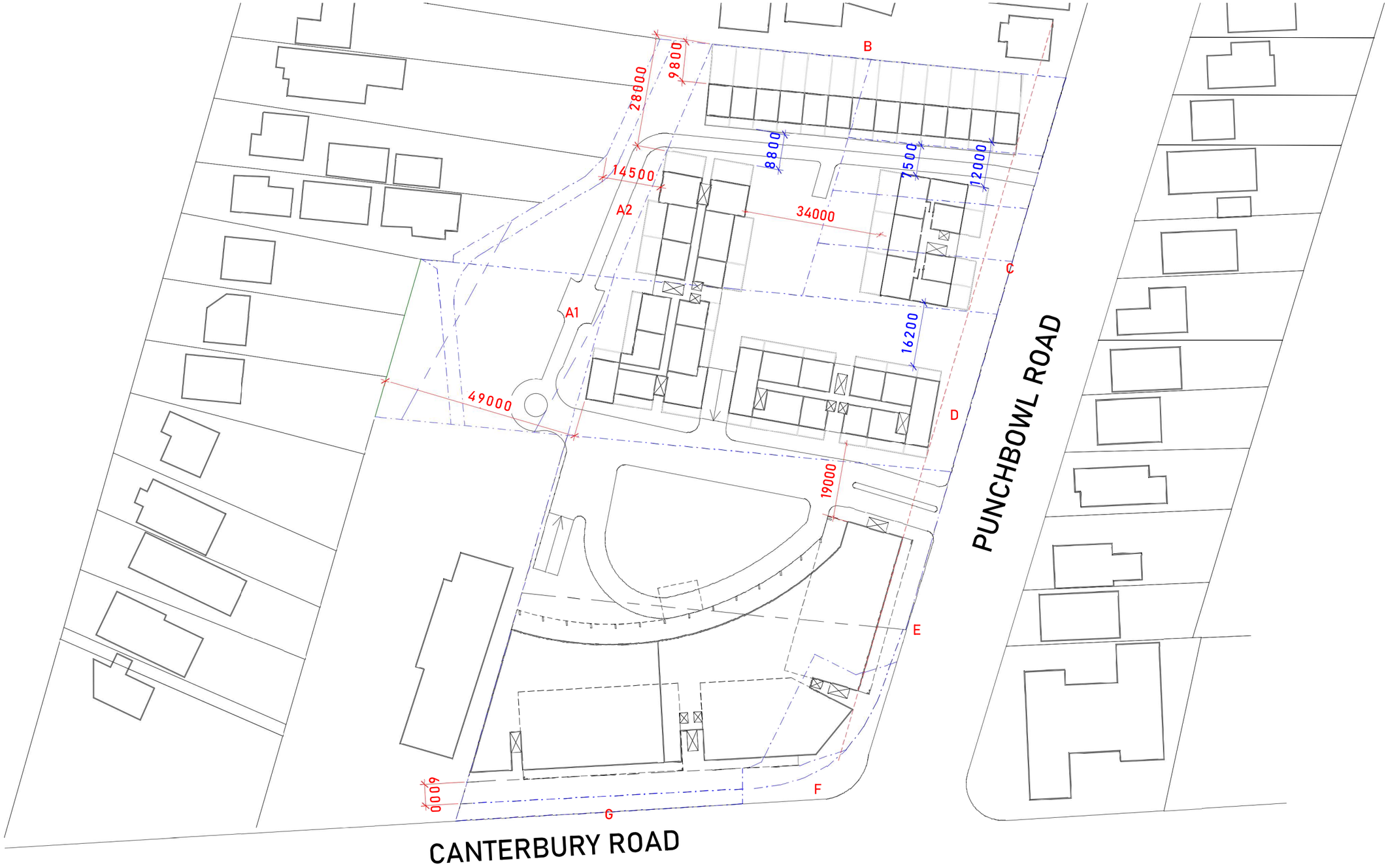

1 Ground Floor - Setbacks

1 : 500

ISSUE	DATE	DESCRIPTION	DRAWN
8	24/04/23	FOR DISCUSSION	DS

NOTES:

NOT FOR CONSTRUCTION
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SHEET:	A101
SCALE:	**A1@1:500, A3@1:1000**
ISSUE:	8
ISSUE DATE:	24/04/23
DRAWN:	DS
CHECKED:	Checker

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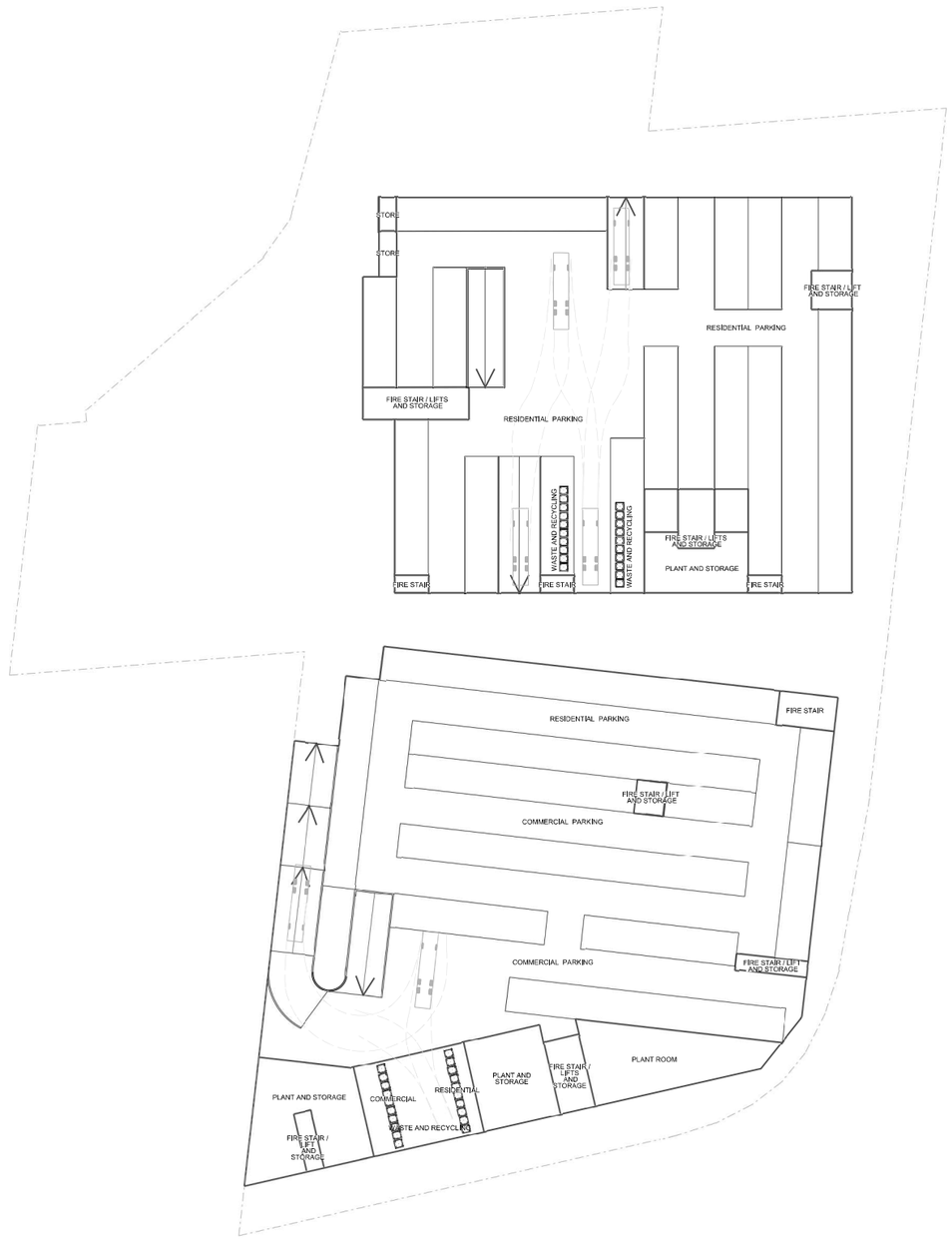
ARCHITECTS

Project Name:	MIXED USE DEVELOPMENT
Drawing Name:	GROUNDFLOOR SETBACKS
Site:	921 Punchbowl Road, Punchbowl NSW 2196



BASEMENT 1 FLOOR PLAN
A1@1:500

N

APPENDIX C

Travel Mode Survey (Club Development)

Travel Mode Survey

Time	How did you/your group travel to the hotel on this visit ?						
	CD	CP	CPD	Taxi	Bus	Cycle	Walk
16:08	1	1					
16:24	1						
16:26	1	1					
16:31	1	1					
16:35	1						
16:39	1	3					
16:46	1						
17:10							3
17:11	1	4					
17:15				4			
17:18	1	1					
17:20	1						
17:22	1						
17:24	1	3					
17:26	1						
17:27			5				
17:30				2			
17:31	1						
17:32	1	2					
17:39	1						
17:40	1	1					
17:41	1						
17:42	1						
17:48	1	1					
17:52	1						
18:02	1	2					
18:04	1						
18:06	1						
18:12	1	2					
18:14				3			
18:18	1	2					
18:19	1						
18:21	1						
18:23	1	2					
18:25	1	4					
18:27	1	1					
18:29	1	1					
18:33	1	2					
18:34	1	2					
18:36	1	1					
18:37	1	3					
18:39	1						
18:48	1						
18:49	1	3					
18:57	1	4					
18:59	1	1					
18:59	1	2					
18:59	1	3					
19:00	1	4					
19:01	1	1					
19:02	1	2					
19:03	1	3					
19:04	1	1					
19:05	1	2					

19:06	1	1					
19:07	1	2					
19:08	1	1					
19:09	1	1					
19:10	1						
19:11	1	2					
19:14	1	1					
19:15	1	2					
19:16	1	3					
19:17				3			
19:20	1	1					
19:22	1	4					
19:23	1	3					
19:25				3			
19:25	1	1					
19:26	1						
19:28	1	1					
19:28	1	3					
19:28	1	2					
19:29	1	3					
19:29	1	4					
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19:38	1	2					
19:38	1	2					
19:39	1	3					
19:39	1	2					
19:40	1	1					
19:45	1	1					
19:46	1	2					
19:47	1	1					
19:48	1	1					
19:49	1	2					
19:49	1	3					
19:49	1	4					
19:50	1	2					
19:50	1	3					
19:51	1	2					
19:52	1	2					
19:53	1	2					
19:53	1	2					
Totals	**99**	**171**	**5**	**15**	**0**	**0**	**3**

CD - car driver, **CP** - car passenger, **CPD** - car passenger dropped off - Motor Bike - **Taxi - Public Transport - Cycle - Walk**

APPENDIX D

SIDRA Outputs

USER REPORT FOR NETWORK

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl

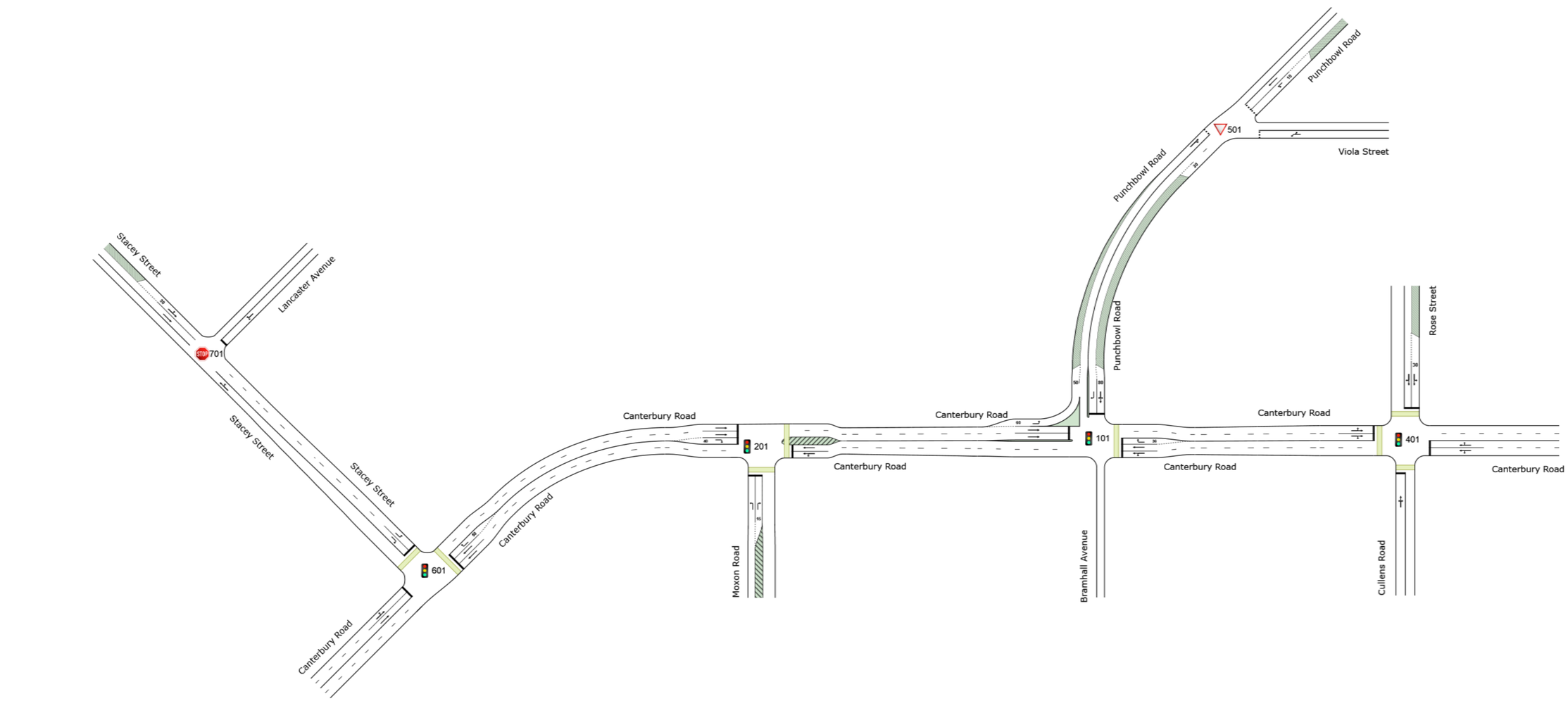
Template: Default Network User Report

Network: N101 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

New Network
Network Category: (None)

Network Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

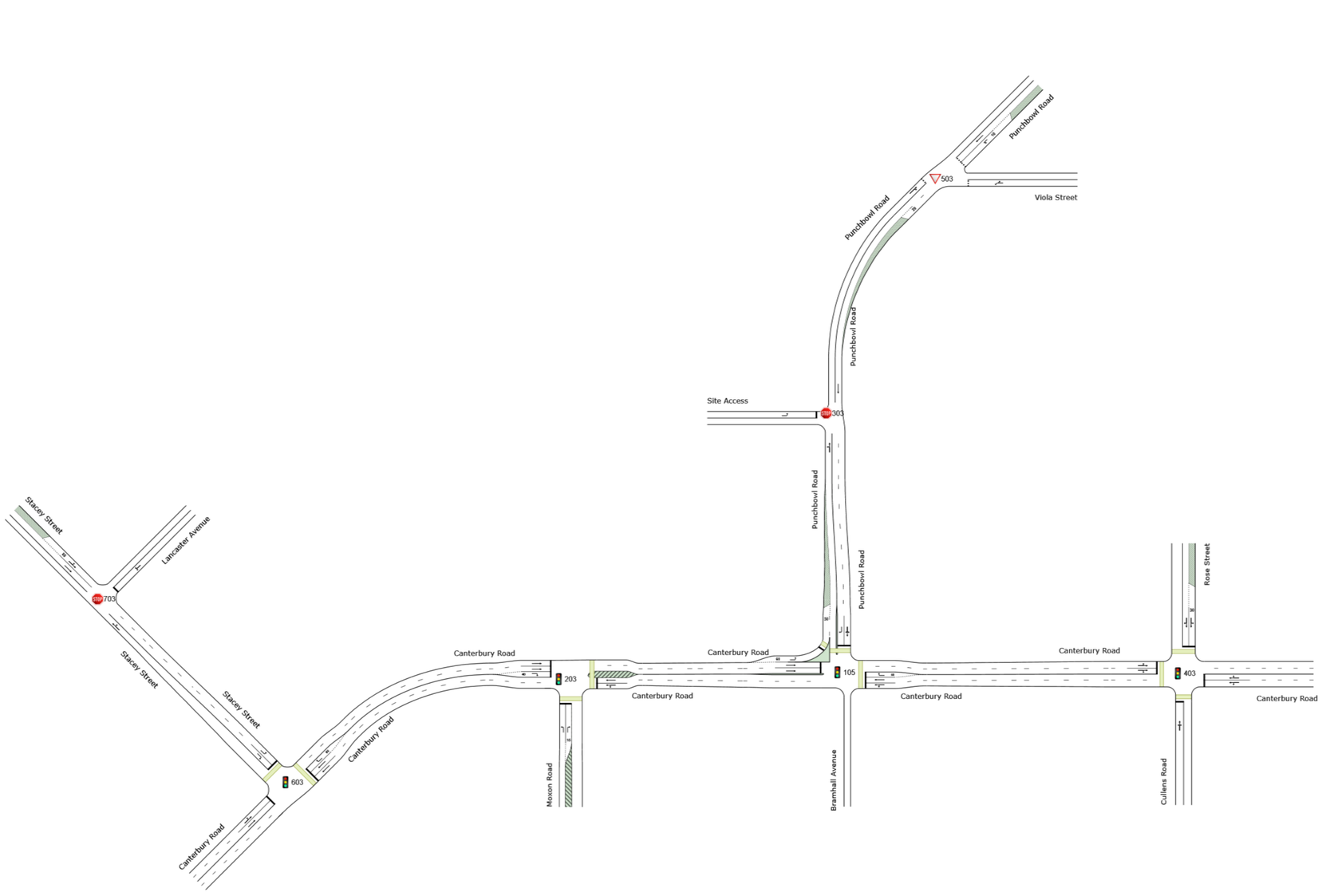


Network: N301 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

New Network
Network Category: (None)

Network Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl **Template: Movement Summaries**

Site: 101 [J01 Punchbowl Rd, Canterbury Rd | Existing | AM (Site Folder: Existing)] **Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]**

Intersection: Punchbowl Road, Canterbury Road and Brmhall Avenue
Scenario: Existing
Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, C
Output Phase Sequence: A, C

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: Canterbury Road														
4	L2	11	10.0	11	10.0	0.384	12.1	LOS A	10.8	79.8	0.40	0.37	0.40	48.5
5	T1	953	6.0	953	6.0	0.384	6.3	LOS A	10.8	79.8	0.39	0.36	0.39	47.8
6	R2	105	3.0	105	3.0	0.329	12.7	LOS A	2.3	16.8	0.39	0.69	0.39	39.8
Approach		1068	5.7	1068	5.7	0.384	7.0	LOS A	10.8	79.8	0.39	0.39	0.39	46.9
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	0.901	72.5	LOS F	19.2	141.1	1.00	0.99	1.34	8.6
8	T1	16	0.0	16	0.0	* 0.901	66.8	LOS E	19.2	141.1	1.00	0.99	1.34	17.7
9	R2	523	6.0	523	6.0	0.901	72.5	LOS F	19.2	141.1	1.00	0.99	1.34	8.6
Approach		564	6.0	564	6.0	0.901	72.4	LOS F	19.2	141.1	1.00	0.99	1.34	8.9
West: Canterbury Road														
10	L2	542	10.3	542	10.3	0.318	6.0	LOS A	0.0	0.0	0.00	0.52	0.00	45.3
11	T1	1024	9.0	1024	9.0	* 0.394	1.2	LOS A	2.1	15.7	0.08	0.07	0.08	55.9
Approach		1566	9.5	1566	9.5	0.394	2.9	LOS A	2.1	15.7	0.05	0.23	0.05	51.6
All Vehicles		3199	7.6	3199	7.6	0.901	16.5	LOS B	19.2	141.1	0.33	0.41	0.39	32.1

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)

Site: 201 [J02 Moxon Rd, Canterbury Rd | Existing | AM (Site Folder: Existing)]

Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing
Time Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E*
Output Phase Sequence: A, B, C, D
(* Variable Phase)

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: Moxon Road														
1	L2	465	4.3	465	4.3	0.776	45.4	LOS D	25.2	182.6	0.96	0.89	1.00	40.9
3	R2	1	100.0	1	100.0	* 0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		466	4.5	466	4.5	0.776	45.5	LOS D	25.2	182.6	0.96	0.88	1.00	40.8
East: Canterbury Road														
4	L2	18	5.9	18	5.9	0.756	27.1	LOS B	32.9	242.0	0.80	0.74	0.80	49.6
5	T1	1512	5.8	1512	5.8	* 0.756	21.2	LOS B	32.9	242.0	0.78	0.72	0.78	26.2
Approach		1529	5.8	1529	5.8	0.756	21.3	LOS B	32.9	242.0	0.78	0.72	0.78	27.2
West: Canterbury Road														
11	T1	1578	9.5	1578	9.5	0.715	5.1	LOS A	17.7	133.8	0.32	0.29	0.32	36.3
12	R2	320	7.2	320	7.2	* 0.629	42.9	LOS D	15.0	111.7	0.92	1.01	0.92	41.9
Approach		1898	9.2	1898	9.2	0.715	11.5	LOS A	17.7	133.8	0.42	0.41	0.42	40.2
All Vehicles		3894	7.3	3894	7.3	0.776	19.4	LOS B	32.9	242.0	0.63	0.59	0.63	36.4

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.
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)

Site: 401 [J04 Canterbury Rd Rose St | Existing | AM (Site Folder: Existing)]

Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Existing AM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	23	0.0	23	0.0	0.493	47.3	LOS D	9.8	71.3	0.91	0.78	0.91	26.0
2	T1	99	9.6	99	9.6	0.493	42.7	LOS D	9.8	71.3	0.91	0.78	0.91	34.8
3	R2	69	0.0	69	0.0	* 0.493	47.3	LOS D	9.8	71.3	0.91	0.78	0.91	31.6
Approach		192	4.9	192	4.9	0.493	44.9	LOS D	9.8	71.3	0.91	0.78	0.91	32.8
East: Canterbury Road														
4	L2	20	5.3	20	5.3	0.453	17.1	LOS B	15.8	117.2	0.55	0.50	0.55	45.0
5	T1	942	6.9	942	6.9	0.453	11.7	LOS A	15.8	117.2	0.55	0.50	0.55	38.6
6	R2	23	0.0	23	0.0	0.453	17.6	LOS B	13.1	96.8	0.55	0.51	0.55	44.1
Approach		985	6.7	985	6.7	0.453	12.0	LOS A	15.8	117.2	0.55	0.50	0.55	39.2
North: Rose Street														
7	L2	47	0.0	47	0.0	0.098	40.8	LOS C	2.1	14.7	0.79	0.71	0.79	31.3
8	T1	62	10.2	62	10.2	0.210	39.3	LOS C	3.9	29.1	0.84	0.69	0.84	36.6
9	R2	20	5.3	20	5.3	0.210	43.9	LOS D	3.9	29.1	0.84	0.69	0.84	24.6
Approach		129	5.7	129	5.7	0.210	40.6	LOS C	3.9	29.1	0.82	0.70	0.82	33.4
West: Canterbury Road														
10	L2	22	9.5	22	9.5	0.494	11.3	LOS A	8.6	65.0	0.28	0.27	0.28	48.7
11	T1	1121	8.5	1121	8.5	0.494	5.0	LOS A	8.6	65.0	0.24	0.23	0.24	54.0
12	R2	5	0.0	5	0.0	* 0.494	9.7	LOS A	6.3	47.6	0.21	0.20	0.21	49.9
Approach		1148	8.4	1148	8.4	0.494	5.1	LOS A	8.6	65.0	0.25	0.23	0.25	53.8
All Vehicles		2455	7.3	2455	7.3	0.494	12.8	LOS A	15.8	117.2	0.45	0.41	0.45	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.
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)

Site: 501 [J05 Punchbowl Rd Viola St | Existing | AM (Site Folder: Existing)]

Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	22	0.0	22	0.0	0.038	5.7	LOS A	0.1	0.9	0.52	0.67	0.52	37.9
6b	R3	6	0.0	6	0.0	0.038	13.9	LOS A	0.1	0.9	0.52	0.67	0.52	50.7
Approach		28	0.0	28	0.0	0.038	7.5	LOS A	0.1	0.9	0.52	0.67	0.52	43.6
NorthEast: Punchbowl Road														
24b	L3	12	9.1	12	9.1	0.008	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	471	12.1	471	12.1	0.260	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		482	12.0	482	12.0	0.260	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	55.7
SouthWest: Punchbowl Road														
11	T1	608	13.3	608	13.3	0.371	4.7	LOS A	5.2	40.4	0.68	0.20	0.87	50.9
32a	R1	21	5.0	21	5.0	0.371	153.6	LOS F	5.2	40.4	0.68	0.20	0.87	41.3
Approach		629	13.0	629	13.0	0.371	9.7	LOS A	5.2	40.4	0.68	0.20	0.87	50.7
All Vehicles		1140	12.3	1140	12.3	0.371	7.5	NA	5.2	40.4	0.39	0.35	0.50	52.4

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.

Site: 601 [J06 Canterbury Rd Stacey St | Existing | AM (Site Folder: Existing)]

Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

Intersection: Canterbury Road and Stacey Street
Scenario: Existing AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1455	7.1	1455	7.1	0.513	3.4	LOS A	13.2	98.2	0.24	0.22	0.24	50.1
6	R2	255	5.4	255	5.4	* 0.925	59.9	LOS E	15.1	110.9	1.00	1.03	1.45	7.0
Approach		1709	6.8	1709	6.8	0.925	11.8	LOS A	15.1	110.9	0.35	0.34	0.42	34.3
NorthWest: Stacey Street														
7	L2	294	6.8	294	6.8	* 0.676	49.8	LOS D	14.0	103.7	0.95	0.99	0.95	11.2
9	R2	199	10.1	199	10.1	0.933	82.3	LOS F	14.3	108.4	1.00	1.03	1.50	11.8
Approach		493	8.1	493	8.1	0.933	62.9	LOS E	14.3	108.4	0.97	1.01	1.17	11.5
SouthWest: Canterbury Road														
10	L2	39	8.1	39	8.1	* 0.941	60.0	LOS E	58.1	439.0	1.00	1.14	1.26	9.4
11	T1	1700	9.3	1700	9.3	* 0.941	51.1	LOS D	66.4	501.7	1.00	1.12	1.23	10.0
Approach		1739	9.3	1739	9.3	0.941	51.3	LOS D	66.4	501.7	1.00	1.12	1.24	10.0
All Vehicles		3941	8.1	3941	8.1	0.941	35.6	LOS C	66.4	501.7	0.72	0.77	0.87	16.2

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)

Site: 701 [J07 Stacey St Lancaster Ave | Existing | AM (Site Folder: Existing)]

Network: 1 [N01 Moxon Canterbury Punchbowl EX AM (Network Folder: Existing)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Existing AM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	284	6.3	284	6.3	0.172	0.3	LOS A	0.2	1.6	0.07	0.03	0.07	39.2
3	R2	19	0.0	19	0.0	0.172	6.0	LOS A	0.2	1.6	0.07	0.03	0.07	43.8
Approach		303	5.9	303	5.9	0.172	0.6	NA	0.2	1.6	0.07	0.03	0.07	39.5
NorthEast: Lancaster Avenue														
4	L2	57	3.7	57	3.7	0.150	8.5	LOS A	0.6	4.6	0.43	0.90	0.43	34.7
6	R2	43	9.8	43	9.8	0.150	15.0	LOS B	0.6	4.6	0.43	0.90	0.43	36.3
Approach		100	6.3	100	6.3	0.150	11.3	LOS A	0.6	4.6	0.43	0.90	0.43	35.5
NorthWest: Stacey Street														
7	L2	41	15.4	41	15.4	0.135	3.5	LOS A	0.0	0.0	0.00	0.08	0.00	39.7
8	T1	454	8.6	454	8.6	0.135	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	39.4
Approach		495	9.1	495	9.1	0.135	0.3	NA	0.0	0.0	0.00	0.04	0.00	39.4
All Vehicles		898	7.7	898	7.7	0.172	1.6	NA	0.6	4.6	0.07	0.13	0.07	38.8

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.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl **Template: Movement Summaries**

Site: 103 [J01 Punchbowl Rd, Canterbury Rd | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

Intersection: Punchbowl Road, Canterbury Road and Bramhall Avenue
Scenario: Existing + Development (Future)
Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Canterbury Road														
4	L2	11	10.0	11	10.0	0.424	12.1	LOS A	11.4	84.1	0.40	0.37	0.40	48.5
5	T1	991	5.7	991	5.7	0.424	6.2	LOS A	11.4	84.1	0.39	0.35	0.39	47.9
6	R2	141	2.2	141	2.2	* 0.438	13.3	LOS A	3.1	21.9	0.39	0.70	0.39	39.1
Approach		1142	5.3	1142	5.3	0.438	7.2	LOS A	11.4	84.1	0.39	0.40	0.39	46.7
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	0.921	76.5	LOS F	17.8	130.6	1.00	1.02	1.40	4.3
8	T1	16	0.0	16	0.0	* 0.921	71.3	LOS F	17.8	130.6	1.00	1.02	1.40	14.3
9	R2	523	6.0	523	6.0	0.921	76.2	LOS F	17.8	130.6	1.00	1.02	1.40	4.3
Approach		564	6.0	564	6.0	0.921	76.1	LOS F	17.8	130.6	1.00	1.02	1.40	4.6
West: Canterbury Road														
10	L2	565	9.9	565	9.9	0.331	6.1	LOS A	0.0	0.0	0.00	0.52	0.00	45.3
11	T1	1024	9.0	1024	9.0	0.394	1.3	LOS A	2.1	16.0	0.08	0.07	0.08	55.8
Approach		1589	9.3	1589	9.3	0.394	3.0	LOS A	2.1	16.0	0.05	0.23	0.05	51.4
All Vehicles		3296	7.4	3296	7.4	0.921	16.9	LOS B	17.8	130.6	0.33	0.42	0.40	30.9

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)

Site: 203 [J02 Moxon Rd, Canterbury Rd | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing + Development (Future)
Time Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: TFX - Copy
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

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: Moxon Road														
1	L2	465	4.3	465	4.3	0.776	45.4	LOS D	25.2	182.6	0.96	0.89	1.00	40.9
3	R2	1	100.0	1	100.0	* 0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		466	4.5	466	4.5	0.776	45.5	LOS D	25.2	182.6	0.96	0.88	1.00	40.8
East: Canterbury Road														
4	L2	18	5.9	18	5.9	0.770	26.6	LOS B	34.7	254.4	0.83	0.76	0.83	49.8
5	T1	1549	5.6	1549	5.6	* 0.770	21.0	LOS B	34.7	254.4	0.80	0.74	0.80	26.3
Approach		1567	5.6	1567	5.6	0.770	21.1	LOS B	34.7	254.4	0.80	0.74	0.80	27.3
West: Canterbury Road														
11	T1	1601	9.4	1601	9.4	0.719	5.2	LOS A	17.6	132.9	0.32	0.30	0.32	36.1
12	R2	320	7.2	320	7.2	* 0.617	43.0	LOS D	14.9	111.1	0.92	1.01	0.92	41.9
Approach		1921	9.0	1921	9.0	0.719	11.5	LOS A	17.6	132.9	0.42	0.41	0.42	40.1
All Vehicles		3955	7.2	3955	7.2	0.776	19.3	LOS B	34.7	254.4	0.64	0.60	0.64	36.4

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.
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)

Site: 303 [J03 Punchbowl Rd, Site Access | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Stop (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: Punchbowl Road														
1	L2	59	0.0	59	0.0	0.383	5.2	LOS A	0.0	0.0	0.00	0.05	0.00	28.8
2	T1	647	9.1	647	9.1	0.383	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	55.0
Approach		706	8.3	706	8.3	0.383	0.5	NA	0.0	0.0	0.00	0.05	0.00	49.4
North: Punchbowl Road														
8	T1	560	5.3	560	5.3	0.297	0.0	LOS A	1.8	13.2	0.00	0.00	0.00	59.8
Approach		560	5.3	560	5.3	0.297	0.0	NA	1.8	13.2	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	3	0.0	3	0.0	0.005	10.1	LOS A	0.0	0.1	0.56	0.88	0.56	18.4
Approach		3	0.0	3	0.0	0.005	10.1	LOS A	0.0	0.1	0.56	0.88	0.56	18.4
All Vehicles		1269	7.0	1269	7.0	0.383	0.3	NA	1.8	13.2	0.00	0.03	0.00	53.9

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.

Site: 403 [J04 Canterbury Rd Rose St | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Future AM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	23	0.0	23	0.0	0.508	48.2	LOS D	9.9	72.2	0.92	0.79	0.92	25.8
2	T1	99	9.6	99	9.6	0.508	43.6	LOS D	9.9	72.2	0.92	0.79	0.92	34.6
3	R2	69	0.0	69	0.0	* 0.508	48.2	LOS D	9.9	72.2	0.92	0.79	0.92	31.4
Approach		192	4.9	192	4.9	0.508	45.9	LOS D	9.9	72.2	0.92	0.79	0.92	32.6
East: Canterbury Road														
4	L2	20	5.3	20	5.3	0.466	17.7	LOS B	16.5	122.5	0.56	0.52	0.56	44.7
5	T1	960	6.8	960	6.8	0.466	12.3	LOS A	16.5	122.5	0.57	0.52	0.57	37.9
6	R2	23	0.0	23	0.0	0.466	18.2	LOS B	13.8	101.6	0.57	0.52	0.57	43.7
Approach		1003	6.6	1003	6.6	0.466	12.6	LOS A	16.5	122.5	0.57	0.52	0.57	38.5
North: Rose Street														
7	L2	69	0.0	69	0.0	0.140	40.4	LOS C	3.1	21.6	0.80	0.73	0.80	31.4
8	T1	62	10.2	62	10.2	0.390	42.4	LOS C	6.9	50.6	0.89	0.76	0.89	35.3
9	R2	76	1.4	76	1.4	0.390	46.9	LOS D	6.9	50.6	0.89	0.76	0.89	23.3
Approach		207	3.6	207	3.6	0.390	43.4	LOS D	6.9	50.6	0.86	0.75	0.86	30.4
West: Canterbury Road														
10	L2	22	9.5	22	9.5	0.501	11.7	LOS A	9.0	67.9	0.29	0.28	0.29	48.4
11	T1	1121	8.5	1121	8.5	0.501	5.2	LOS A	9.0	67.9	0.25	0.24	0.25	53.7
12	R2	5	0.0	5	0.0	* 0.501	9.9	LOS A	6.5	48.8	0.22	0.20	0.22	49.7
Approach		1148	8.4	1148	8.4	0.501	5.4	LOS A	9.0	67.9	0.25	0.24	0.25	53.5
All Vehicles		2551	7.1	2551	7.1	0.508	14.3	LOS A	16.5	122.5	0.48	0.43	0.48	42.7

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)

Site: 503 [J05 Punchbowl Rd Viola St | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	22	0.0	22	0.0	0.041	5.7	LOS A	0.1	1.0	0.53	0.68	0.53	37.4
6b	R3	6	0.0	6	0.0	0.041	15.7	LOS B	0.1	1.0	0.53	0.68	0.53	50.4
Approach		28	0.0	28	0.0	0.041	7.9	LOS A	0.1	1.0	0.53	0.68	0.53	43.2
NorthEast: Punchbowl Road														
24b	L3	12	9.1	12	9.1	0.008	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	471	12.1	471	12.1	0.260	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		482	12.0	482	12.0	0.260	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	55.7
SouthWest: Punchbowl Road														
11	T1	658	12.3	658	12.3	0.482	5.1	LOS A	7.2	55.0	0.76	0.23	1.09	49.7
32a	R1	81	1.3	81	1.3	0.482	54.8	LOS D	7.2	55.0	0.76	0.23	1.09	38.2
Approach		739	11.1	739	11.1	0.482	10.5	LOS A	7.2	55.0	0.76	0.23	1.09	49.0
All Vehicles		1249	11.2	1249	11.2	0.482	8.1	NA	7.2	55.0	0.46	0.36	0.66	51.3

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.

Site: 603 [J06 Canterbury Rd Stacey St | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

Intersection: Canterbury Road and Stacey Street
Scenario: Existing AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1493	6.9	1493	6.9	0.526	2.8	LOS A	13.6	100.7	0.19	0.18	0.19	51.6
6	R2	255	5.4	255	5.4	* 0.943	66.1	LOS E	15.8	115.8	1.00	1.05	1.51	6.4
Approach		1747	6.7	1747	6.7	0.943	12.0	LOS A	15.8	115.8	0.31	0.31	0.39	34.1
NorthWest: Stacey Street														
7	L2	294	6.8	294	6.8	* 0.672	49.7	LOS D	14.0	103.6	0.94	0.99	0.94	11.2
9	R2	199	10.1	199	10.1	0.933	82.3	LOS F	14.3	108.4	1.00	1.03	1.50	11.8
Approach		493	8.1	493	8.1	0.933	62.9	LOS E	14.3	108.4	0.97	1.01	1.17	11.5
SouthWest: Canterbury Road														
10	L2	39	8.1	39	8.1	* 0.947	62.7	LOS E	60.4	455.9	1.00	1.15	1.28	9.1
11	T1	1723	9.2	1723	9.2	* 0.947	53.7	LOS D	68.8	519.9	1.00	1.13	1.25	9.6
Approach		1762	9.2	1762	9.2	0.947	53.9	LOS D	68.8	519.9	1.00	1.13	1.25	9.6
All Vehicles		4002	8.0	4002	8.0	0.947	36.7	LOS C	68.8	519.9	0.70	0.76	0.86	15.9

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)

Site: 703 [J07 Stacey St Lancaster Ave | Future | AM (Site Folder: Existing + Development)]

Network: 3 [N02 Moxon Canterbury Punchbowl EX+DEV AM (Network Folder: Existing + Development)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Existing AM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	284	6.3	284	6.3	0.172	0.3	LOS A	0.2	1.6	0.07	0.03	0.07	39.2
3	R2	19	0.0	19	0.0	0.172	6.0	LOS A	0.2	1.6	0.07	0.03	0.07	43.8
Approach		303	5.9	303	5.9	0.172	0.6	NA	0.2	1.6	0.07	0.03	0.07	39.5
NorthEast: Lancaster Avenue														
4	L2	57	3.7	57	3.7	0.150	8.5	LOS A	0.6	4.6	0.43	0.90	0.43	34.7
6	R2	43	9.8	43	9.8	0.150	15.0	LOS B	0.6	4.6	0.43	0.90	0.43	36.3
Approach		100	6.3	100	6.3	0.150	11.3	LOS A	0.6	4.6	0.43	0.90	0.43	35.5
NorthWest: Stacey Street														
7	L2	41	15.4	41	15.4	0.135	3.5	LOS A	0.0	0.0	0.00	0.08	0.00	39.7
8	T1	454	8.6	454	8.6	0.135	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	39.4
Approach		495	9.1	495	9.1	0.135	0.3	NA	0.0	0.0	0.00	0.04	0.00	39.4
All Vehicles		898	7.7	898	7.7	0.172	1.6	NA	0.6	4.6	0.07	0.13	0.07	38.8

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.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl **Template: Movement Summaries**

Site: 105 [J01 Punchbowl Rd, Canterbury Rd | Upgrade | AM (Site Folder: Existing + Development)] **Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]**

Intersection: Punchbowl Road, Canterbury Road and Bramhall Avenue
Scenario: Existing + Development (Future)
Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, B, C
Output Phase Sequence: A, B, C

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: Canterbury Road														
4	L2	11	10.0	11	10.0	0.377	11.8	LOS A	10.2	75.0	0.39	0.35	0.39	48.7
5	T1	991	5.7	991	5.7	0.377	6.1	LOS A	10.2	75.1	0.38	0.35	0.38	48.1
6	R2	141	2.2	141	2.2	* 0.473	16.1	LOS B	3.5	24.8	0.44	0.71	0.44	36.5
Approach		1142	5.3	1142	5.3	0.473	7.4	LOS A	10.2	75.1	0.39	0.39	0.39	46.3
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	0.902	72.1	LOS F	17.8	130.6	1.00	1.00	1.34	4.5
8	T1	16	0.0	16	0.0	* 0.902	67.0	LOS E	17.8	130.6	1.00	1.00	1.34	14.9
9	R2	523	6.0	523	6.0	0.902	72.2	LOS F	17.8	130.6	1.00	0.99	1.34	4.5
Approach		564	6.0	564	6.0	0.902	72.0	LOS F	17.8	130.6	1.00	0.99	1.34	4.9
West: Canterbury Road														
10	L2	565	9.9	565	9.9	0.487	12.0	LOS A	14.7	111.3	0.49	0.71	0.49	36.1
11	T1	1024	9.0	1024	9.0	0.394	1.2	LOS A	2.1	15.7	0.08	0.07	0.08	55.8
Approach		1589	9.3	1589	9.3	0.487	5.1	LOS A	14.7	111.3	0.22	0.30	0.22	46.5
All Vehicles		3296	7.4	3296	7.4	0.902	17.3	LOS B	17.8	130.6	0.41	0.45	0.47	30.6

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)

Site: 203 [J02 Moxon Rd, Canterbury Rd | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing + Development (Future)
Time Period: AM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX - Copy
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

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: Moxon Road														
1	L2	465	4.3	465	4.3	0.776	45.4	LOS D	25.2	182.6	0.96	0.89	1.00	40.9
3	R2	1	100.0	1	100.0	* 0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		466	4.5	466	4.5	0.776	45.5	LOS D	25.2	182.6	0.96	0.88	1.00	40.8
East: Canterbury Road														
4	L2	18	5.9	18	5.9	0.767	27.4	LOS B	33.5	245.7	0.80	0.74	0.80	49.5
5	T1	1549	5.6	1549	5.6	* 0.767	21.6	LOS B	33.5	245.7	0.79	0.73	0.79	25.9
Approach		1567	5.6	1567	5.6	0.767	21.7	LOS B	33.5	245.7	0.79	0.73	0.79	26.9
West: Canterbury Road														
11	T1	1601	9.4	1601	9.4	0.698	4.4	LOS A	14.7	111.3	0.28	0.26	0.28	38.3
12	R2	320	7.2	320	7.2	* 0.633	43.2	LOS D	15.0	111.8	0.92	1.01	0.92	41.8
Approach		1921	9.0	1921	9.0	0.698	10.9	LOS A	15.0	111.8	0.39	0.39	0.39	40.8
All Vehicles		3955	7.2	3955	7.2	0.776	19.2	LOS B	33.5	245.7	0.62	0.58	0.62	36.4

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.
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)

Site: 303 [J03 Punchbowl Rd, Site Access | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

New Site
Site Category: (None)
Stop (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: Punchbowl Road														
1	L2	59	0.0	59	0.0	0.383	5.2	LOS A	0.0	0.0	0.00	0.05	0.00	28.8
2	T1	647	9.1	647	9.1	0.383	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	55.0
Approach		706	8.3	706	8.3	0.383	0.5	NA	0.0	0.0	0.00	0.05	0.00	49.4
North: Punchbowl Road														
8	T1	560	5.3	560	5.3	0.297	0.0	LOS A	1.6	11.4	0.00	0.00	0.00	59.8
Approach		560	5.3	560	5.3	0.297	0.0	NA	1.6	11.4	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	3	0.0	3	0.0	0.005	9.9	LOS A	0.0	0.1	0.56	0.86	0.56	18.7
Approach		3	0.0	3	0.0	0.005	9.9	LOS A	0.0	0.1	0.56	0.86	0.56	18.7
All Vehicles		1269	7.0	1269	7.0	0.383	0.3	NA	1.6	11.4	0.00	0.03	0.00	53.9

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.

Site: 403 [J04 Canterbury Rd Rose St | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Future AM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	23	0.0	23	0.0	0.508	48.2	LOS D	9.9	72.2	0.92	0.79	0.92	25.8
2	T1	99	9.6	99	9.6	0.508	43.6	LOS D	9.9	72.2	0.92	0.79	0.92	34.6
3	R2	69	0.0	69	0.0	* 0.508	48.2	LOS D	9.9	72.2	0.92	0.79	0.92	31.4
Approach		192	4.9	192	4.9	0.508	45.9	LOS D	9.9	72.2	0.92	0.79	0.92	32.6
East: Canterbury Road														
4	L2	20	5.3	20	5.3	0.466	17.7	LOS B	16.5	122.5	0.56	0.52	0.56	44.7
5	T1	960	6.8	960	6.8	0.466	12.3	LOS A	16.5	122.5	0.57	0.52	0.57	37.9
6	R2	23	0.0	23	0.0	0.466	18.2	LOS B	13.8	101.6	0.57	0.52	0.57	43.7
Approach		1003	6.6	1003	6.6	0.466	12.6	LOS A	16.5	122.5	0.57	0.52	0.57	38.5
North: Rose Street														
7	L2	69	0.0	69	0.0	0.140	40.4	LOS C	3.1	21.6	0.80	0.73	0.80	31.4
8	T1	62	10.2	62	10.2	0.390	42.4	LOS C	6.9	50.6	0.89	0.76	0.89	35.3
9	R2	76	1.4	76	1.4	0.390	46.9	LOS D	6.9	50.6	0.89	0.76	0.89	23.3
Approach		207	3.6	207	3.6	0.390	43.4	LOS D	6.9	50.6	0.86	0.75	0.86	30.4
West: Canterbury Road														
10	L2	22	9.5	22	9.5	0.501	11.7	LOS A	9.0	67.5	0.29	0.28	0.29	48.4
11	T1	1121	8.5	1121	8.5	0.501	3.4	LOS A	9.0	67.5	0.17	0.16	0.17	55.7
12	R2	5	0.0	5	0.0	* 0.501	6.2	LOS A	1.3	9.5	0.04	0.04	0.04	52.2
Approach		1148	8.4	1148	8.4	0.501	3.5	LOS A	9.0	67.5	0.17	0.16	0.17	55.5
All Vehicles		2551	7.1	2551	7.1	0.508	13.5	LOS A	16.5	122.5	0.44	0.40	0.44	43.3

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.
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)

Site: 503 [J05 Punchbowl Rd Viola St | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	22	0.0	22	0.0	0.041	5.7	LOS A	0.1	1.0	0.53	0.68	0.53	37.4
6b	R3	6	0.0	6	0.0	0.041	15.7	LOS B	0.1	1.0	0.53	0.68	0.53	50.4
Approach		28	0.0	28	0.0	0.041	7.9	LOS A	0.1	1.0	0.53	0.68	0.53	43.2
NorthEast: Punchbowl Road														
24b	L3	12	9.1	12	9.1	0.008	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	471	12.1	471	12.1	0.260	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		482	12.0	482	12.0	0.260	4.5	LOS A	0.0	0.0	0.00	0.53	0.00	55.7
SouthWest: Punchbowl Road														
11	T1	658	12.3	658	12.3	0.482	5.1	LOS A	7.2	55.0	0.76	0.23	1.09	49.7
32a	R1	81	1.3	81	1.3	0.482	54.8	LOS D	7.2	55.0	0.76	0.23	1.09	38.2
Approach		739	11.1	739	11.1	0.482	10.5	LOS A	7.2	55.0	0.76	0.23	1.09	49.0
All Vehicles		1249	11.2	1249	11.2	0.482	8.1	NA	7.2	55.0	0.46	0.36	0.66	51.3

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.

Site: 603 [J06 Canterbury Rd Stacey St | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

Intersection: Canterbury Road and Stacey Street
Scenario: Existing AM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1493	6.9	1493	6.9	0.531	3.7	LOS A	14.4	106.6	0.26	0.24	0.26	49.2
6	R2	255	5.4	255	5.4	* 0.909	51.9	LOS D	14.0	102.5	1.00	0.99	1.33	7.9
Approach		1747	6.7	1747	6.7	0.909	10.8	LOS A	14.4	106.6	0.37	0.35	0.41	35.7
NorthWest: Stacey Street														
7	L2	294	6.8	294	6.8	* 0.597	47.3	LOS D	13.7	101.5	0.91	0.98	0.91	11.7
9	R2	199	10.1	199	10.1	0.875	72.1	LOS F	13.1	99.9	1.00	0.96	1.33	13.1
Approach		493	8.1	493	8.1	0.875	57.3	LOS E	13.7	101.5	0.95	0.97	1.08	12.4
SouthWest: Canterbury Road														
10	L2	39	8.1	39	8.1	* 0.890	40.8	LOS C	51.8	391.2	0.95	0.97	1.05	13.4
11	T1	1723	9.2	1723	9.2	* 0.890	34.6	LOS C	51.8	391.2	0.95	0.96	1.05	13.6
Approach		1762	9.2	1762	9.2	0.890	34.7	LOS C	51.8	391.2	0.95	0.96	1.05	13.6
All Vehicles		4002	8.0	4002	8.0	0.909	27.0	LOS B	51.8	391.2	0.69	0.70	0.78	19.7

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)

Site: 703 [J07 Stacey St Lancaster Ave | Future | AM (Site Folder: Existing + Development)]

Network: 16 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG AM (Network Folder: Upgraded Network)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Existing AM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	284	6.3	284	6.3	0.172	0.3	LOS A	0.2	1.6	0.07	0.03	0.07	39.2
3	R2	19	0.0	19	0.0	0.172	6.0	LOS A	0.2	1.6	0.07	0.03	0.07	43.8
Approach		303	5.9	303	5.9	0.172	0.6	NA	0.2	1.6	0.07	0.03	0.07	39.5
NorthEast: Lancaster Avenue														
4	L2	57	3.7	57	3.7	0.150	8.5	LOS A	0.6	4.6	0.43	0.90	0.43	34.7
6	R2	43	9.8	43	9.8	0.150	15.0	LOS B	0.6	4.6	0.43	0.90	0.43	36.3
Approach		100	6.3	100	6.3	0.150	11.3	LOS A	0.6	4.6	0.43	0.90	0.43	35.5
NorthWest: Stacey Street														
7	L2	41	15.4	41	15.4	0.135	3.5	LOS A	0.0	0.0	0.00	0.08	0.00	39.7
8	T1	454	8.6	454	8.6	0.135	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	39.4
Approach		495	9.1	495	9.1	0.135	0.3	NA	0.0	0.0	0.00	0.04	0.00	39.4
All Vehicles		898	7.7	898	7.7	0.172	1.6	NA	0.6	4.6	0.07	0.13	0.07	38.8

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.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl — **Template: Movement Summaries**

Site: 102 [J01 Punchbowl Rd, Canterbury Rd | Existing | PM (Site Folder: Existing)] — **Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]**

Intersection: Punchbowl Road, Canterbury Road and Bramhall Avenue
Scenario: Existing
Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, C
Output Phase Sequence: A, C

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: Canterbury Road														
4	L2	8	0.0	8	0.0	0.588	9.6	LOS A	7.2	52.6	0.24	0.22	0.24	52.8
5	T1	1076	5.4	1076	5.4	* 0.588	4.5	LOS A	7.9	57.6	0.26	0.24	0.26	50.8
6	R2	92	4.6	92	4.6	0.298	15.5	LOS B	1.7	12.7	0.34	0.67	0.34	37.0
Approach		1176	5.3	1176	5.3	0.588	5.4	LOS A	7.9	57.6	0.27	0.27	0.27	49.4
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	0.901	72.5	LOS F	19.4	142.1	1.00	1.01	1.35	8.6
8	T1	18	0.0	18	0.0	* 0.901	66.9	LOS E	19.4	142.1	1.00	1.01	1.35	17.7
9	R2	480	5.7	480	5.7	0.901	73.4	LOS F	19.4	142.1	1.00	1.01	1.37	8.5
Approach		523	5.6	523	5.6	0.901	73.1	LOS F	19.4	142.1	1.00	1.01	1.37	8.9
West: Canterbury Road														
10	L2	520	4.9	441	5.0	0.249	5.9	LOS A	0.0	0.0	0.00	0.53	0.00	45.4
11	T1	1079	3.6	914	3.7	0.360	9.6	LOS A	13.4	96.6	0.54	0.48	0.54	38.1
Approach		1599	4.0	1354 N1	4.1	0.360	8.4	LOS A	13.4	96.6	0.36	0.49	0.36	40.2
All Vehicles		3298	4.7	3053 N1	5.1	0.901	18.3	LOS B	19.4	142.1	0.43	0.50	0.50	30.9

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 202 [J02 Moxon Rd, Canterbury Rd | Existing | PM (Site Folder: Existing)]

Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing
Time Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D, E*
Output Phase Sequence: A, B, C, D
(* Variable Phase)

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: Moxon Road														
1	L2	425	2.5	425	2.5	0.850	54.1	LOS D	26.2	187.6	0.99	0.95	1.15	38.5
3	R2	1	100.0	1	100.0	* 0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		426	2.7	426	2.7	0.850	54.2	LOS D	26.2	187.6	0.99	0.95	1.15	38.5
East: Canterbury Road														
4	L2	16	0.0	16	0.0	0.899	44.4	LOS D	47.6	348.5	0.96	1.00	1.11	44.1
5	T1	1595	5.5	1595	5.5	* 0.899	38.1	LOS C	52.0	381.4	0.96	1.00	1.10	18.1
Approach		1611	5.4	1611	5.4	0.899	38.2	LOS C	52.0	381.4	0.96	1.00	1.10	18.8
West: Canterbury Road														
11	T1	1623	4.0	1370	4.1	0.635	8.4	LOS A	21.7	157.0	0.44	0.40	0.44	28.9
12	R2	451	3.5	380	3.6	* 0.760	51.9	LOS D	18.2	131.3	0.95	1.04	0.98	39.5
Approach		2074	3.9	1750 N1	4.0	0.760	17.8	LOS B	21.7	157.0	0.55	0.54	0.55	36.7
All Vehicles		4111	4.4	3787 N1	4.8	0.899	30.6	LOS C	52.0	381.4	0.77	0.78	0.85	30.4

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.
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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 402 [J04 Canterbury Rd Rose St | Existing | PM (Site Folder: Existing)]

Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Existing PM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	26	0.0	26	0.0	0.594	53.2	LOS D	10.2	73.6	0.96	0.81	0.96	24.5
2	T1	94	6.7	94	6.7	0.594	48.6	LOS D	10.2	73.6	0.96	0.81	0.96	33.2
3	R2	66	1.6	66	1.6	* 0.594	53.2	LOS D	10.2	73.6	0.96	0.81	0.96	30.1
Approach		186	4.0	186	4.0	0.594	50.9	LOS D	10.2	73.6	0.96	0.81	0.96	31.1
East: Canterbury Road														
4	L2	56	1.9	56	1.9	0.606	16.4	LOS B	24.3	177.8	0.59	0.56	0.59	45.3
5	T1	984	5.8	984	5.8	0.606	13.2	LOS A	24.3	177.8	0.62	0.59	0.62	36.5
6	R2	103	1.0	103	1.0	* 0.606	25.3	LOS B	14.4	104.4	0.73	0.70	0.73	39.2
Approach		1143	5.2	1143	5.2	0.606	14.4	LOS A	24.3	177.8	0.63	0.60	0.63	37.8
North: Rose Street														
7	L2	38	2.8	38	2.8	0.096	45.0	LOS D	1.8	12.7	0.83	0.71	0.83	30.0
8	T1	93	8.0	93	8.0	0.287	43.5	LOS D	5.2	38.5	0.89	0.71	0.89	35.6
9	R2	12	0.0	12	0.0	0.287	48.0	LOS D	5.2	38.5	0.89	0.71	0.89	23.6
Approach		142	5.9	142	5.9	0.287	44.2	LOS D	5.2	38.5	0.87	0.71	0.87	33.5
West: Canterbury Road														
10	L2	29	3.6	26	3.7	0.399	17.3	LOS B	17.6	125.9	0.63	0.58	0.63	44.8
11	T1	1077	2.4	935	2.5	0.399	12.9	LOS A	17.6	125.9	0.65	0.59	0.65	46.6
12	R2	16	6.7	14	6.8	0.399	19.9	LOS B	16.2	116.3	0.68	0.61	0.68	44.0
Approach		1122	2.5	974[N1]	2.6	0.399	13.2	LOS A	17.6	125.9	0.65	0.59	0.65	46.5
All Vehicles		2594	4.0	2446[N1]	4.2	0.606	18.4	LOS B	24.3	177.8	0.68	0.62	0.68	39.7

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 502 [J05 Punchbowl Rd Viola St | Existing | PM (Site Folder: Existing)]

Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	34	0.0	34	0.0	0.087	5.8	LOS A	0.3	2.0	0.55	0.74	0.55	36.6
6b	R3	22	0.0	22	0.0	0.087	12.9	LOS A	0.3	2.0	0.55	0.74	0.55	50.0
Approach		56	0.0	56	0.0	0.087	8.6	LOS A	0.3	2.0	0.55	0.74	0.55	45.3
NorthEast: Punchbowl Road														
24b	L3	15	7.1	15	7.1	0.009	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	499	3.6	499	3.6	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		514	3.7	514	3.7	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.6
SouthWest: Punchbowl Road														
11	T1	605	4.2	537	4.2	0.315	4.5	LOS A	4.0	28.7	0.63	0.22	0.75	51.7
32a	R1	24	0.0	21	0.0	0.315	121.0	LOS F	4.0	28.7	0.63	0.22	0.75	42.0
Approach		629	4.0	558[N1]	4.1	0.315	8.9	LOS A	4.0	28.7	0.63	0.22	0.75	51.4
All Vehicles		1199	3.7	1128[N1]	3.9	0.315	6.9	NA	4.0	28.7	0.34	0.39	0.40	52.9

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 602 [J06 Canterbury Rd Stacey St | Existing | PM (Site Folder: Existing)]

Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]

Intersection: Canterbury Road and Stacey Street
Scenario: Existing PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Optimum Cycle Time - Minimum Delay)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1581	5.1	1581	5.1	0.545	3.5	LOS A	17.2	125.4	0.28	0.26	0.28	49.8
6	R2	261	2.4	261	2.4	* 0.911	57.1	LOS E	13.2	94.5	1.00	0.95	1.22	7.3
Approach		1842	4.7	1842	4.7	0.911	11.1	LOS A	17.2	125.4	0.38	0.36	0.41	35.2
NorthWest: Stacey Street														
7	L2	424	2.2	424	2.2	* 1.081	124.8	LOS F	40.0	285.6	1.00	1.21	2.01	3.9
9	R2	216	7.8	216	7.8	1.068	148.2	LOS F	21.7	162.2	1.00	1.25	2.04	7.1
Approach		640	4.1	640	4.1	1.081	132.7	LOS F	40.0	285.6	1.00	1.23	2.02	5.0
SouthWest: Canterbury Road														
10	L2	60	3.5	60	3.5	* 1.087	145.7	LOS F	84.8	610.7	1.00	1.55	1.95	3.7
11	T1	1716	3.4	1716	3.4	* 1.087	142.0	LOS F	113.9	820.6	1.00	1.61	1.92	3.8
Approach		1776	3.4	1776	3.4	1.087	142.1	LOS F	113.9	820.6	1.00	1.61	1.92	3.8
All Vehicles		4258	4.1	4258	4.1	1.087	84.0	LOS F	113.9	820.6	0.73	1.01	1.28	7.6

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)

Site: 702 [J07 Stacey St Lancaster Ave | Existing | PM (Site Folder: Existing)]

Network: 2 [N01 Moxon Canterbury Punchbowl EX PM (Network Folder: Existing)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Existing PM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	605	4.2	596	4.2	0.343	0.3	LOS A	0.4	3.2	0.06	0.02	0.07	48.9
3	R2	25	4.2	25	4.2	0.343	8.0	LOS A	0.4	3.2	0.06	0.02	0.07	47.6
Approach		631	4.2	621 N1	4.2	0.343	0.6	NA	0.4	3.2	0.06	0.02	0.07	48.8
NorthEast: Lancaster Avenue														
4	L2	34	0.0	34	0.0	0.153	8.4	LOS A	0.4	3.1	0.49	0.89	0.49	32.3
6	R2	22	0.0	22	0.0	0.153	21.6	LOS B	0.4	3.1	0.49	0.89	0.49	36.1
Approach		56	0.0	56	0.0	0.153	13.6	LOS A	0.4	3.1	0.49	0.89	0.49	34.1
NorthWest: Stacey Street														
7	L2	14	0.0	14	0.0	0.135	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.6
8	T1	499	3.6	499	3.6	0.135	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.5
Approach		513	3.5	513	3.5	0.135	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.4
All Vehicles		1199	3.7	1189 N1	3.7	0.343	1.0	NA	0.4	3.2	0.06	0.06	0.06	47.7

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 April 2023 3:46:00 PM
Project: T:\Synergy\Projects\19\19.439\Modelling\19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl.sip9

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl — **Template: Movement Summaries**

Site: 104 [J01 Punchbowl Rd, Canterbury Rd | Future | PM (Site Folder: Existing + Development)] — **Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]**

Intersection: Punchbowl Road, Canterbury Road and Bramhall Avenue
Scenario: Existing + Development (Future)
Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Canterbury Road														
4	L2	8	0.0	8	0.0	0.873	22.1	LOS B	24.7	180.5	0.53	0.58	0.63	42.1
5	T1	1101	5.3	1101	5.3	* 0.873	18.8	LOS B	24.7	180.5	0.45	0.52	0.58	34.2
6	R2	171	2.5	171	2.5	0.527	23.9	LOS B	6.4	45.9	0.67	0.78	0.67	30.6
Approach		1280	4.9	1280	4.9	0.873	19.5	LOS B	24.7	180.5	0.48	0.55	0.59	33.7
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	1.096	173.0	LOS F	17.8	130.6	1.00	1.38	2.15	1.9
8	T1	19	5.6	19	5.6	* 1.096	167.9	LOS F	17.8	130.6	1.00	1.38	2.15	7.1
9	R2	480	5.7	480	5.7	1.096	174.7	LOS F	17.8	130.6	1.00	1.37	2.18	1.9
Approach		524	5.8	524	5.8	1.096	174.4	LOS F	17.8	130.6	1.00	1.37	2.17	2.1
West: Canterbury Road														
10	L2	573	4.4	470	4.6	0.265	6.1	LOS A	0.0	0.0	0.00	0.53	0.00	45.4
11	T1	1079	3.6	885	3.7	0.353	9.6	LOS A	12.7	91.6	0.52	0.47	0.52	38.1
Approach		1652	3.9	1354 N1	4.0	0.353	8.4	LOS A	12.7	91.6	0.34	0.49	0.34	40.4
All Vehicles		3456	4.5	3158 N1	5.0	1.096	40.4	LOS C	24.7	180.5	0.51	0.66	0.75	18.6

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 204 [J02 Moxon Rd, Canterbury Rd | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing + Development (Future)
Time Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: TCS Phasing - Copy
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

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: Moxon Road														
1	L2	425	2.5	425	2.5	* 0.884	60.1	LOS E	28.1	201.2	1.00	0.98	1.23	37.0
3	R2	1	100.0	1	100.0	0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		426	2.7	426	2.7	0.884	60.2	LOS E	28.1	201.2	1.00	0.98	1.23	37.0
East: Canterbury Road														
4	L2	16	0.0	16	0.0	0.934	57.5	LOS E	54.3	397.3	0.99	1.11	1.24	40.6
5	T1	1620	5.4	1620	5.4	* 0.934	49.4	LOS D	57.9	424.3	0.99	1.10	1.23	15.0
Approach		1636	5.3	1636	5.3	0.934	49.5	LOS D	57.9	424.3	0.99	1.10	1.23	15.6
West: Canterbury Road														
11	T1	1676	3.9	1376	4.0	0.666	9.6	LOS A	24.8	179.6	0.48	0.44	0.48	26.9
12	R2	451	3.5	370	3.6	0.725	50.1	LOS D	17.1	123.7	0.93	1.02	0.94	40.0
Approach		2126	3.8	1746 N1	3.9	0.725	18.2	LOS B	24.8	179.6	0.58	0.56	0.58	36.2
All Vehicles		4188	4.3	3808 N1	4.7	0.934	36.3	LOS C	57.9	424.3	0.80	0.84	0.93	27.7

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 304 [J03 Punchbowl Rd, Site Access | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

New Site
Site Category: (None)
Stop (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: Punchbowl Road														
1	L2	132	0.0	122	0.0	0.340	5.2	LOS A	0.0	0.0	0.00	0.11	0.00	28.0
2	T1	612	4.8	519	5.0	0.340	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	50.4
Approach		743	4.0	641[N1]	4.0	0.340	1.0	NA	0.0	0.0	0.00	0.11	0.00	41.5
North: Punchbowl Road														
8	T1	523	5.6	523	5.6	0.278	0.0	LOS A	1.5	10.6	0.00	0.00	0.00	59.8
Approach		523	5.6	523	5.6	0.278	0.0	NA	1.5	10.6	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	35	0.0	35	0.0	0.044	9.0	LOS A	0.2	1.1	0.51	0.94	0.51	20.0
Approach		35	0.0	35	0.0	0.044	9.0	LOS A	0.2	1.1	0.51	0.94	0.51	20.0
All Vehicles		1301	4.5	1199[N1]	4.9	0.340	0.8	NA	1.5	10.6	0.01	0.09	0.01	47.5

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 404 [J04 Canterbury Rd Rose St | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Future PM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	26	0.0	26	0.0	0.642	55.5	LOS D	10.4	75.4	0.98	0.82	0.99	23.9
2	T1	94	6.7	94	6.7	0.642	50.9	LOS D	10.4	75.4	0.98	0.82	0.99	32.7
3	R2	66	1.6	66	1.6	* 0.642	55.5	LOS D	10.4	75.4	0.98	0.82	0.99	29.5
Approach		186	4.0	186	4.0	0.642	53.2	LOS D	10.4	75.4	0.98	0.82	0.99	30.6
East: Canterbury Road														
4	L2	56	1.9	56	1.9	0.620	17.1	LOS B	25.4	185.6	0.61	0.58	0.61	44.9
5	T1	1024	5.5	1024	5.5	0.620	13.9	LOS A	25.4	185.6	0.64	0.61	0.64	35.8
6	R2	103	1.0	103	1.0	* 0.620	25.4	LOS B	15.7	114.3	0.74	0.70	0.74	39.2
Approach		1183	5.0	1183	5.0	0.620	15.0	LOS B	25.4	185.6	0.65	0.62	0.65	37.2
North: Rose Street														
7	L2	57	1.9	57	1.9	0.137	44.6	LOS D	2.7	18.9	0.84	0.73	0.84	30.1
8	T1	93	8.0	93	8.0	0.577	48.1	LOS D	9.2	66.8	0.95	0.80	0.95	33.8
9	R2	78	0.0	78	0.0	0.577	52.7	LOS D	9.2	66.8	0.95	0.80	0.95	21.9
Approach		227	3.7	227	3.7	0.577	48.8	LOS D	9.2	66.8	0.92	0.78	0.92	29.6
West: Canterbury Road														
10	L2	29	3.6	24	3.7	0.389	17.6	LOS B	17.0	121.3	0.63	0.58	0.63	44.7
11	T1	1077	2.4	894	2.5	0.389	13.3	LOS A	17.0	121.3	0.66	0.59	0.66	46.3
12	R2	16	6.7	13	6.9	0.389	20.4	LOS B	15.6	111.7	0.68	0.61	0.68	43.8
Approach		1122	2.5	931 N1	2.6	0.389	13.5	LOS A	17.0	121.3	0.66	0.59	0.66	46.2
All Vehicles		2719	3.8	2528 N1	4.1	0.642	20.3	LOS B	25.4	185.6	0.70	0.64	0.70	38.2

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 504 [J05 Punchbowl Rd Viola St | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	34	0.0	34	0.0	0.093	5.8	LOS A	0.3	2.2	0.56	0.74	0.56	36.1
6b	R3	22	0.0	22	0.0	0.093	14.0	LOS A	0.3	2.2	0.56	0.74	0.56	49.8
Approach		56	0.0	56	0.0	0.093	9.0	LOS A	0.3	2.2	0.56	0.74	0.56	44.9
NorthEast: Punchbowl Road														
24b	L3	15	7.1	15	7.1	0.009	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	499	3.6	499	3.6	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		514	3.7	514	3.7	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.6
SouthWest: Punchbowl Road														
11	T1	651	3.9	567	3.9	0.395	4.7	LOS A	5.2	37.3	0.68	0.25	0.90	50.6
32a	R1	68	0.0	65	0.0	0.395	52.2	LOS D	5.2	37.3	0.68	0.25	0.90	39.1
Approach		719	3.5	632[N1]	3.5	0.395	9.6	LOS A	5.2	37.3	0.68	0.25	0.90	49.9
All Vehicles		1288	3.4	1202[N1]	3.7	0.395	7.4	NA	5.2	37.3	0.38	0.39	0.50	52.0

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 604 [J06 Canterbury Rd Stacey St | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

Intersection: Canterbury Road and Stacey Street
Scenario: Future PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1606	5.0	1606	5.0	0.547	3.2	LOS A	16.9	123.8	0.27	0.25	0.27	50.4
6	R2	261	2.4	261	2.4	* 0.866	53.3	LOS D	12.8	91.2	1.00	0.92	1.15	7.7
Approach		1867	4.7	1867	4.7	0.866	10.2	LOS A	16.9	123.8	0.37	0.34	0.39	36.4
NorthWest: Stacey Street														
7	L2	424	2.2	424	2.2	* 1.211	232.7	LOS F	40.0	285.6	1.00	1.42	2.62	2.4
9	R2	216	7.8	216	7.8	1.150	210.8	LOS F	26.6	199.0	1.00	1.40	2.42	5.1
Approach		640	4.1	640	4.1	1.211	225.3	LOS F	40.0	285.6	1.00	1.41	2.55	3.2
SouthWest: Canterbury Road														
10	L2	60	3.5	60	3.5	* 1.196	238.4	LOS F	98.7	710.1	1.00	1.92	2.50	2.4
11	T1	1768	3.3	1768	3.3	* 1.196	232.3	LOS F	161.2	1160.2	1.00	2.02	2.46	2.4
Approach		1828	3.3	1828	3.3	1.196	232.5	LOS F	161.2	1160.2	1.00	2.02	2.46	2.4
All Vehicles		4336	4.0	4336	4.0	1.211	135.7	LOS F	161.2	1160.2	0.73	1.21	1.58	5.1

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)

Site: 704 [J07 Stacey St Lancaster Ave | Future | PM (Site Folder: Existing + Development)]

Network: 4 [N02 Moxon Canterbury Punchbowl EX+DEV PM (Network Folder: Existing + Development)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Future PM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	605	4.2	595	4.2	0.342	0.3	LOS A	0.4	3.1	0.06	0.02	0.07	48.9
3	R2	25	4.2	25	4.2	0.342	8.0	LOS A	0.4	3.1	0.06	0.02	0.07	47.6
Approach		631	4.2	620[N1]	4.2	0.342	0.6	NA	0.4	3.1	0.06	0.02	0.07	48.8
NorthEast: Lancaster Avenue														
4	L2	34	0.0	34	0.0	0.188	8.4	LOS A	0.4	3.1	0.49	0.89	0.49	32.3
6	R2	22	0.0	22	0.0	0.188	21.6	LOS B	0.4	3.1	0.49	0.89	0.49	36.1
Approach		56	0.0	56	0.0	0.188	13.6	LOS A	0.4	3.1	0.49	0.89	0.49	34.1
NorthWest: Stacey Street														
7	L2	14	0.0	14	0.0	0.135	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.6
8	T1	499	3.6	499	3.6	0.135	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.5
Approach		513	3.5	513	3.5	0.135	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.4
All Vehicles		1199	3.7	1188[N1]	3.7	0.342	1.0	NA	0.4	3.1	0.06	0.06	0.06	47.7

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

USER REPORT FOR NETWORK SITE

All Movement Classes

Project: 19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl — **Template: Movement Summaries**

Site: 106 [J01 Punchbowl Rd, Canterbury Rd | Upgrade | PM (Site Folder: Existing + Development)] — **Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]**

Intersection: Punchbowl Road, Canterbury Road and Bramhall Avenue
Scenario: Existing + Development (Future)
Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Green Split Priority has been specified
Phase Sequence: TFX
Reference Phase: Phase A
Input Phase Sequence: A, B, B
Output Phase Sequence: A, B, B

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: Canterbury Road														
4	L2	8	0.0	8	0.0	0.620	10.0	LOS A	8.1	59.4	0.26	0.25	0.26	52.4
5	T1	1101	5.3	1101	5.3	* 0.620	4.7	LOS A	8.3	60.9	0.28	0.26	0.28	50.3
6	R2	171	2.5	171	2.5	0.531	24.0	LOS B	6.5	46.2	0.67	0.78	0.67	30.6
Approach		1280	4.9	1280	4.9	0.620	7.3	LOS A	8.3	60.9	0.33	0.33	0.33	46.4
North: Punchbowl Road														
7	L2	25	8.3	25	8.3	0.887	68.9	LOS E	17.7	130.6	1.00	1.00	1.31	4.7
8	T1	19	5.6	19	5.6	* 0.887	63.7	LOS E	17.7	130.6	1.00	1.00	1.31	15.5
9	R2	480	5.7	480	5.7	0.887	69.7	LOS E	17.7	130.6	1.00	1.00	1.33	4.6
Approach		524	5.8	524	5.8	0.887	69.4	LOS E	17.7	130.6	1.00	1.00	1.33	5.1
West: Canterbury Road														
10	L2	573	4.4	473	4.6	0.337	6.7	LOS A	1.2	9.0	0.05	0.54	0.05	44.2
11	T1	1079	3.6	890	3.7	0.356	9.6	LOS A	12.8	92.5	0.53	0.47	0.53	38.0
Approach		1652	3.9	1363 N1	4.0	0.356	8.6	LOS A	12.8	92.5	0.36	0.50	0.36	40.0
All Vehicles		3456	4.5	3167 N1	5.0	0.887	18.2	LOS B	17.7	130.6	0.45	0.51	0.51	30.3

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.
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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 204 [J02 Moxon Rd, Canterbury Rd | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

Intersection: Moxon Road and Canterbury Road
Scenario: Existing + Development (Future)
Time Period: PM Peak Period
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network Site User-Given Phase Times)

Timings based on settings in the Network Timing dialog
Phase Times specified by the user
Phase Sequence: TCS Phasing - Copy
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D
Output Phase Sequence: A, B, C, D

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: Moxon Road														
1	L2	425	2.5	425	2.5	0.701	42.3	LOS C	21.5	154.0	0.93	0.85	0.93	41.8
3	R2	1	100.0	1	100.0	* 0.020	68.8	LOS E	0.1	0.8	0.97	0.60	0.97	35.1
Approach		426	2.7	426	2.7	0.701	42.4	LOS C	21.5	154.0	0.93	0.85	0.93	41.7
East: Canterbury Road														
4	L2	16	0.0	16	0.0	0.798	28.0	LOS B	36.7	268.8	0.84	0.78	0.84	49.4
5	T1	1620	5.4	1620	5.4	* 0.798	22.2	LOS B	37.4	274.1	0.85	0.78	0.85	25.5
Approach		1636	5.3	1636	5.3	0.798	22.3	LOS B	37.4	274.1	0.85	0.78	0.85	26.3
West: Canterbury Road														
11	T1	1676	3.9	1386	4.0	0.671	9.5	LOS A	24.9	180.2	0.48	0.44	0.48	27.1
12	R2	451	3.5	373	3.6	* 0.710	46.3	LOS D	16.6	119.5	0.90	1.02	0.90	41.0
Approach		2126	3.8	1758 N1	3.9	0.710	17.3	LOS B	24.9	180.2	0.57	0.56	0.57	36.9
All Vehicles		4188	4.3	3820 N1	4.7	0.798	22.2	LOS B	37.4	274.1	0.73	0.69	0.73	34.9

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 304 [J03 Punchbowl Rd, Site Access | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

New Site
Site Category: (None)
Stop (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: Punchbowl Road														
1	L2	132	0.0	122	0.0	0.341	5.2	LOS A	0.0	0.0	0.00	0.11	0.00	28.0
2	T1	612	4.8	520	5.0	0.341	0.0	LOS A	0.0	0.0	0.00	0.11	0.00	50.4
Approach		743	4.0	642[N1]	4.0	0.341	1.0	NA	0.0	0.0	0.00	0.11	0.00	41.6
North: Punchbowl Road														
8	T1	523	5.6	523	5.6	0.278	0.0	LOS A	1.2	8.8	0.00	0.00	0.00	59.8
Approach		523	5.6	523	5.6	0.278	0.0	NA	1.2	8.8	0.00	0.00	0.00	59.8
West: Site Access														
10	L2	35	0.0	35	0.0	0.043	9.0	LOS A	0.2	1.1	0.51	0.94	0.51	20.0
Approach		35	0.0	35	0.0	0.043	9.0	LOS A	0.2	1.1	0.51	0.94	0.51	20.0
All Vehicles		1301	4.5	1200[N1]	4.9	0.341	0.8	NA	1.2	8.8	0.01	0.09	0.01	47.5

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 404 [J04 Canterbury Rd Rose St | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

Intersection: Canterubry Road, Rose Street and Cullens Road
Scenario: Future PM
Site Category: -
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B
Output Phase Sequence: A, B

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: Cullens Road														
1	L2	26	0.0	26	0.0	0.642	55.5	LOS D	10.4	75.4	0.98	0.82	0.99	23.9
2	T1	94	6.7	94	6.7	0.642	50.9	LOS D	10.4	75.4	0.98	0.82	0.99	32.7
3	R2	66	1.6	66	1.6	* 0.642	55.5	LOS D	10.4	75.4	0.98	0.82	0.99	29.5
Approach		186	4.0	186	4.0	0.642	53.2	LOS D	10.4	75.4	0.98	0.82	0.99	30.6
East: Canterbury Road														
4	L2	56	1.9	56	1.9	0.620	17.1	LOS B	25.4	185.9	0.61	0.58	0.61	44.9
5	T1	1024	5.5	1024	5.5	0.620	13.9	LOS A	25.4	185.9	0.64	0.61	0.64	35.8
6	R2	103	1.0	103	1.0	* 0.620	25.5	LOS B	15.7	114.2	0.74	0.70	0.74	39.2
Approach		1183	5.0	1183	5.0	0.620	15.0	LOS B	25.4	185.9	0.65	0.62	0.65	37.2
North: Rose Street														
7	L2	57	1.9	57	1.9	0.137	44.6	LOS D	2.7	18.9	0.84	0.73	0.84	30.1
8	T1	93	8.0	93	8.0	0.577	48.1	LOS D	9.2	66.8	0.95	0.80	0.95	33.8
9	R2	78	0.0	78	0.0	0.577	52.7	LOS D	9.2	66.8	0.95	0.80	0.95	21.9
Approach		227	3.7	227	3.7	0.577	48.8	LOS D	9.2	66.8	0.92	0.78	0.92	29.6
West: Canterbury Road														
10	L2	29	3.6	25	3.7	0.390	17.6	LOS B	17.0	121.8	0.63	0.58	0.63	44.7
11	T1	1077	2.4	896	2.5	0.390	13.3	LOS A	17.0	121.8	0.66	0.59	0.66	46.3
12	R2	16	6.7	13	6.9	0.390	20.4	LOS B	15.6	112.0	0.68	0.61	0.68	43.8
Approach		1122	2.5	934[N1]	2.6	0.390	13.5	LOS A	17.0	121.8	0.66	0.59	0.66	46.2
All Vehicles		2719	3.8	2530[N1]	4.1	0.642	20.3	LOS B	25.4	185.9	0.70	0.64	0.70	38.2

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)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 504 [J05 Punchbowl Rd Viola St | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

New Site
Site Category: (None)
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: Viola Street														
4a	L1	34	0.0	34	0.0	0.093	5.8	LOS A	0.3	2.2	0.56	0.74	0.56	36.1
6b	R3	22	0.0	22	0.0	0.093	14.0	LOS A	0.3	2.2	0.56	0.74	0.56	49.8
Approach		56	0.0	56	0.0	0.093	9.0	LOS A	0.3	2.2	0.56	0.74	0.56	44.9
NorthEast: Punchbowl Road														
24b	L3	15	7.1	15	7.1	0.009	6.6	LOS A	0.0	0.0	0.00	0.61	0.00	52.5
5	T1	499	3.6	499	3.6	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.8
Approach		514	3.7	514	3.7	0.262	4.4	LOS A	0.0	0.0	0.00	0.53	0.00	55.6
SouthWest: Punchbowl Road														
11	T1	651	3.9	569	3.9	0.396	4.7	LOS A	5.2	37.5	0.68	0.25	0.90	50.6
32a	R1	68	0.0	65	0.0	0.396	52.4	LOS D	5.2	37.5	0.68	0.25	0.90	39.1
Approach		719	3.5	634[N1]	3.5	0.396	9.6	LOS A	5.2	37.5	0.68	0.25	0.90	49.9
All Vehicles		1288	3.4	1204[N1]	3.7	0.396	7.4	NA	5.2	37.5	0.39	0.39	0.50	52.0

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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Site: 604 [J06 Canterbury Rd Stacey St | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

Intersection: Canterbury Road and Stacey Street
Scenario: Future PM
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Network User-Given Cycle Time)

Timings based on settings in the Network Timing dialog
Phase Times determined by the program
Downstream lane blockage effects included in determining phase times
Phase Sequence: TCS Phasing
Reference Phase: Phase A
Input Phase Sequence: A, B, C, D*, E*
Output Phase Sequence: A, B, C, E*
(* Variable Phase)

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
NorthEast: Canterbury Road														
5	T1	1606	5.0	1606	5.0	0.547	2.5	LOS A	12.2	88.8	0.20	0.19	0.20	52.2
6	R2	261	2.4	261	2.4	* 0.866	51.4	LOS D	13.3	95.3	1.00	0.97	1.27	8.0
Approach		1867	4.7	1867	4.7	0.866	9.4	LOS A	13.3	95.3	0.31	0.30	0.35	37.7
NorthWest: Stacey Street														
7	L2	424	2.2	424	2.2	* 1.219	240.3	LOS F	40.0	285.6	1.00	1.43	2.66	2.3
9	R2	216	7.8	216	7.8	1.150	210.8	LOS F	26.6	199.0	1.00	1.40	2.42	5.1
Approach		640	4.1	640	4.1	1.219	230.4	LOS F	40.0	285.6	1.00	1.42	2.58	3.2
SouthWest: Canterbury Road														
10	L2	60	3.5	60	3.5	* 1.205	246.4	LOS F	100.5	723.3	1.00	1.95	2.55	2.3
11	T1	1768	3.3	1768	3.3	* 1.205	240.3	LOS F	163.8	1179.0	1.00	2.05	2.50	2.4
Approach		1828	3.3	1828	3.3	1.205	240.5	LOS F	163.8	1179.0	1.00	2.05	2.50	2.4
All Vehicles		4336	4.0	4336	4.0	1.219	139.5	LOS F	163.8	1179.0	0.70	1.20	1.59	4.9

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)

Site: 704 [J07 Stacey St Lancaster Ave | Future | PM (Site Folder: Existing + Development)]

Network: 17 [N03 Moxon Canterbury Punchbowl EX+DEV+UPG PM (Network Folder: Upgraded Network)]

Intersection: Stacey Street and Lancaster Avenue
Scenario: Future PM
Site Category: (None)
Stop (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
SouthEast: Stacey Street														
2	T1	605	4.2	595	4.2	0.342	0.3	LOS A	0.4	3.2	0.06	0.02	0.07	48.9
3	R2	25	4.2	25	4.2	0.342	8.1	LOS A	0.4	3.2	0.06	0.02	0.07	47.6
Approach		631	4.2	620[N1]	4.2	0.342	0.6	NA	0.4	3.2	0.06	0.02	0.07	48.8
NorthEast: Lancaster Avenue														
4	L2	34	0.0	34	0.0	0.190	8.5	LOS A	0.4	3.1	0.51	0.89	0.51	32.2
6	R2	22	0.0	22	0.0	0.190	21.6	LOS B	0.4	3.1	0.51	0.89	0.51	36.1
Approach		56	0.0	56	0.0	0.190	13.7	LOS A	0.4	3.1	0.51	0.89	0.51	34.1
NorthWest: Stacey Street														
7	L2	14	0.0	14	0.0	0.147	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	48.6
8	T1	499	3.6	499	3.6	0.147	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.5
Approach		513	3.5	513	3.5	0.147	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.4
All Vehicles		1199	3.7	1189[N1]	3.7	0.342	1.0	NA	0.4	3.2	0.06	0.06	0.06	47.7

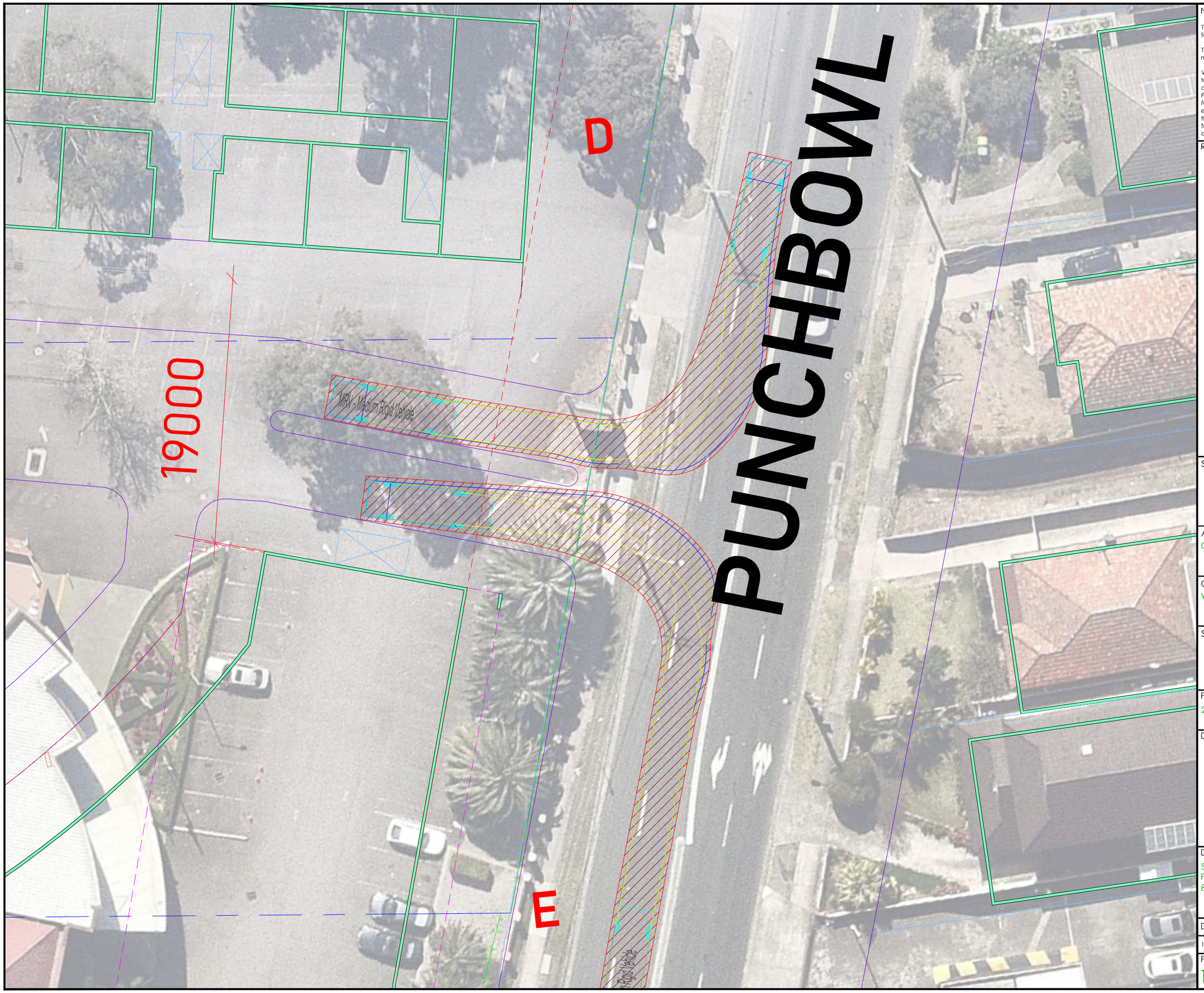
Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and 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.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Organisation: TRAFFIX PTY LTD | Licence: NETWORK / 1PC | Created: Thursday, 20 April 2023 3:49:28 PM
Project: T:\Synergy\Projects\19\19.439\Modelling\19.439m03v02 TRAFFIX 21 Canterbury Road, Punchbowl.sip9

APPENDIX E

Swept Path Analysis



Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

TRAFFIX is responsible for vehicle swept path diagrams and/or drawing mark-ups only. Base drawing prepared by others.

Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
CMT Architects Australia

Client
Waldron Hill Projects Pty Ltd

Scale / Plan Orientation

0 2.5 5 7.5 10m
1:250 @ A3

Project Description
21 Canterbury Road, Punchbowl

Drawing Prepared By

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Drawing Title
Swept Path Analysis
Punchbowl Road Main Access
8.8m Medium Rigid Vehicle

Drawn:	Checked:	Date:
HD	-	28-04-23

19.439d05v01 TRAFFIX [230426] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
19.439	DA	TX.01	C

Notes:

This drawing is prepared for information purposes only. It is not to be used for construction.

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Vehicle swept path diagrams prepared using computer generated turning path software and associated CAD drawing platforms. Vehicle data based upon relevant Australian Standards (*AS/NZS 2890.1:2004 Parking facilities - Off-street car parking*, and/or *AS2890.2:2002 Parking facilities - Off-street commercial vehicle facilities*). These standards embody a degree of tolerance, however the vehicle characteristics in these standards represent a suitable design vehicle and do not account for all variations in vehicle dimensions / specifications and/or driver ability or behaviour.

Rev.	Revision Note	By.	Date

Swept Path Legend

- Wheel Path
- Vehicle Body Envelope
- Clearance Envelope (300mm)

Architect
CMT Architects Australia

Client
Waldron Hill Projects Pty Ltd

Scale / Plan Orientation

0 2.5 5 7.5 10m

1:250 @ A3

Project Description
21 Canterbury Road, Punchbowl

Drawing Prepared By

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Drawing Title
Swept Path Analysis
Punchbowl Road Secondary Access
B99 Vehicle

Drawn:	Checked:	Date:
HD	-	28-04-23

19.439d05v01 TRAFFIX [230426] Design Review.dwg

Project No.	Drawing Phase	Drawing No.	Rev.
19.439	DA	TX.02	B