Traffic Impact Assessment

Proposed Mixed Use Development
15 Close Street, Canterbury

Reference: 13.400, 23 May 2014

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Contents

1. Introduction

TRAFFIX has been commissioned by Canterbury City Council to undertake a traffic impact assessment in support of a planning proposal for the rezoning of the site located at 15 Close Street, Canterbury, which is legally described as Lot 1 in DP818683.

The site is currently zoned RE1 'Public Recreation', and accommodates the Canterbury Bowling Club. Considering the cessation of the site's current use in mid-2013, there is an opportunity to rezone this land and capitalise on its strategic location to the east of the proposed Canterbury Town Centre and Riverfront Precinct.

The proposed rezoning anticipates the development of a concept design for the site which comprises approximately 315 residential apartments, a 1,256m² civic component (multi-purpose community art and cultural facility), and a small amount of ancillary commercial / retail space (approximately 150m²) for a cafe or small commercial office/s.

The development site is located within the Canterbury Council LGA, and been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Planning Proposal Report prepared by JBA, dated May 2014.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Presents the overall study conclusions.

2. Location and Site

The subject site is located at 15 Close Street, to the south of the Bankstown Railway Line and to the north of the Cooks River as shown in **Figure 1** and **Figure 2** below. The subject site comprises an area of approximately 10,780m², and is owned in its entirety by Canterbury City Council.

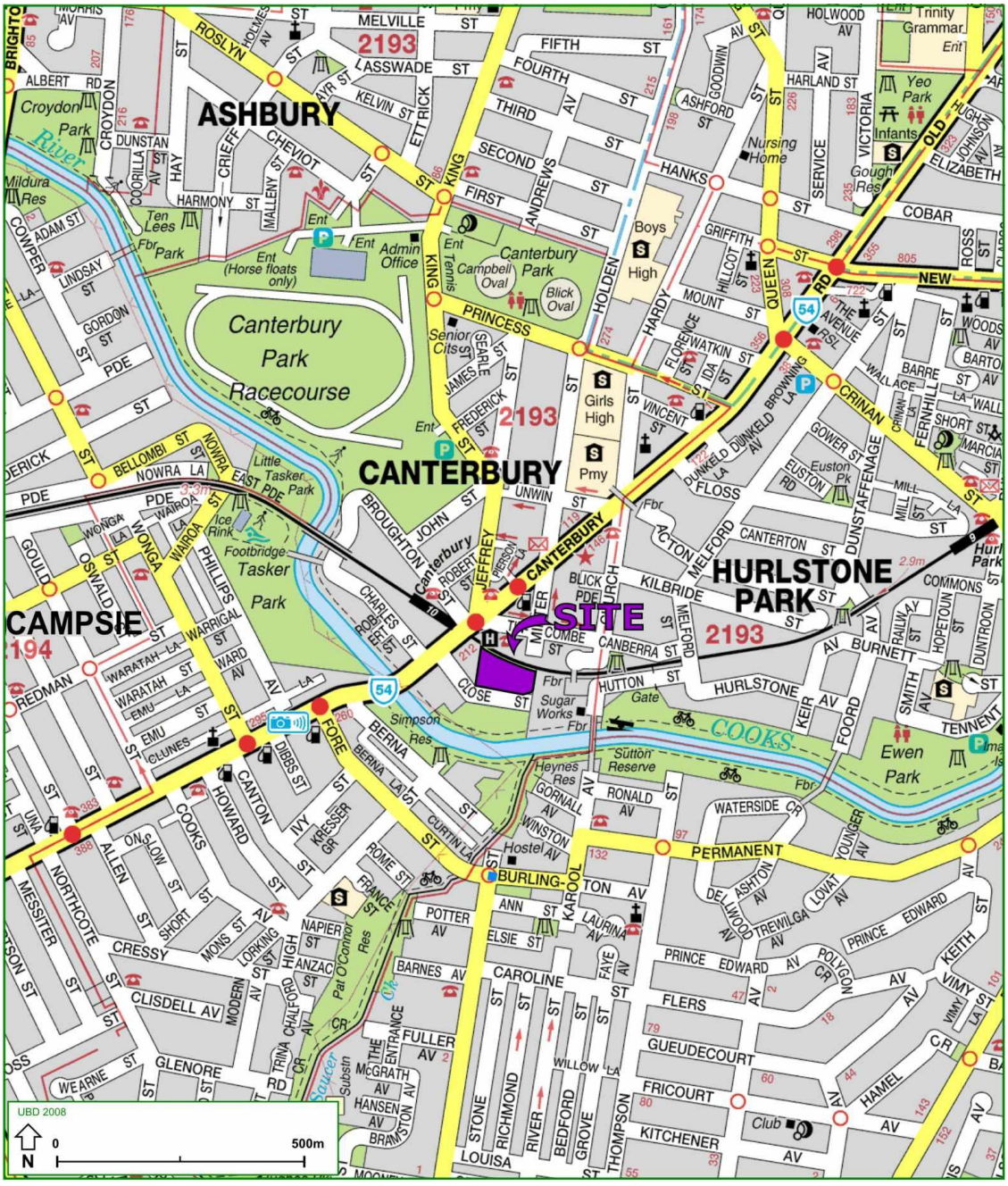


Figure 1: Location Plan

Figure 2: Subject Site

The site is located immediately to the east of the Canterbury Town Centre (see **Figure 3** below), which has been the subject of previous studies which have resulted in the preparation of a Development Control Plan (DCP) and Local Environmental Plan (LEP). The planning for the Canterbury Town Centre anticipates the delivery of mixed use multi-storey residential, commercial and retail buildings with approximately 1,100 new dwellings, 7,000m^2 of commercial floor area and 7,000m^2 of retail floor area.

Figure 3: Site Location relative to Canterbury Town Centre

The subject at 15 Close Street site is located in convenient proximity to Canterbury railway station, via a short 200m walk along Close Street and Canterbury Road. There is an existing pedestrian pathway which runs along the north of the site, to the south of the rail line.

The site is bounded by light industrial developments to the west, Bankstown Train Line to the north, and a residential development (20 Close Street) to the east. It adjoins Close Street to the south, which is a private road from the western site boundary of the subject site. This section of Close Street is within Lot 15A Close Street (Lot 2 in DP818683), and provides access to the subject site and the residential development at 20 Close Street via a right of carriageway.

Until recently, the site was leased to the Canterbury Bowling Club under a short term lease arrangement. The club comprised a club house, three bowling greens and an at-grade car park. Whilst these buildings and infrastructure remain, the club ceased operation in mid-2013.

Vehicular access to the site is currently achieved via an access driveway approximately 45m from the western site boundary, as shown in **Image 1** below.

Image 1: Existing Access Driveway to Subject Site (15 Close Street)

3. Existing Traffic Conditions

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 4** with the following roads of particular interest:

- Canterbury Road: an RMS State Road (MR 167) that generally runs in an east-west direction, between Milperra in the west and Canterbury in the east. Canterbury Road forms one of Sydney's major east-west corridors and carries in the order of 42,000 vpd in the vicinity of the site. It forms the major arterial road corridor within the locality.

- Close Street: a local road that generally runs in an east-west direction from Canterbury Road in the west to its termination in the east. Close Street only serves the properties in the immediate area, and given there is no through traffic, it carries modest traffic volumes.

  As discussed in Section 2 of this report, Close Street is a private road from the western site boundary of the subject site. The section of Close Street from this point to the termination of the street is within Lot 15A Close Street (Lot 2 in DP818683), and provides access to the subject site and the residential development at 20 Close Street via right of carriageway/s.

  Close Street has no line markings and carries a single lane of traffic in either direction along an undivided carriageway. Access to the development is proposed via Close Street.

- Charles Street: a local road that currently services industrial developments to the west of Canterbury Road. It forms the northern approach of a priority controlled T-interaction with Canterbury Road, and continues to the north into Broughton Street.

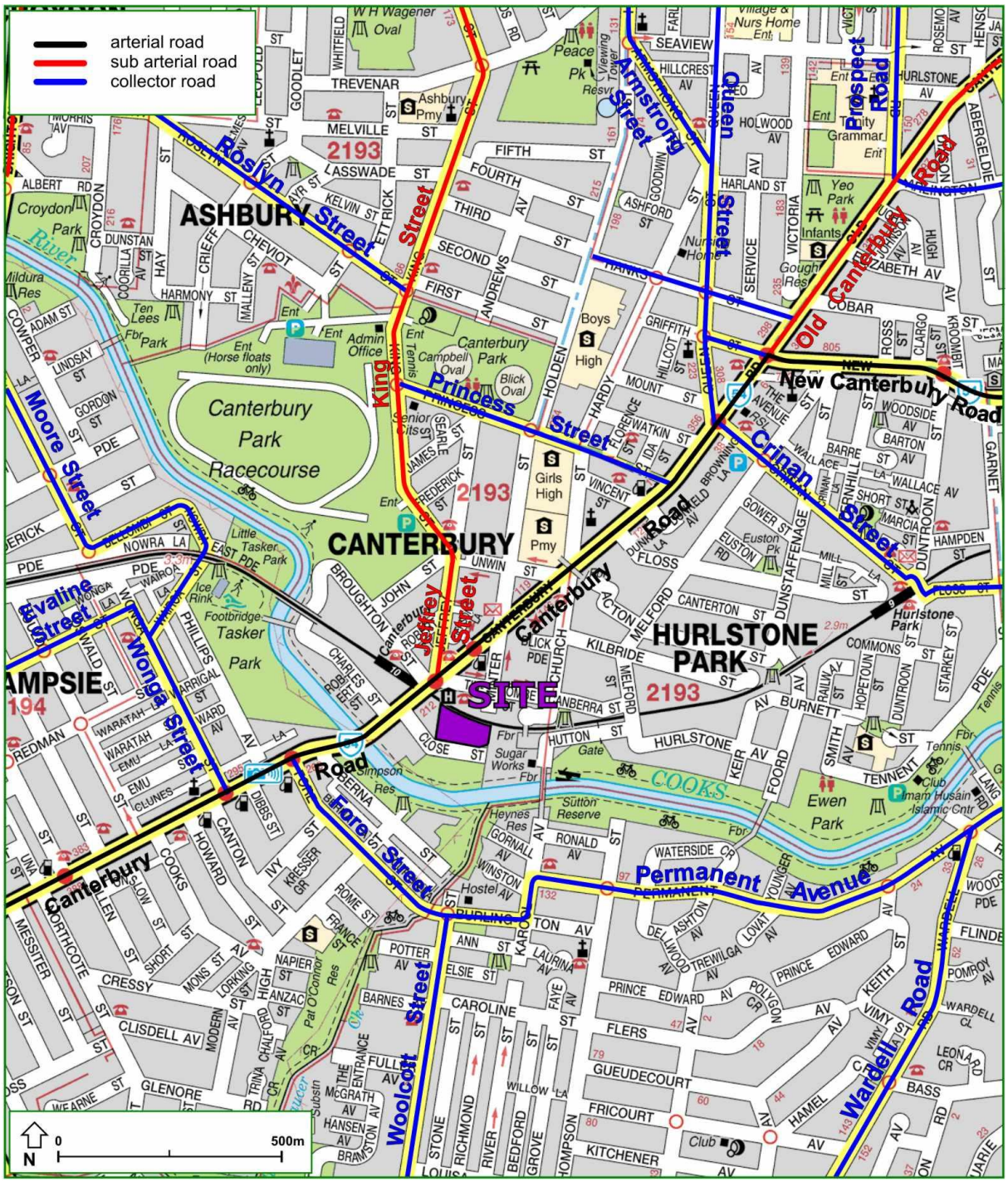


Figure 4: Road Hierarchy

3.2 General Description of Road Environment

Canterbury Road is constructed with a 12.8 metre undivided road carriageway in the vicinity of the site, carrying two lanes of traffic in each direction. Parking is generally restricted along both sides of Canterbury Road, with clearways operating during peak periods. It is posted at 60km/hr in the vicinity of the site.

Canterbury Road forms the major road in a priority controlled staggered T-intersection arrangement with Charles Street and Close Street, as discussed in Section 3.3 below.

Jeffrey Street forms part of a signal controlled five-way intersection with Canterbury Road, Broughton Street and Tincombe Street to the north of the site. Jeffrey Street has a 10.0 metre wide carriageway which provides single lane traffic flow in each direction, with the exception of the approach to the Canterbury Road intersection where two lanes are provided. Parking is generally restricted along both side of Jeffrey Street.

Broughton Street is constructed with a 10.5 metre wide carriageway providing single lane traffic flow in each direction. At its intersection with Canterbury Road this increases to two lanes through the restriction of kerbside parking. Broughton Street continues into Charles Street to the north-west of the site.

Close Street carries a single lane of traffic in each direction. It is constructed with a 10.0 metre wide carriageway narrowing to 7.0 metres approximately 45m from Canterbury Road. Parallel kerbside parking is generally permitted along the section to the west of the subject site, and 90 degree parking is available on the northern side of Close Street along the frontage of the subject site.

Charles Street is constructed with a 10.0 metre wide carriageway providing single lane traffic flow in each direction. There is generally unrestricted parking on both sides of Charles Street with 90 degree parking on the eastern side and parallel kerbside parking on the western side.

3.3 Key Intersections

The key intersections of Close Street, Charles Street and Canterbury Road is shown in **Figure 5** below. Close Street and Charles Street currently form staggered T-intersections with Canterbury Road. All movements are permitted at these intersections, with the exception of the right turn movement from Close Street into Canterbury Road.

The current performance of these intersections, and future road planning relevant to these intersections, are discussed further in the following sections of this report.

Figure 5: Canterbury Rd / Close St / Charles St Staggered T-intersections

3.4 Public Transport

The site is located only approximately 200 metres walk from Canterbury railway station on the Bankstown Line, which connects the Sydney CBD with south-west centres such as Cabramatta and Liverpool. The site is also located near extensive bus and rail services that include trunk line services to the Sydney CBD as well as cross-regional services.

The bus services in the vicinity of the site include the following:

- 428 – servicing Canterbury to the City;
- 444 – servicing Campsie to Balmain East Wharf via Leichardt;
- 445 – servicing Campsie to Balmain East Wharf via Leichardt and Lilyfield;
- 487 – servicing Bankstown to Canterbury via Roselands;
- 491 – servicing Hurstville to Five Dock; and
- L28 – servicing Canterbury to City.

Bus stops are conveniently located on either side of Canterbury Road, within 150 - 250 metres walking distance from the site (see **Figure 6** below). These services operate on a regular frequency on both weekdays and weekend-days.

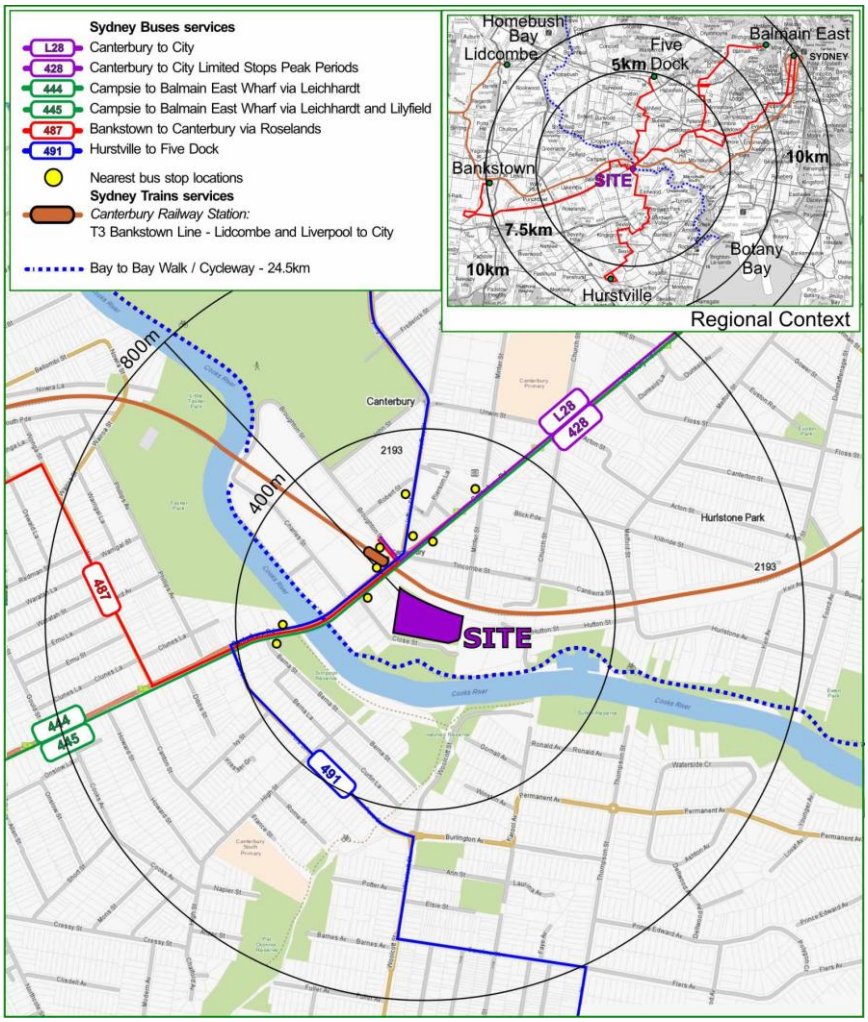


Figure 6: Public Transport

3.5 Existing Site Traffic Generation

The bowling club on the site ceased operation in mid-2013, therefore the traffic generation of the site is presently negligible, but would have been significant historically.

3.6 Existing Intersection Performances

For the purposes of the assessment of traffic impacts of this development, turning counts at the key intersections of Charles Street/Close Street with Canterbury Road and Canterbury Road with Jeffrey Street / Broughton Street were undertaken during the critical AM and PM peak periods. The results of these surveys were analysed using the SIDRA computer program to assess the performance of these intersections 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 (AVD). The AVD is in turn related to a level of service (LOS) criteria. These performance measures can be interpreted using the following explanations:

Degree of Saturation (DOS) – calculated as the ratio of traffic demand to capacity. 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. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by give way/stop control, satisfactory intersection operation is generally indicated by a DOS of 0.8 or less. For signalised intersections, satisfactory intersection operation is generally indicated by a DOS of 0.9 or less.

Average Vehicle Delay (AVD) - 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).

Level of Service (LOS) - this is a comparative measure which provides an indication of the operating performance of an intersection based upon the average delay to a vehicle travelling through the intersection, as shown in **Table 1** below.

Table 1: Level of Service Criteria

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	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 modelling results is provided below. Reference should also be made to the SIDRA outputs provided in **Appendix A** which provide detailed results for individual lanes and approaches.

Table 2: Existing Intersection Performance, 2014 AM and PM Peak Hour

Intersection Description	Period	Control Type	Degree of Saturation (critical movement)	Intersection Delay	Intersection Level of Service
Canterbury Rd / Close St	AM	priority	0.498	6.9	A
	PM		0.553	17.1	B
Canterbury Rd / Charles St	AM	priority	1.806	23.1	B
	PM		1.261	19.9	B
Canterbury Rd / Jeffrey St / Broughton Street	AM	signal	0.873	33.0	C
	PM		0.845	32.1	C

The results of the modelling outlined in **Table 2** above indicate that:

- The Canterbury Rd / Close St intersection is currently operating within acceptable limits, with reasonable spare capacity to accommodate additional traffic;
- The Canterbury Rd / Jeffrey St / Broughton Street intersection is currently operating within acceptable limits, but is approaching capacity (0.9 DOS); and
- The Canterbury Rd / Charles St intersection is generally operating within acceptable limits, with the exception of the right turn movement from Charles St into Canterbury Road which is experiencing delays due to the volume of opposing traffic on Canterbury Road. It should be noted however that the results of the modelling indicate a lower level of service (greater delays) than what was observed on-site as a result of the effect of platooning of opposing traffic caused by upstream signals to the east and west of this intersection, as well as the tendency of queuing traffic on Canterbury Road to leave gaps for vehicles exiting Charles Street.

Notwithstanding the above, Council and the RMS identified the need to realign and signalise the Close Street and Charles Street intersections to accommodate the future traffic associated with development within Canterbury Town Centre, in accordance with the configuration shown in **Figure 7** below. It is understood that the timing for the delivery of this upgrade is yet to be confirmed, however this project is identified in Council's Canterbury Town Centre & Riverfront Precinct Section 94 Development Contributions Plan.

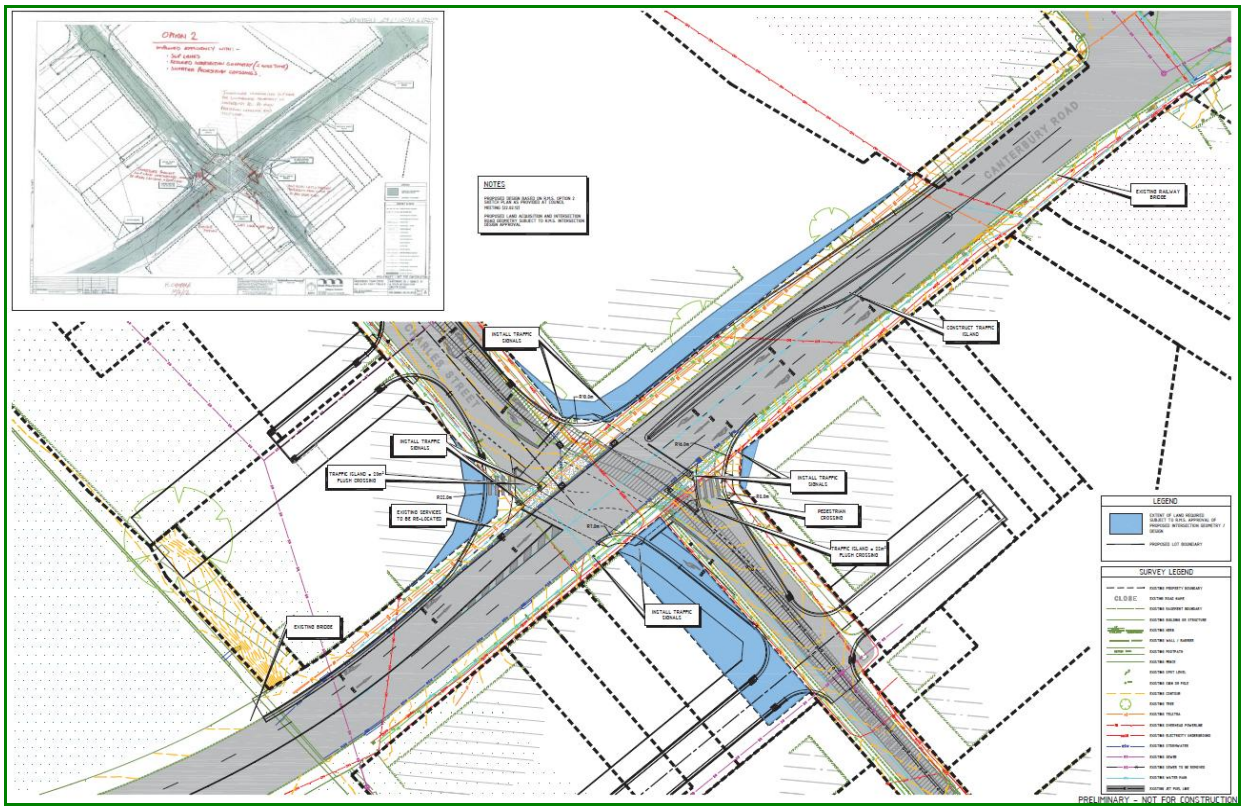


Figure 7: Indicative Intersection Layout - Close St / Charles St and Canterbury Rd

4. Description of Proposed Development

The planning proposal anticipates the following indicative level of development on the subject site:

- A 1,256m² civic component (multi-purpose community art and cultural facility);
- Approximately 315 residential apartments, as follows:
    - 158 one-bedroom apartments
    - 136 two-bedroom apartments
    - 21 three-bedroom apartments
- A small amount of ancillary commercial / retail space (approximately 150m²) for a cafe or small commercial office/s; and
- A total of 450 parking spaces.

Access to the development is proposed to be achieved via a driveway or driveways on Close Street.

The traffic and parking impacts arising from the development are discussed in Sections 5 and 6. Reference should be made to the masterplan drawings which are included as **Appendix B.**

5. Parking Requirements

5.1 Car Parking

Parking for the proposed development has been considered having regard for the "Canterbury City Council Parking DCP 2012", Part 6.8 Parking and Vehicle Access. Council's DCP requires parking for the development to be provided at the rates shown in **Table 3**.

Table 3: Council Parking Requirements

Use	Indicative Area / No. Of Units (m^2)	DCP Parking Rate (Minimum)	DCP Requirement (Minimum)
Residential			
One-bedroom	158 units	1.0 spaces / unit	158
Two-bedroom	136 units	1.2 spaces / unit	163
Three-bedroom	21 units	2.0 spaces / unit	42
Visitor	315 units	1.0 spaces / 5 dwelling	63
Civic	1,256m^2	1.0 spaces / 40m^2	31
Commercial	149m^2	1.0 spaces / 40m^2	4
Total			461

* Parking rate for a Commercial Use (Office Premises) for development in large centres in B2 zones

It can be seen from **Table 3** that the DCP parking rates warrant the provision of 461 parking spaces, based on the application of Council's controls.

However it is noted that the DCP makes provision for lower parking rates for commercial uses in certain contexts, stipulating the following parking rates:

- 1 space per 60m2 for development in large centres in B2 zones
- 1 space per 50m2 for development in centres with good public transport in B2 zones

Whilst the proposal applies for R4 and not B2 zoning, it is considered that a lower level of parking provision may be appropriate for the civic / commercial components of the development, on the basis that it would benefit from extremely convenient access to public transport.

In addition, in the event that the development application includes an affordable housing component (still to be confirmed), this component may be subject to a lower car parking provision.

Whilst detailed site layout plans have not yet been prepared, the proposed parking provisions are expected to be consistent with the requirements of Council's DCP and other relevant provisions. Any departure from these rates (if sought) would be subject to review during the Development Application process.

5.2 Parking for People with Disabilities

On-site car parking for People with Disabilities (PWD) should be provided in accordance with BCA requirements, and designed in accordance with the requirements of AS2890.1 and AS2890.6. These spaces should be located within close proximity to lifts, for ease of access.

5.3 Bicycle Parking Facilities

The level of on-site bicycle parking provided is expected to be consistent with the requirements of Council's DCP, as summarised below:

Residential Component

- Residents: Minimum 1 space per 5 dwellings or part thereof — 63 bicycle parking spaces
- Visitors: Minimum 1 space per 10 dwellings or part thereof — 32 bicycle parking spaces

Commercial Component

- Staff: Minimum 1 space per 200m2 or part thereof — 7 bicycle parking spaces
- Visitors: Minimum 1 space per 750m2 over 1,000m2 or part thereof — 1 bicycle parking space

Any departure from the above rates (if sought) would be subject to review during the Development Application process.

5.4 Servicing and Delivery

The level of on-site service vehicle provision is expected to be consistent with the requirements of Council's DCP, as summarised below:

- Residential Component: At least one car wash bay
- Commercial Component: Minimum 1 courier parking space

It is anticipated that an on-site service bays will be strategically located throughout the site to cater for refuse collection vehicles as well as service vehicles (e.g. furniture removal and delivery vehicles) associated with both the residential and commercial components of the development.

Any departure from Council's DCP rates (if sought) would be subject to review during the Development Application process.

6. Traffic Impacts

6.1 Trip Generation

6.1.1 Residential Traffic

The traffic generation rates suggested in the Guide to Traffic Generating Developments - Updated traffic surveys (Technical Direction TDT 2013/04a) for the residential component of the development are as follows:

- AM Peak: 0.19 trips per dwelling
- PM Peak: 0.15 trips per dwelling

Application of this rate to the 315 units results in a peak hour generation of 60 vehicles in the AM peak hour, and 47 trips in the PM peak hour. Assuming an 80% / 20% arrival / departure split in the peak hours provides the following forecast traffic volumes for the residential component of the development:

- 12 in and 48 out during the AM peak
- 38 in and 9 out during the PM peak

6.1.2 Civic / Commercial Traffic

A peak hour traffic generation rate of 2 vehicle trips / 100m² GFA has been applied to the civic / commercial component of the development, based upon the rate suggested in the RTA Guide to Traffic Generating Developments for a commercial use.

Application of this rate to the 1405m² civic / commercial space results in a peak hour generation of 28 vehicles in the AM and PM peak hours. Assuming an 80% / 20% arrival / departure split in the peak hours provides the following forecast traffic volumes for the residential component of the development:

- 22 in and 6 out during the AM peak
- 6 in and 22 out during the PM peak

It should however be noted that the above rates are likely to be conservatively high, given that the site benefits from very convenient access to regular public transport services.

6.1.3 Combined Generation

The combined generation of the development is therefore estimated to be 88 veh/hr during the AM peak period and 75 veh/hr during the PM peak period. This equates to 1.0 – 1.5 vehicles per minute during the critical peak hours. This level of traffic generation, once distributed onto the road network, is expected to have a negligible impact upon its performance or that of the intersections in the vicinity of the site.

Notwithstanding the above, the distribution and impact of these trips has been considered, as discussed below.

6.2 Traffic Distribution

The distribution of traffic onto the external road network has been estimated based on existing survey data at key intersections, likely origins and destinations, and the existing road network and permitted movements at the intersections assessed. The following assumptions have been applied:

- Turning volumes for site-generated traffic entering the site (Close Street) have been estimated based upon the current distribution of traffic entering Close Street during the AM and PM peak hours.
- 20% of traffic exiting the site will head westbound on Canterbury Road
- 80% of traffic exiting the site will have a destination to the east. This traffic will turn left from Close Street (as the right turn movement is not permitted) and then right into Charles Street, which turns into Broughton Street;
- Of the exiting traffic which has a destination to the east, 80% will continue to the Canterbury Road / Broughton Street / Jeffrey Street intersection to turn left onto Canterbury Road.

The following sections of this report outline the predicted peak period intersection performance of the three critical intersections in proximity to the site, both in the absence of, and with, the proposed development, based upon the above assumptions.

6.3 Background Traffic Growth

It has been conservatively assumed for the purpose of these analyses that the development will be delivered in 2016, and growth in traffic on Canterbury Road, Jeffrey Street, and Broughton Street will occur at a rate of 2% per annum (linear) until that time, which is considered to be a worst case growth scenario.

6.4 Peak Period Intersection Performances

The external traffic impacts of the development have been assessed using SIDRA, with the additional volumes superimposed onto the road network. The detailed results of this analysis are included as **Appendix C**, and are summarised in **Table 4** below.

Table 4: 2016 Modelled Intersection Performance

Intersection	Control Type	Period	Scenario	Degree of Saturation	Intersection Delay	Level of Service
Canterbury Road / Close Street	priority	AM Peak	Without Development	0.519	7.9	LOS A
			With Development	**0.548**	**8.3**	**LOS A**
		PM Peak	Without Development	0.575	21.1	LOS B
			With Development	**0.589**	**20.7**	**LOS B**
Canterbury Road / Charles Street	priority	AM Peak	Without Development	1.809*	24.2	LOS B
			With Development	**1.810***	**14.4**	**LOS A**
		PM Peak	Without Development	1.263*	22.6	LOS B
			With Development	**1.263***	**24.9**	**LOS B**
Canterbury Road / Jeffrey Street / Broughton Street	signals	AM Peak	Without Development	0.865	31.3	LOS C
			With Development	**0.865**	**31.8**	**LOS C**
		PM Peak	Without Development	0.879	35.3	LOS C
			With Development	**0.879**	**35.8**	**LOS C**

* The intersection performance is expected to be better than that indicated in the results of the SIDRA modelling, due to the effect of platooning of opposing traffic caused by upstream signals to the east and west of this intersection, as well as the tendency of queuing traffic on Canterbury Road to leave gaps for vehicles exiting Charles Street.

The results summarised in the table above indicate that the proposed development is expected to have a marginal impact upon the operation of these intersections during the AM and PM peak hours. The current level of service is maintained at all intersections, as intersection delays are expected to increase only very marginally with the additional traffic expected to be generated by the proposed development.

Notwithstanding the above, it is noted that the future signalisation of the intersection of Canterbury Road with Close Street and Charles Street (as shown in **Figure 7**) will substantially increase the capacity of this intersection. Extensive Linsig modelling that has previously been undertaken by TRAFFIX and submitted to both Council and the RMS, assumes significant traffic generation of all development sites within the Canterbury Town Centre, but demonstrates a significant improvement in traffic conditions at the intersection of Canterbury Road with Close Street and Charles Street under its upgraded configuration.

Furthermore, it is expected that the delivery of WestConnex Stage 2 - M5 East Airport Link (Beverly Hills to St Peters) which is due for completion in 2019, will prompt a decline in traffic volumes on Canterbury Road due to increased capacity along the parallel M5 East corridor. This is expected to result in a substantial improvement in intersection performance at the intersections in proximity to the proposed development.

In light of the above, it is expected that the traffic generated by the proposed development will have a negligible impact upon the external road network. Further detailed assessment will be undertaken at development application stage and for the purposes of a planning proposal approval, there is presently sufficient confidence that the rezoning is supportable on traffic planning grounds.

7. Conclusions

In summary:

- The site is currently zoned RE1 'Public Recreation', and accommodates the Canterbury Bowling Club. Considering the cessation of the site's current use in mid-2013, there is an opportunity to rezone this land and capitalise on its strategic location to the east of the proposed Canterbury Town Centre and Riverfront Precinct.

- The proposed rezoning anticipates the development of a concept design for the site which comprises approximately 315 residential apartments, a 1,256m² civic component (multi-purpose community art and cultural facility), and a small amount of ancillary commercial / retail space (approximately 150m²) for a cafe or small commercial office/s.

- Based upon the indicative development yields in the masterplan, the DCP parking rates warrant the provision of 461 parking spaces, based on the application of Council's controls. However it is noted that the DCP makes provision for lower parking rates for commercial uses in certain contexts to reflect the likely reduced mode share to private vehicle, stipulating the following parking rates, and it is considered that a lower level of parking provision may be appropriate for the civic / commercial components of the development, on the basis that it would benefit from extremely convenient access to public transport. In addition, in the event that the development application includes an affordable housing component (still to be confirmed), this component may be subject to a lower car parking provision.

  Whilst detailed site layout plans have not yet been prepared, the proposed parking provisions are expected to be consistent with the requirements of Council's DCP and other relevant provisions. Any departure from these rates (if sought) would be subject to review during the Development Application process.

- The current performance of the critical intersections in proximity to the site can be summarised as follows:

    - The Canterbury Rd / Close St intersection is currently operating within acceptable limits, with reasonable spare capacity to accommodate additional traffic;

    - The Canterbury Rd / Jeffrey St intersection is currently operating within acceptable limits, but is approaching capacity; and

- The Canterbury Rd / Charles St intersection is generally operating within acceptable limits, with the exception of the right turn movement from Charles St into Canterbury Road which is experiencing delays due to the volume of opposing traffic on Canterbury Road.

- The traffic generation of the development is estimated to be 88 veh/hr during the AM peak period and 75 veh/hr during the PM peak period. This equates to 1.0 – 1.5 vehicles per minute during the critical peak hours. This level of traffic generation, once distributed onto the road network, is expected to have a negligible impact upon its performance or that of the intersections in the vicinity of the site. The results of traffic modelling undertaken using SIDRA support this assertion.

- Notwithstanding the above, Council and the RMS identified the need to realign and signalise the Close Street / Charles Street intersections with Canterbury Road to accommodate the future traffic associated with development within Canterbury Town Centre. This upgrade is included in Council's Canterbury Town Centre & Riverfront Precinct Section 94 Development Contributions Plan. It is understood that the timing for the delivery of this upgrade is yet to be confirmed, however extensive Linsig modelling that has previously been undertaken by TRAFFIX indicates that this upgrade will substantially increase the capacity of this intersection.

- Furthermore, it is expected that the delivery of WestConnex Stage 2 - M5 East Airport Link (Beverly Hills to St Peters) which is due for completion in 2019, will prompt a decline in traffic volumes on Canterbury Road due to increased capacity along the parallel M5 East corridor. This is expected to result in a substantial improvement in intersection performance at the intersections in proximity to the proposed development.

On the basis of the above, it is concluded that the proposed rezoning under this planning proposal is supportable, in the knowledge that further detailed assessment will be required at subsequent development application stage to assess the merits of a specific development proposal.

Appendix A

Results of SIDRA Modelling - Existing Intersection Performances

MOVEMENT SUMMARY

Site: 2014 AM Existing

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	22	6.0	0.034	8.4	LOS A	0.1	1.0	0.55	0.68	47.2
Approach		22	6.0	0.034	8.4	LOS A	0.1	1.0	0.55	0.68	47.2
East: Canterbury Road											
4	L2	8	6.0	0.350	5.6	LOS A	0.0	0.0	0.00	0.01	56.7
5	T1	1303	6.0	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	59.9
Approach		1312	6.0	0.350	0.0	NA	0.0	0.0	0.00	0.00	59.8
West: Canterbury Road											
11	T1	1823	6.0	0.498	11.7	LOS A	13.6	100.1	0.49	0.01	45.5
12	R2	8	6.0	0.498	29.4	LOS C	13.6	100.1	1.00	0.01	39.6
Approach		1832	6.0	0.498	11.8	NA	13.6	100.1	0.49	0.01	45.4
All Vehicles		3165	6.0	0.498	6.9	NA	13.6	100.1	0.29	0.01	50.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2014 PM Existing

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	20	6.0	0.054	13.7	LOS A	0.2	1.4	0.72	0.87	44.1
Approach		20	6.0	0.054	13.7	LOS A	0.2	1.4	0.72	0.87	44.1
East: Canterbury Road											
4	L2	25	6.0	0.553	5.6	LOS A	0.0	0.0	0.00	0.01	56.5
5	T1	2049	6.0	0.553	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		2075	6.0	0.553	0.1	NA	0.0	0.0	0.00	0.01	59.6
West: Canterbury Road											
11	T1	1526	6.0	0.462	39.8	LOS C	26.1	192.1	0.43	0.01	28.7
12	R2	9	6.0	0.462	97.6	LOS F	26.1	192.1	1.00	0.02	22.7
Approach		1536	6.0	0.462	40.2	NA	26.1	192.1	0.44	0.01	28.7
All Vehicles		3631	6.0	0.553	17.1	NA	26.1	192.1	0.19	0.01	40.9

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2014 AM Existing

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	1298	6.0	0.483	24.2	LOS B	14.2	104.5	0.30	0.02	42.8
6	R2	27	6.0	0.483	85.9	LOS F	14.2	104.5	1.00	0.08	24.5
Approach		1325	6.0	0.483	25.5	NA	14.2	104.5	0.32	0.02	42.2
North: Charles Street											
7	L2	22	6.0	1.806	1224.6	LOS F	13.9	102.2	1.00	1.84	2.8
9	R2	11	6.0	1.806	1224.7	LOS F	13.9	102.2	1.00	1.84	2.8
Approach		33	6.0	1.806	1224.7	LOS F	13.9	102.2	1.00	1.84	2.8
West: Canterbury Road											
10	L2	49	6.0	0.496	5.7	LOS A	0.0	0.0	0.00	0.03	57.7
11	T1	1809	6.0	0.496	0.1	LOS A	0.0	0.0	0.00	0.02	59.7
Approach		1859	6.0	0.496	0.2	NA	0.0	0.0	0.00	0.02	59.6
All Vehicles		3217	6.0	1.806	23.1	NA	14.2	104.5	0.14	0.04	43.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2014 PM Existing

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	2055	6.0	0.586	25.1	LOS B	21.3	156.8	0.46	0.01	42.4
6	R2	15	6.0	0.586	59.5	LOS E	21.3	156.8	1.00	0.02	29.8
Approach		2069	6.0	0.586	25.3	NA	21.3	156.8	0.47	0.01	42.3
North: Charles Street											
7	L2	18	6.0	1.261	788.0	LOS F	7.0	51.5	1.00	1.61	4.3
9	R2	7	6.0	1.261	788.0	LOS F	7.0	51.5	1.00	1.61	4.3
Approach		25	6.0	1.261	788.0	LOS F	7.0	51.5	1.00	1.61	4.3
West: Canterbury Road											
10	L2	28	6.0	0.412	5.7	LOS A	0.0	0.0	0.00	0.02	57.8
11	T1	1518	6.0	0.412	0.1	LOS A	0.0	0.0	0.00	0.01	59.8
Approach		1546	6.0	0.412	0.2	NA	0.0	0.0	0.00	0.01	59.7
All Vehicles		3641	6.0	1.261	19.9	NA	21.3	156.8	0.27	0.02	45.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2014 AM Existing

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 140 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	6	6.0	0.466	19.0	LOS B	18.7	137.7	0.53	0.49	45.9
5	T1	859	6.0	0.466	19.0	LOS B	18.7	137.7	0.62	0.55	39.5
6a	R1	19	0.0	0.466	35.6	LOS C	15.5	114.1	0.78	0.68	37.3
Approach		884	5.9	0.466	19.4	LOS B	18.7	137.7	0.62	0.55	39.5
NorthEast: Jeffrey Street											
24b	L3	35	0.0	0.671	73.1	LOS F	8.7	63.4	1.00	0.83	26.2
24	L2	12	6.0	0.671	72.3	LOS F	8.7	63.4	1.00	0.83	25.2
26a	R1	212	6.0	0.671	70.8	LOS F	9.0	66.5	1.00	0.83	16.0
Approach		259	5.2	0.671	71.2	LOS F	9.0	66.5	1.00	0.83	17.8
NorthWest: Broughton Street											
27a	L1	30	6.0	0.182	65.9	LOS E	2.2	16.4	0.95	0.72	27.4
28	T1	5	6.0	0.182	62.5	LOS E	2.2	16.4	0.95	0.72	26.4
29b	R3	85	6.0	0.521	71.5	LOS F	5.7	42.0	0.99	0.78	17.0
Approach		120	6.0	0.521	69.7	LOS E	5.7	42.0	0.98	0.76	20.1
West: Canterbury Road											
10b	L3	36	6.0	0.873	37.7	LOS C	55.8	410.9	0.93	0.90	29.2
10a	L1	256	6.0	0.873	35.7	LOS C	55.8	410.9	0.93	0.90	29.1
11	T1	1549	6.0	0.873	31.0	LOS C	56.4	414.9	0.93	0.90	32.4
Approach		1841	6.0	0.873	31.8	LOS C	56.4	414.9	0.93	0.90	31.8
All Vehicles		3104	5.9	0.873	33.0	LOS C	56.4	414.9	0.85	0.79	30.5

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	8.9	LOS A	0.1	0.1	0.36	0.36
P2	East Full Crossing	50	64.3	LOS F	0.2	0.2	0.96	0.96
P6	NorthEast Full Crossing	50	4.4	LOS A	0.0	0.0	0.25	0.25
P7	NorthWest Full Crossing	50	63.3	LOS F	0.2	0.2	0.95	0.95
P4	West Full Crossing	50	64.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		250	41.0	LOS E			0.70	0.70

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

MOVEMENT SUMMARY

Site: 2014 PM Existing

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	7	6.0	0.772	26.3	LOS B	33.1	243.5	0.84	0.77	42.0
5	T1	1489	6.0	0.772	21.4	LOS B	33.1	243.5	0.86	0.78	38.0
6a	R1	13	0.0	0.772	27.6	LOS B	30.2	222.0	0.88	0.78	40.7
Approach		1509	5.9	0.772	21.5	LOS B	33.1	243.5	0.86	0.78	38.0
NorthEast: Jeffrey Street											
24b	L3	19	0.0	0.697	57.1	LOS E	9.3	67.9	1.00	0.86	29.6
24	L2	19	6.0	0.697	56.3	LOS D	9.3	67.9	1.00	0.86	28.3
26a	R1	308	6.0	0.697	54.8	LOS D	9.4	69.4	1.00	0.86	18.1
Approach		346	5.7	0.697	55.0	LOS D	9.4	69.4	1.00	0.86	19.3
NorthWest: Broughton Street											
27a	L1	9	6.0	0.093	48.8	LOS D	1.1	8.1	0.91	0.67	31.8
28	T1	14	6.0	0.093	45.5	LOS D	1.1	8.1	0.91	0.67	30.6
29b	R3	156	6.0	0.751	59.5	LOS E	8.8	64.5	1.00	0.89	18.8
Approach		179	6.0	0.751	57.9	LOS E	8.8	64.5	0.99	0.86	20.3
West: Canterbury Road											
10b	L3	16	6.0	0.845	40.3	LOS C	36.5	268.8	0.96	0.93	28.1
10a	L1	283	6.0	0.845	38.3	LOS C	36.5	268.8	0.96	0.93	28.0
11	T1	1118	6.0	0.845	33.7	LOS C	36.9	271.8	0.96	0.93	31.1
Approach		1417	6.0	0.845	34.7	LOS C	36.9	271.8	0.96	0.93	30.4
All Vehicles		3451	5.9	0.845	32.1	LOS C	36.9	271.8	0.92	0.85	30.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	11.4	LOS B	0.1	0.1	0.46	0.46
P2	East Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
P6	NorthEast Full Crossing	50	5.6	LOS A	0.0	0.0	0.32	0.32
P7	NorthWest Full Crossing	50	48.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		250	32.8	LOS D			0.72	0.72

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

Appendix B

Masterplan Drawings

DRAFT

Urban Design Study
15 Close Street
Canterbury NSW

9th May 2014

olsson& associates architects PTY LTD

olsson&
associates**architects**PTY LTD

Masterplan

Masterplan Site Layout

The following Design Principles are derived from the Site Analysis, the Canterbury Town Centre and Riverfront Precinct Masterplan, the City of Canterbury's Community Facilities Plan and residential design principles based on the SEPP 65 Residential Flat Design Code.

Design Principles for the Masterplan

The Masterplan :

- Provides pedestrian links from Canterbury Railway Station, adjacent to the railway line and through the site, to the riverfront parklands;
- Provides a Community Facility building to meet the Community Facility needs identified by the City of Canterbury;
- Locates a Public Square adjacent to the Community Facility building. This square incorporates some of the largest existing trees on the site into a well landscaped square with multiple pedestrian through site links;
- Creates a communal courtyard with multiple openings between buildings;
- Retains most of the existing trees on site, to place the future development in a well-landscaped setting;
- Creates a substantial building setback from Close Street, that is appropriate to its location opposite the riverfront parklands. This is a greater building setback than other more urban sites to the west of the site in Close Street.
- Makes a transition of building height from the 6 to 8 storeys in Canterbury Town Centre to the 3 to 5 storeys in the residential buildings to the east of the site;
- Complies with the SEPP 65 Residential Flat Design Code rules of thumb for solar access and natural cross ventilation to apartments, building depths, building separations and the like.

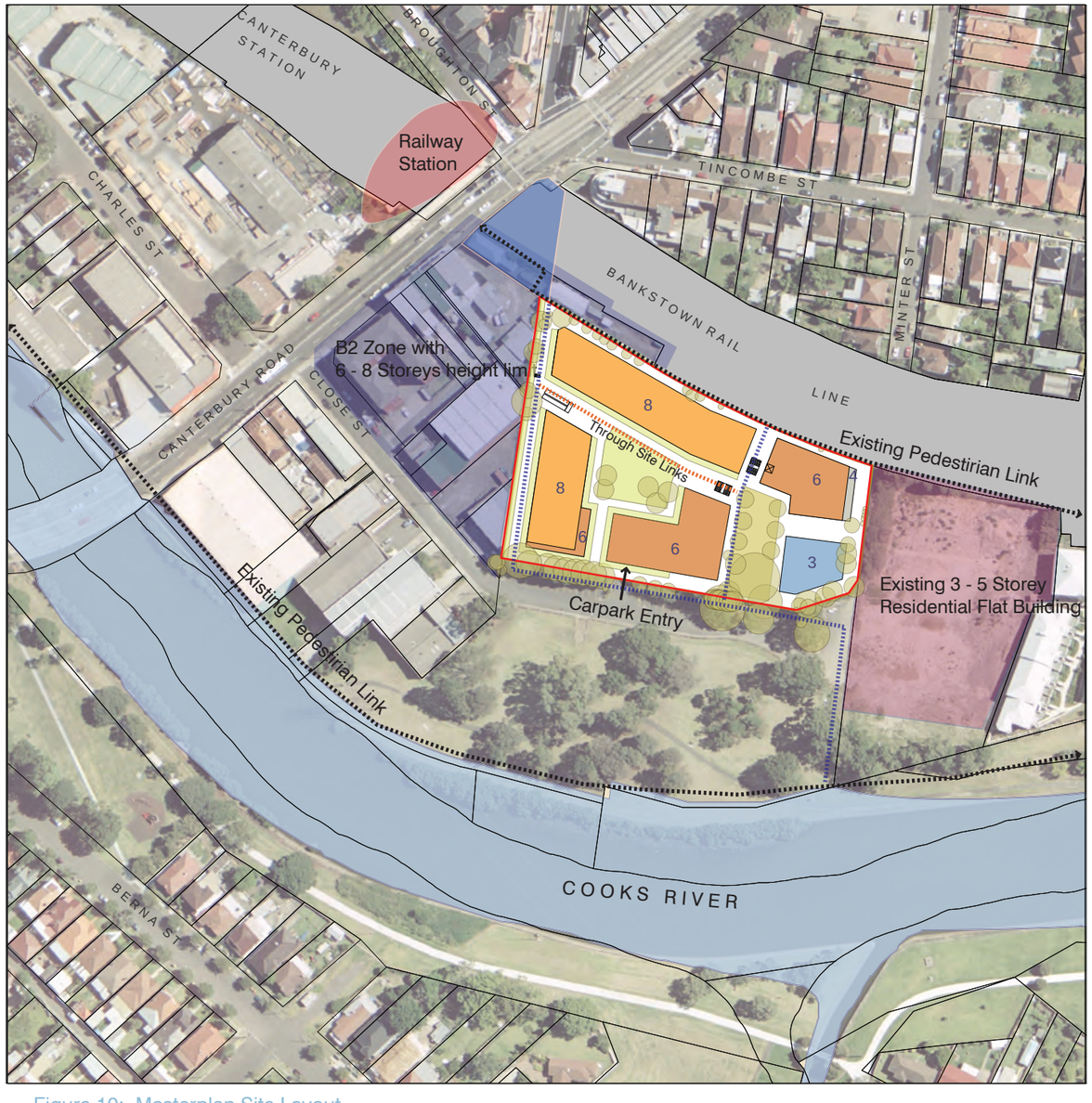
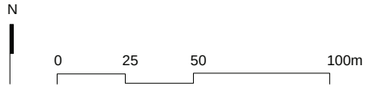


Figure 10: Masterplan Site Layout



Masterplan Building Envelopes

The Masterplan building envelopes contain residential apartments and Community Facilities as noted. The envelopes are designed to comply with the SEPP 65 Residential Flat Design Code rules of thumb for solar access and natural cross ventilation to apartments, building depths, building separations and the like.

Proposed Masterplan Building Envelopes

- 8 Storeys Residential
- 6 Storeys Residential
- 3 Storeys Community Facilities

DCP Building Envelopes for future development

- 8 Storeys
- 6 Storeys
- 3 Storeys

Context

- Existing Buildings
- 6 Height of Buildings (No. of Storeys)
- Open Space
- Cooks River
- Bankstown Railway Line

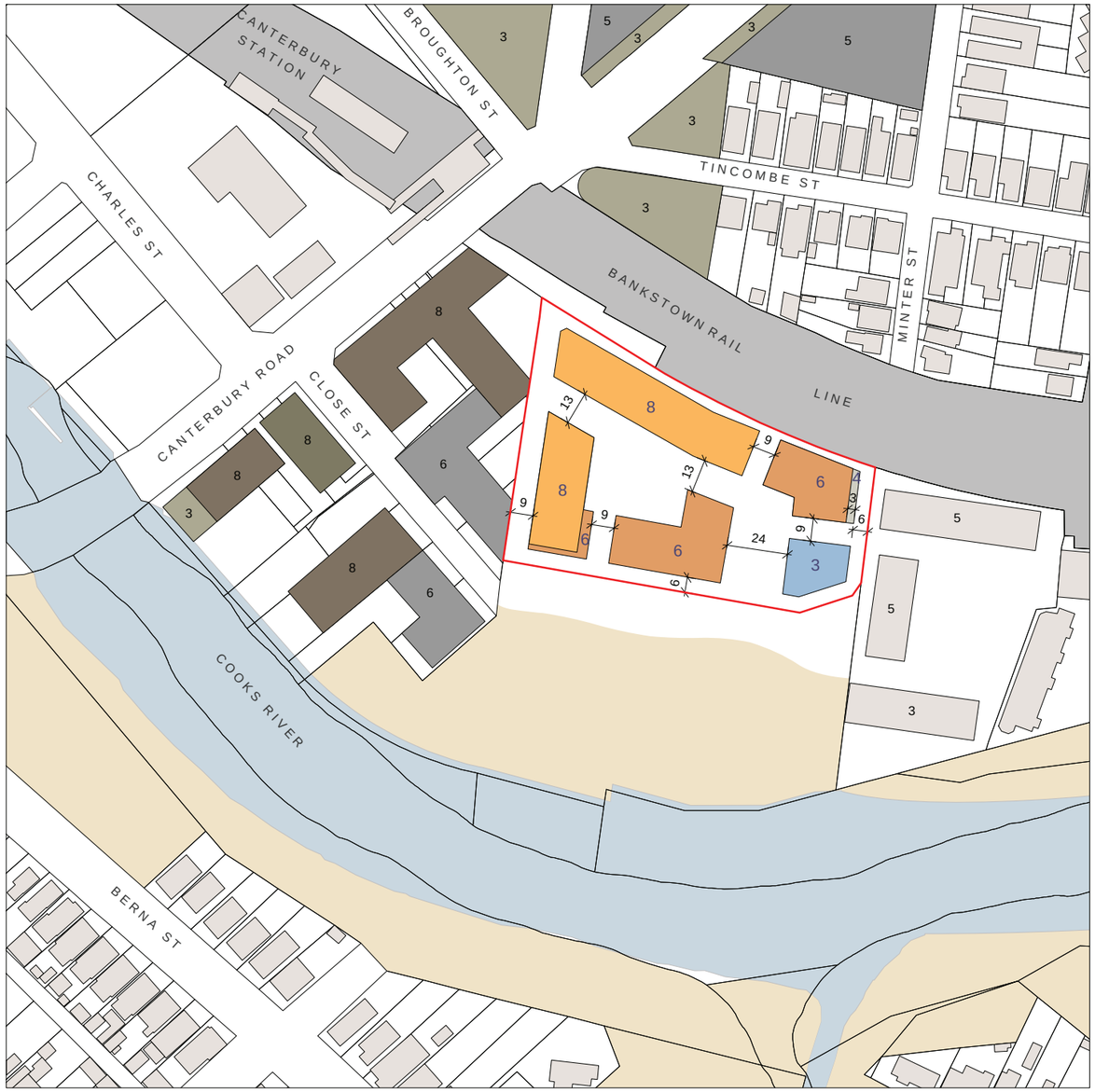


Figure 11: Proposed 2D building envelopes with future DCP 2012 building envelopes and existing buildings

Appendix C

Results of SIDRA Modelling - Future Intersection Performances (Existing Configurations)

MOVEMENT SUMMARY

Site: 2016 AM No Development

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	22	6.0	0.035	8.7	LOS A	0.1	1.0	0.56	0.69	47.0
Approach		22	6.0	0.035	8.7	LOS A	0.1	1.0	0.56	0.69	47.0
East: Canterbury Road											
4	L2	8	6.0	0.364	5.6	LOS A	0.0	0.0	0.00	0.01	56.7
5	T1	1356	6.0	0.364	0.0	LOS A	0.0	0.0	0.00	0.00	59.8
Approach		1364	6.0	0.364	0.0	NA	0.0	0.0	0.00	0.00	59.8
West: Canterbury Road											
11	T1	1896	6.0	0.519	13.3	LOS A	15.0	110.5	0.49	0.01	43.9
12	R2	8	6.0	0.519	32.9	LOS C	15.0	110.5	1.00	0.01	38.2
Approach		1904	6.0	0.519	13.4	NA	15.0	110.5	0.49	0.01	43.9
All Vehicles		3291	6.0	0.519	7.9	NA	15.0	110.5	0.29	0.01	49.3

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 AM With Development

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	79	6.0	0.123	8.9	LOS A	0.5	3.6	0.58	0.76	46.9
Approach		79	6.0	0.123	8.9	LOS A	0.5	3.6	0.58	0.76	46.9
East: Canterbury Road											
4	L2	26	6.0	0.369	5.6	LOS A	0.0	0.0	0.00	0.02	56.5
5	T1	1356	6.0	0.369	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		1382	6.0	0.369	0.1	NA	0.0	0.0	0.00	0.01	59.7
West: Canterbury Road											
11	T1	1896	6.0	0.548	13.9	LOS A	15.2	111.5	0.46	0.02	43.4
12	R2	26	6.0	0.548	35.9	LOS C	15.2	111.5	1.00	0.04	37.0
Approach		1922	6.0	0.548	14.2	NA	15.2	111.5	0.46	0.02	43.2
All Vehicles		3383	6.0	0.548	8.3	NA	15.2	111.5	0.28	0.03	48.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 PM No Development

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	20	6.0	0.058	14.7	LOS B	0.2	1.5	0.74	0.88	43.6
Approach		20	6.0	0.058	14.7	LOS B	0.2	1.5	0.74	0.88	43.6
East: Canterbury Road											
4	L2	25	6.0	0.575	5.6	LOS A	0.0	0.0	0.00	0.01	56.5
5	T1	2132	6.0	0.575	0.0	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		2157	6.0	0.575	0.1	NA	0.0	0.0	0.00	0.01	59.6
West: Canterbury Road											
11	T1	1587	6.0	0.489	49.1	LOS D	31.4	231.3	0.42	0.01	25.6
12	R2	9	6.0	0.489	122.0	LOS F	31.4	231.3	1.00	0.02	19.7
Approach		1597	6.0	0.489	49.5	NA	31.4	231.3	0.42	0.01	25.5
All Vehicles		3774	6.0	0.575	21.1	NA	31.4	231.3	0.18	0.01	38.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 PM With Development

Canterbury Road / Close Street Intersection
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Close Street											
1	L2	54	6.0	0.150	14.8	LOS B	0.6	4.1	0.76	0.88	43.6
Approach		54	6.0	0.150	14.8	LOS B	0.6	4.1	0.76	0.88	43.6
East: Canterbury Road											
4	L2	59	6.0	0.584	5.6	LOS A	0.0	0.0	0.00	0.03	56.2
5	T1	2132	6.0	0.584	0.0	LOS A	0.0	0.0	0.00	0.02	59.5
Approach		2191	6.0	0.584	0.2	NA	0.0	0.0	0.00	0.02	59.4
West: Canterbury Road											
11	T1	1587	6.0	0.589	47.2	LOS D	27.5	202.6	0.30	0.02	26.2
12	R2	22	6.0	0.589	161.0	LOS F	27.5	202.6	1.00	0.05	16.3
Approach		1609	6.0	0.589	48.7	NA	27.5	202.6	0.31	0.02	25.8
All Vehicles		3854	6.0	0.589	20.7	NA	27.5	202.6	0.14	0.03	38.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 AM No Development

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	1349	6.0	0.522	28.1	LOS B	16.0	117.6	0.27	0.02	41.0
6	R2	27	6.0	0.522	107.6	LOS F	16.0	117.6	1.00	0.08	21.4
Approach		1377	6.0	0.522	29.7	NA	16.0	117.6	0.29	0.02	40.2
North: Charles Street											
7	L2	22	6.0	1.809	1210.3	LOS F	13.8	101.6	1.00	1.84	2.9
9	R2	11	6.0	1.809	1210.3	LOS F	13.8	101.6	1.00	1.84	2.9
Approach		33	6.0	1.809	1210.3	LOS F	13.8	101.6	1.00	1.84	2.9
West: Canterbury Road											
10	L2	49	6.0	0.515	5.7	LOS A	0.0	0.0	0.00	0.03	57.6
11	T1	1882	6.0	0.515	0.1	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		1932	6.0	0.515	0.2	NA	0.0	0.0	0.00	0.02	59.6
All Vehicles		3341	6.0	1.809	24.2	NA	16.0	117.6	0.13	0.04	42.8

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 AM With Development

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	1361	6.0	0.725	0.2	LOS A	0.0	0.0	0.00	0.00	59.6
6	R2	73	6.0	0.914	130.0	LOS F	3.8	27.9	0.99	1.24	18.4
Approach		1434	6.0	0.914	6.8	NA	3.8	27.9	0.05	0.06	53.5
North: Charles Street											
7	L2	22	6.0	1.810	1197.4	LOS F	13.7	100.7	1.00	1.86	2.9
9	R2	11	6.0	1.810	1197.4	LOS F	13.7	100.7	1.00	1.86	2.9
Approach		33	6.0	1.810	1197.4	LOS F	13.7	100.7	1.00	1.86	2.9
West: Canterbury Road											
10	L2	49	6.0	0.520	5.7	LOS A	0.0	0.0	0.00	0.03	57.6
11	T1	1900	6.0	0.520	0.1	LOS A	0.0	0.0	0.00	0.01	59.7
Approach		1949	6.0	0.520	0.2	NA	0.0	0.0	0.00	0.02	59.6
All Vehicles		3416	6.0	1.810	14.4	NA	13.7	100.7	0.03	0.05	48.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 PM No Development

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	2137	6.0	0.613	30.2	LOS C	24.5	180.1	0.46	0.01	40.0
6	R2	15	6.0	0.613	70.8	LOS F	24.5	180.1	1.00	0.02	27.3
Approach		2152	6.0	0.613	30.5	NA	24.5	180.1	0.47	0.01	39.9
North: Charles Street											
7	L2	18	6.0	1.263	774.4	LOS F	6.9	51.0	1.00	1.60	4.3
9	R2	7	6.0	1.263	774.4	LOS F	6.9	51.0	1.00	1.60	4.3
Approach		25	6.0	1.263	774.4	LOS F	6.9	51.0	1.00	1.60	4.3
West: Canterbury Road											
10	L2	28	6.0	0.429	5.7	LOS A	0.0	0.0	0.00	0.02	57.8
11	T1	1579	6.0	0.429	0.1	LOS A	0.0	0.0	0.00	0.01	59.8
Approach		1607	6.0	0.429	0.2	NA	0.0	0.0	0.00	0.01	59.7
All Vehicles		3784	6.0	1.263	22.6	NA	24.5	180.1	0.27	0.02	43.7

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 PM With Development

Canterbury Road / Charles Street
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
5	T1	2143	6.0	0.698	33.5	LOS C	24.6	181.0	0.39	0.02	38.6
6	R2	42	6.0	0.698	91.5	LOS F	24.6	181.0	1.00	0.06	23.6
Approach		2185	6.0	0.698	34.6	NA	24.6	181.0	0.40	0.03	38.1
North: Charles Street											
7	L2	18	6.0	1.263	773.6	LOS F	6.9	51.1	1.00	1.60	4.3
9	R2	7	6.0	1.263	773.7	LOS F	6.9	51.1	1.00	1.60	4.3
Approach		25	6.0	1.263	773.6	LOS F	6.9	51.1	1.00	1.60	4.3
West: Canterbury Road											
10	L2	28	6.0	0.432	5.7	LOS A	0.0	0.0	0.00	0.02	57.8
11	T1	1592	6.0	0.432	0.1	LOS A	0.0	0.0	0.00	0.01	59.8
Approach		1620	6.0	0.432	0.2	NA	0.0	0.0	0.00	0.01	59.7
All Vehicles		3831	6.0	1.263	24.9	NA	24.6	181.0	0.23	0.03	42.4

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 2016 AM No Development

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	6	6.0	0.481	18.5	LOS B	20.5	151.2	0.51	0.47	46.1
5	T1	893	6.0	0.481	19.0	LOS B	20.5	151.2	0.60	0.54	39.5
6a	R1	20	0.0	0.481	37.7	LOS C	16.5	121.4	0.78	0.68	36.5
Approach		919	5.9	0.481	19.4	LOS B	20.5	151.2	0.61	0.54	39.5
NorthEast: Jeffrey Street											
24b	L3	36	0.0	0.744	80.6	LOS F	9.9	72.0	1.00	0.87	24.9
24	L2	12	6.0	0.744	79.8	LOS F	9.9	72.0	1.00	0.87	23.9
26a	R1	220	6.0	0.744	78.3	LOS F	10.3	75.5	1.00	0.87	15.2
Approach		268	5.2	0.744	78.7	LOS F	10.3	75.5	1.00	0.87	16.9
NorthWest: Broughton Street											
27a	L1	31	6.0	0.201	71.5	LOS F	2.5	18.2	0.95	0.72	26.3
28	T1	5	6.0	0.201	68.1	LOS E	2.5	18.2	0.95	0.72	25.4
29b	R3	88	6.0	0.578	77.6	LOS F	6.4	47.1	1.00	0.79	16.3
Approach		124	6.0	0.578	75.7	LOS F	6.4	47.1	0.99	0.77	19.2
West: Canterbury Road											
10b	L3	37	6.0	0.865	33.5	LOS C	57.3	421.6	0.91	0.87	30.9
10a	L1	266	6.0	0.865	31.5	LOS C	57.3	421.6	0.91	0.87	30.8
11	T1	1611	6.0	0.865	26.8	LOS B	57.8	425.5	0.91	0.86	34.5
Approach		1914	6.0	0.865	27.6	LOS B	57.8	425.5	0.91	0.86	33.8
All Vehicles		3225	5.9	0.865	31.3	LOS C	57.8	425.5	0.83	0.77	31.2

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	8.4	LOS A	0.1	0.1	0.33	0.33
P2	East Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96
P6	NorthEast Full Crossing	50	4.1	LOS A	0.0	0.0	0.23	0.23
P7	NorthWest Full Crossing	50	68.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		250	43.9	LOS E			0.69	0.69

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

MOVEMENT SUMMARY

Site: 2016 AM With Development

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 150 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	6	6.0	0.488	18.6	LOS B	21.0	154.6	0.52	0.48	46.1
5	T1	911	6.0	0.488	19.2	LOS B	21.0	154.6	0.61	0.55	39.4
6a	R1	20	0.0	0.488	37.8	LOS C	17.1	125.3	0.79	0.68	36.5
Approach		937	5.9	0.488	19.6	LOS B	21.0	154.6	0.61	0.55	39.4
NorthEast: Jeffrey Street											
24b	L3	36	0.0	0.744	80.6	LOS F	9.9	72.0	1.00	0.87	24.9
24	L2	12	6.0	0.744	79.8	LOS F	9.9	72.0	1.00	0.87	23.9
26a	R1	220	6.0	0.744	78.3	LOS F	10.3	75.5	1.00	0.87	15.2
Approach		268	5.2	0.744	78.7	LOS F	10.3	75.5	1.00	0.87	16.9
NorthWest: Broughton Street											
27a	L1	65	6.0	0.391	73.3	LOS F	4.9	36.3	0.98	0.76	25.9
28	T1	5	6.0	0.391	69.9	LOS E	4.9	36.3	0.98	0.76	25.0
29b	R3	88	6.0	0.578	77.6	LOS F	6.4	47.1	1.00	0.79	16.3
Approach		158	6.0	0.578	75.5	LOS F	6.4	47.1	0.99	0.78	20.6
West: Canterbury Road											
10b	L3	37	6.0	0.865	33.5	LOS C	57.3	421.6	0.91	0.87	30.9
10a	L1	266	6.0	0.865	31.5	LOS C	57.3	421.6	0.91	0.87	30.8
11	T1	1611	6.0	0.865	26.8	LOS B	57.8	425.5	0.91	0.86	34.5
Approach		1914	6.0	0.865	27.6	LOS B	57.8	425.5	0.91	0.86	33.8
All Vehicles		3277	5.9	0.865	31.8	LOS C	57.8	425.5	0.83	0.77	31.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	8.4	LOS A	0.1	0.1	0.33	0.33
P2	East Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96
P6	NorthEast Full Crossing	50	4.1	LOS A	0.0	0.0	0.23	0.23
P7	NorthWest Full Crossing	50	68.3	LOS F	0.2	0.2	0.96	0.96
P4	West Full Crossing	50	69.3	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		250	43.9	LOS E			0.69	0.69

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

MOVEMENT SUMMARY

Site: 2016 PM No Development

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	7	6.0	0.808	27.6	LOS B	36.4	267.8	0.87	0.81	41.4
5	T1	1549	6.0	0.808	23.5	LOS B	36.4	267.8	0.89	0.82	36.7
6a	R1	14	0.0	0.808	30.6	LOS C	33.5	246.3	0.91	0.84	39.3
Approach		1570	5.9	0.808	23.6	LOS B	36.4	267.8	0.89	0.82	36.7
NorthEast: Jeffrey Street											
24b	L3	20	0.0	0.726	57.9	LOS E	9.8	71.5	1.00	0.88	29.4
24	L2	20	6.0	0.726	57.1	LOS E	9.8	71.5	1.00	0.88	28.2
26a	R1	320	6.0	0.726	55.6	LOS D	9.9	73.1	1.00	0.88	18.0
Approach		360	5.7	0.726	55.8	LOS D	9.9	73.1	1.00	0.88	19.2
NorthWest: Broughton Street											
27a	L1	9	6.0	0.097	48.8	LOS D	1.1	8.4	0.91	0.67	31.8
28	T1	15	6.0	0.097	45.5	LOS D	1.1	8.4	0.91	0.67	30.6
29b	R3	162	6.0	0.780	60.8	LOS E	9.3	68.1	1.00	0.91	18.6
Approach		186	6.0	0.780	59.0	LOS E	9.3	68.1	0.99	0.88	20.2
West: Canterbury Road											
10b	L3	17	6.0	0.879	45.5	LOS D	41.4	304.7	0.98	0.99	26.3
10a	L1	294	6.0	0.879	43.5	LOS D	41.4	304.7	0.98	0.99	26.2
11	T1	1163	6.0	0.879	38.9	LOS C	41.8	308.0	0.98	1.00	29.0
Approach		1474	6.0	0.879	39.9	LOS C	41.8	308.0	0.98	0.99	28.4
All Vehicles		3590	5.9	0.879	35.3	LOS C	41.8	308.0	0.94	0.90	29.1

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	11.4	LOS B	0.1	0.1	0.46	0.46
P2	East Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
P6	NorthEast Full Crossing	50	5.6	LOS A	0.0	0.0	0.32	0.32
P7	NorthWest Full Crossing	50	48.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		250	32.8	LOS D			0.72	0.72

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

MOVEMENT SUMMARY

Site: 2016 PM With Development

Canterbury Road / Jeffrey Street / Broughton Street
Signals - Fixed Time Cycle Time = 110 seconds (Practical Cycle Time)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Canterbury Road											
4b	L3	7	6.0	0.823	28.9	LOS C	38.5	283.0	0.88	0.83	40.8
5	T1	1580	6.0	0.823	24.6	LOS B	38.5	283.0	0.90	0.85	36.0
6a	R1	14	0.0	0.823	31.5	LOS C	35.2	259.1	0.92	0.87	39.0
Approach		1601	5.9	0.823	24.7	LOS B	38.5	283.0	0.90	0.85	36.1
NorthEast: Jeffrey Street											
24b	L3	20	0.0	0.726	57.9	LOS E	9.8	71.5	1.00	0.88	29.4
24	L2	20	6.0	0.726	57.1	LOS E	9.8	71.5	1.00	0.88	28.2
26a	R1	320	6.0	0.726	55.6	LOS D	9.9	73.1	1.00	0.88	18.0
Approach		360	5.7	0.726	55.8	LOS D	9.9	73.1	1.00	0.88	19.2
NorthWest: Broughton Street											
27a	L1	30	6.0	0.183	49.7	LOS D	2.2	16.1	0.92	0.71	31.3
28	T1	15	6.0	0.183	46.3	LOS D	2.2	16.1	0.92	0.71	30.1
29b	R3	162	6.0	0.780	60.8	LOS E	9.3	68.1	1.00	0.91	18.6
Approach		207	6.0	0.780	58.1	LOS E	9.3	68.1	0.98	0.86	21.2
West: Canterbury Road											
10b	L3	17	6.0	0.879	45.5	LOS D	41.4	304.7	0.98	0.99	26.3
10a	L1	294	6.0	0.879	43.5	LOS D	41.4	304.7	0.98	0.99	26.2
11	T1	1163	6.0	0.879	38.9	LOS C	41.8	308.0	0.98	1.00	29.0
Approach		1474	6.0	0.879	39.9	LOS C	41.8	308.0	0.98	0.99	28.4
All Vehicles		3642	5.9	0.879	35.8	LOS C	41.8	308.0	0.95	0.91	29.0

Level of Service (LOS) Method: Delay (RTA NSW).
Vehicle movement LOS values are based on average delay per movement
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P5	SouthEast Full Crossing	50	11.4	LOS B	0.1	0.1	0.46	0.46
P2	East Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
P6	NorthEast Full Crossing	50	5.6	LOS A	0.0	0.0	0.32	0.32
P7	NorthWest Full Crossing	50	48.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	50	49.3	LOS E	0.1	0.1	0.95	0.95
All Pedestrians		250	32.8	LOS D			0.72	0.72

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